Administration Guide for Dynamics CRM 2016

Version: 8.0

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Administering CRM 2016

Applies To: CRM 2016 on-prem, CRM Online

IT Pros and CRM administrators can use the resources and topics provided in this section to help them manage and configure Microsoft Dynamics CRM 2016 and Microsoft Dynamics CRM Online 2016 Update.

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Related Sections

Referenced topic 'fdcb7532-2a86-462e-aaa1-c59cbbc85d33' is not in the TOC.

Microsoft Dynamics CRM Help & Training

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What's new for administrators and customizers in Microsoft Dynamics CRM 2016 and CRM Online

Applies To: Dynamics CRM 2016, Dynamics CRM Online

We're excited to introduce these new features for Microsoft Dynamics CRM Online 2016 Update 1 and Microsoft Dynamics CRM 2016 Service Pack 1. For end user features in this release, see: CRM Help & Training: What's new. If you're a developer, see: Referenced topic 'c0f1a55e-9262-404c-bfb0-78b250e577aa' is not in the TOC..

What's new in CRM Online 2016 Update 1 and CRM 2016 Service Pack 1

- In-app guidance increases user adoption and productivity (CRM Online)
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- CRM App for Outlook available for CRM on-premises
- Customer field for any entity
- New datacenter in India (CRM Online)
- Package Deployer tool now runs from a command prompt

In-app guidance increases user adoption and productivity (CRM Online)

In this release, we're introducing Learning Path, a new guided user experience that provides context-sensitive, interactive, and scenario-based guided tasks and sidebars personalized to the user, their lifecycle stage, and role. Whether the user is participating in a trial, has just purchased, or has recently updated their service, Learning Path helps them onboard quickly, facilitates adoption, and improves productivity.

In this release, we're providing Learning Path guidance for onboarding, what's new, and frequent tasks such as lead management in the web and mobile apps.
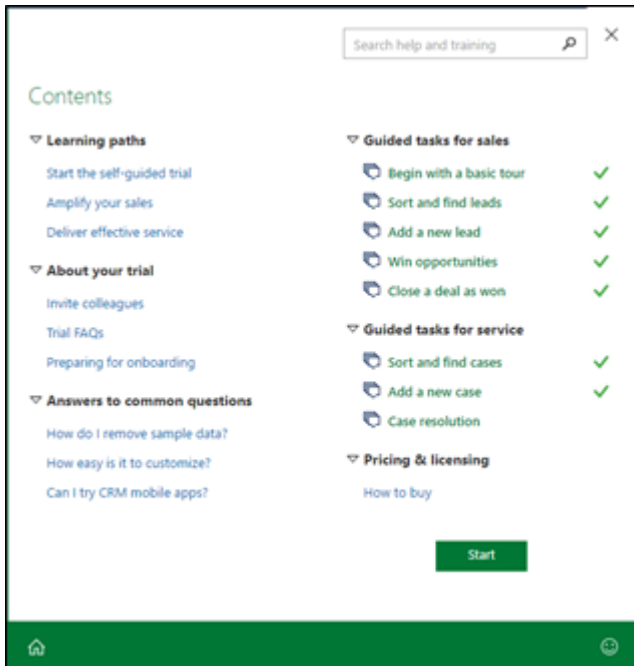
Self-service portals for an external non-CRM audience (CRM Online)

This release introduces the first Microsoft-published version of portal capabilities for CRM (integrating the acquisition of Adxstudio Portals). Portal capabilities for CRM empower the 84% majority who prefer to find answers on their own through self-service and community options.

 Note

This feature will be available soon after the initial public release of CRM Online 2016 Update 1.

Portal capabilities are provided as an add-on product for customers who upgrade to the latest version (CRM Online 2016 Update 1).

We're extending CRM to the web to include:

- Profile management capabilities
- Configurable business components
- Rich web content configuration capabilities
- Responsive design for desktop, tablet, and mobile

Customers can purchase portal instances as a CRM add-on in the Office 365 admin center. These portal instances can then be configured to work with their CRM Online instances. The provisioning system automatically deploys the portal solution to Azure.

Out-of-the-box portal solutions include:

- **Custom portal.** The starter portal is a basic portal that contains flows and pages common to all portals. It includes basic support content as well as custom applications to meet the specific support needs of different organizations, including login/authentication features and contact pages.
- **Customer Self-Service portal.** Lets customers access self-service knowledge and support resources, increasing customer satisfaction, reducing call center volumes, and ultimately allowing service agents to focus their efforts on issues of greatest impact.
- **Employee Self-Service portal.** Creates an efficient and well-informed workforce by streamlining common tasks and empowering every employee with a definitive source of knowledge. Employee self-service is now available worldwide using CRM and portal capabilities, and is available in all CRM Online markets.
- **Community portal.** Enables peer-to-peer interactions between experts in the community, subject matter experts within an organization, and internal and external users. Communities organically grow the catalog of available knowledge from knowledge base articles, forums, and blogs. Participants can provide feedback through rating and comments features. Contributors can also receive alerts on content revisions and workflow updates.
- **Partner portal.** Create an environment for interacting with your partners and collaborating on sales opportunities to provide products and services based on your customers' needs.

  Partner relationship management portal capabilities include:
  - Account and contact management
  - Channel opportunity management
  - Partner profiling
  - Opportunity distribution
  - Delegated administration

Feedback and ratings on entities

You can enable feedback on entities to allow customers to write feedback for any entity record, or rate the entity records within a range of allowed ratings. For example, enable feedback or ratings on the Case entity to receive feedback on the customer's support experience. When several customers rate a record, the ratings can be consolidated through a custom rollup field.

By default, feedback is enabled for the Knowledge Article entity and the rollup field is added to Knowledge Article entity.
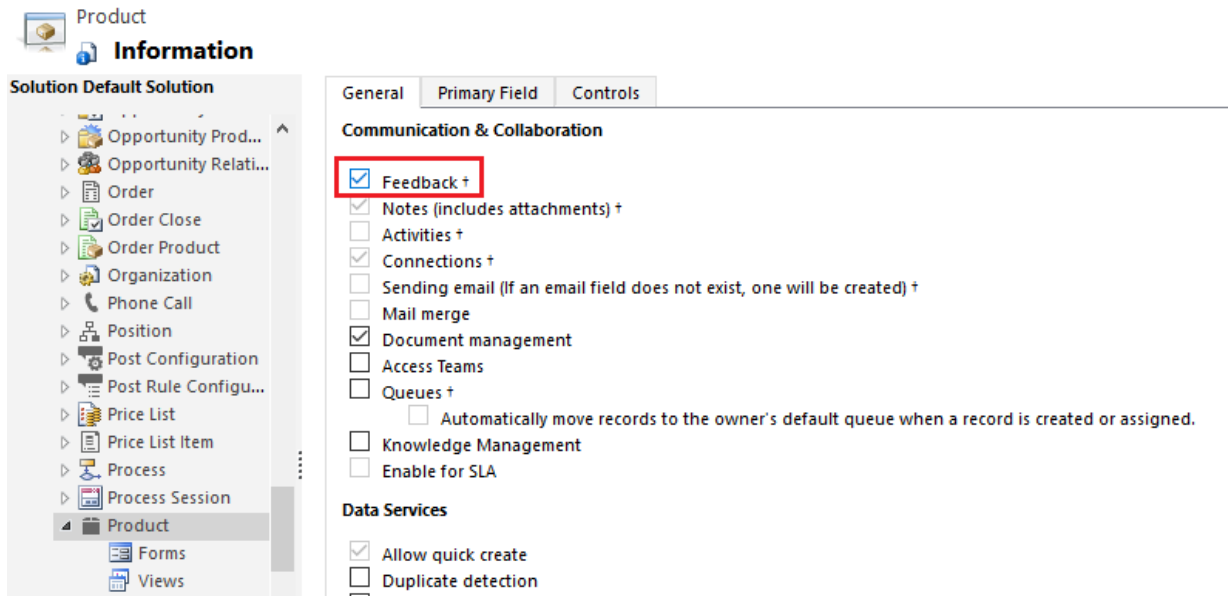
More information: [Enable an entity for feedback](#)

Project-based sales (CRM Online)

Project service capabilities for Microsoft Dynamics CRM provide an end-to-end solution that empowers organizations to deliver project-based engagements on time and within budget. Project service capabilities help you:

- Estimate, quote, and contract work

- Plan and assign resources

- Enable team collaboration

- Capture time, expense, and progress data for real-time insights and accurate invoicing

📝 **Note**

Project service capabilities are provided as an add-on product for customers who upgrade to the latest version (CRM Online 2016 Update 1).

Project service capabilities include:

- **Project-based contracts.** Project contracts relate quotes and orders to project plans, financial estimates, labor pricing, and billing arrangements, like time and materials or fixed price. The contract highlights key metrics, including profitability and feasibility.

- **Project planning.** Visual project planning and estimation includes predecessors, automatic task scheduling, and views of sales and cost information for time and expenses. You can use the resulting plan in quotes and project contracts.

- **Resource management.** Resource information includes the skills and proficiencies of your workforce. You can view and filter resources based on skills and availability, so you can assign the right people to the right projects. You can also track resource utilization and forecasting metrics.

- **Time and expenses.**Team members can use the web or mobile apps to record time and expenses for multiple projects. Managers can easily approve new entries while understanding the financial implications of the newly-approved items.

- **Project billing.** Project invoices reflect the terms of the contract and the approved work and expenses. The financial impact of project work, including costs, unbilled revenue, and invoices, is recorded for use in analytics and integration into financial systems.

Both project service capabilities and field service capabilities (see below) share a resource pool, with resource schedules appearing in both.

More information: Manage project-based sales with CRM project serivce

Enhanced Power BI integration

Enhanced Power BI integration lets you discover, analyze, and share data-sourced visualizations with colleagues. Power BI provides information workers adn everyday business users with data analysis and visualization capabilities to get better business insights.

Features available in this release include:

- New Service Content Pack includes several key service indicators such as cases created, cases resolved, satisfaction percentage, top agent leaders, and most used and viewed KB articles.

- Improved Sales Manager Content Pack includes OData (Open Data Protocol) version 4.0 support.

- The ability to embed Power BI titles directly from a CRM user dashboard without having to switch to the Power BI service.

More information: Embed Power BI tiles in your personal dashboard

Field service management (CRM Online)

Field service is an end-to-end solution that delivers advanced scheduling, inventory tracking, and asset management for service depots and highly mobile, in-field specialists who need to fulfill work orders and provide preventive maintenance across multiple sites under complex service agreements.

Note

Field service capabilities are provided as an add-on product for customers who upgrade to the latest version (CRM Online 2016 Update 1).

Field service capabilities include:

- **Characteristics and proficiency ratings.**You can define proficiency and competency levels and set them as requirements for a work order. Proficiency and competency levels are also part of the worker profile, so you can make an appropriate match when scheduling resources.

- **Detached schedule support.** Field service capabilities support time allocation outside of a work order. For example, a field tech can schedule time for lunch or supply provisioning without having to associate that time with an empty work order.

- **Out-of-the-box business processes.** The CRM incident management business process is closely aligned with the work order process. If a field service work order originates from a case, the originating case is visually part of that workflow, which spans from case creation through work order completion.

- **Mobile enhancements.** Drip scheduling enhances and de-clutters the user experience by displaying fewer upcoming work orders. It also improves dispatch control by limiting the number of declined work orders or change requests by field techs.

Both field service capabilities and project service capabilities (see above) share a resource pool, with resource schedules appearing in both.

More information: Install the Field service solution

Preview feature: CRM recommends products by using Azure Machine Learning

Imagine being able to make product recommendations to your customers when they select an item for purchase. When you connect CRM Online to the Azure Recommendations API using Azure Machine Learning, this becomes available to you. You can use the Recommendations API to build an advanced machine learning model for automatic cross-sell product recommendations based on historical transaction data. Once you add the product recommendations capability in CRM by using the Recommendations API, a native capability is added to the product catalog to generate automatic recommendations by configuring connectivity to the service. In addition, you set up the product catalog and synchronization to build a machine-learning-based recommendation model. You will then use this model to make recommendations in CRM transactions, such as opportunity, quote, or order level, to suggest additional cross-sell products and help improve the total value of the deal.

🖉 Note

Product recommendations is offered as a preview feature for CRM Online customers only. A preview feature is a feature that is not complete, but is made available before it's officially released so customers can get early access and provide feedback. Preview features aren't meant for production use and may have limited or restricted functionality. Preview features must be enabled by a CRM administrator.

More information: Preview feature: Create and manage models to make product recommendations

Preview feature: CRM suggests knowledge base articles by using Azure Machine Learning

You want your customer service reps to quickly resolve cases with high customer satisfaction. Using the Azure Machine Learning Text Analytics service with CRM Online, you can set up service case

analysis to automatically provide your support staff with more relevant solutions from the knowledge base. They spend less time searching for answers and more time providing the right response.

📝 Note
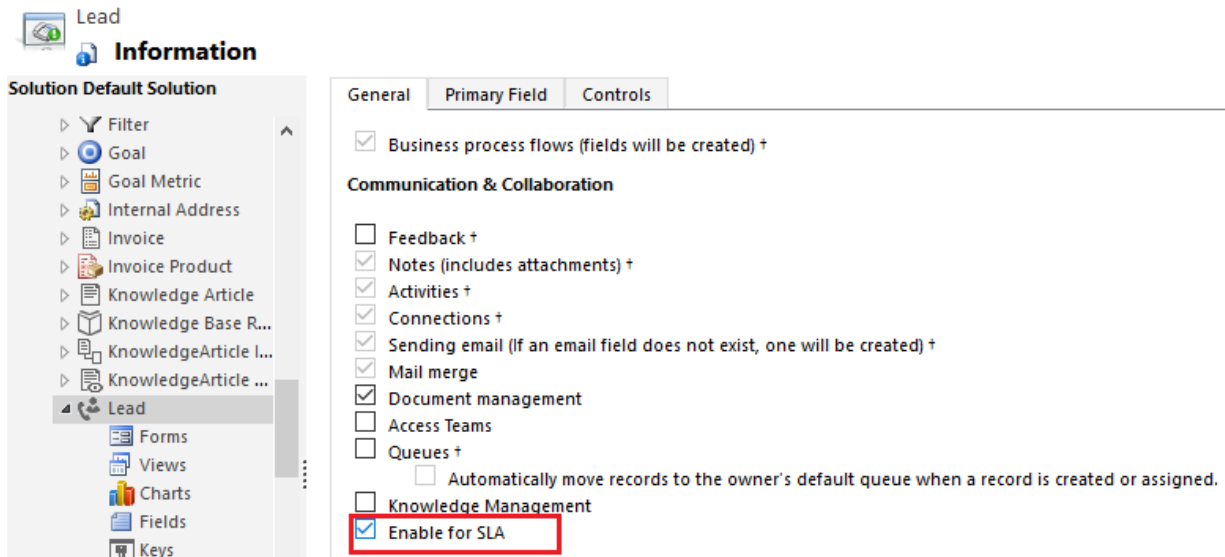
 Knowledge base suggestions is offered as a preview feature for CRM Online customers only. A preview feature is a feature that is not complete, but is made available before it's officially released so customers can get early access and provide feedback. Preview features aren't meant for production use and may have limited or restricted functionality. Preview features must be enabled by a CRM administrator.

More information: Preview feature: Automatically suggest knowledge articles

SLAs for any custom entity and other system entities

In previous releases of CRM, SLAs were enabled by default just for the Case entity. Now users can enable SLAs for any custom entity, and for any of the following system entities:

- All activity entities (such as Email, Task, and Appointment) except recurring appointments (RecurringAppointmentMaster)

- Account

- Contact

- Invoice

- Opportunity

- Quote

- Lead

- Order

More information: Enable entities for service level agreements (SLAs)

Interactive service hub enhancements

The interactive service hub can now be integrated with [Unified Service Desk](#) so users can open and control interactive service hub pages inside Unified Service Desk.

We have also enhanced the interactive service hub in other ways. You can now:

- Add iFrames and web resources to the interactive experience forms to support extensibility scenarios

- Configure the lookup field properties to show filtered records in the interactive experience forms

- Configure language filters in the Knowledge Article Search pane so Customer Service Reps can filter knowledge articles based on languages

- Add the SLA timer to the Main interactive experience form

We also made metadata sync improvements to reduce download times for users.

For more information on enhancements to the interactive service hub for customer service reps, see [What's new for end users](#).

Unified Service Desk enhancements

We've enhanced Unified Service Desk in several ways:

- **Interactive service hub integration.** The [interactive service hub](#) can now be integrated with Unified Service Desk so users can open and control interactive service hub pages inside Unified Service Desk.

- **Windows Update.** Unified Service Desk also supports Windows Update now. Windows Update is an easy and free way to help keep Microsoft applications (like the Unified Service Desk client) safer and running smoothly. Just turn it on, and you'll get the latest security and other important updates from Microsoft automatically, or you can choose to apply updates manually.

- **Demo packages.** New demo packages include samples for new Unified Service Desk environments, upgrading existing Unified Service Desk environments, interactive service hub integration, and Dynamics CRM 2013 or later web client.

- **Telemetry.** You can now help improve Unified Service Desk by sending usage data to Microsoft anonymously.

Rich mobile offline experience (CRM Online)

Mobile offline synchronization, an enhanced offline experience that goes further than the offline drafts experience, is now available for CRM Online customers. The new mobile offline capabilities provide a richer offline experience for end users, allowing them to view, update, and add records while using the mobile apps offline—without having to save changes or additions as drafts first. The new mobile offline experience also supports conflict detection.

More information: [Configure mobile offline synchronization for CRM for phones and tablets](#)

Mobile management enhancements

Dynamics CRM mobile applications for iOS and Android can now be managed by Intune Mobile Application Management (MAM) without enrolling the device. This protects company data in Dynamics

CRM without requiring IT to enroll and deeply manage the user's entire device. This is particularly useful for bring-your-own-device (BYOD) scenarios where end users don't want to or can't enroll their devices for IT management. This capability is also useful if a device is already enrolled in another MDM solution.

Mobile devices conditional access (CRM Online)

Use Azure with CRM Online to set up conditional access from mobile devices. You configure conditions for CRM access at the Azure Active Directory group level. For example, you might want to set up conditions that require multi-factor authentication for mobile users accessing CRM when they're not at work—or maybe you want to require it at all times. You can also set up conditions that require the user's mobile device to be compliant with your policies before the user can access CRM.

If you configure conditional access, before a user can connect to CRM, the device they use must be:

- Enrolled with Intune or a domain-joined PC

- Registered in Azure Active Directory (this happens automatically when the device is enrolled with Intune)

- Compliant with any System Center Configuration Manager compliance policies deployed to that device

If a conditional access condition is not met, the user receives one of the following messages when they sign in:

- If the device isn't enrolled with Intune, or isn't registered in Azure Active Directory, a message provides instructions about how to install the company portal app, enroll the device, and (for Android and iOS devices), activate email, which associates the device's Exchange ActiveSync ID with the device record in Azure Active Directory.

- If the device isn't compliant, a message directs the user to the Intune web portal where they can find information about the problem and how to remediate it.

 Note

To use conditional access, you must have an Azure Active Directory premium subscription.

More information: Secure and manage CRM for phones and tablets

Mobile app preparation is faster after customization

We made metadata generation improvements to reduce configuration times for mobile users after you customize your CRM system. The metadata package that's generated after you make customizations contains only the items that have changed. Instead of starting over if there's a problem downloading the metadata package, the download starts from where it left off the next time a user starts the app.

More information: Secure and manage CRM for phones and tablets

Keep track of company news from a mobile device (CRM Online)

The Company news and timeline solution lets users see the latest and most important news from Bing news on their mobile devices. News articles are organized by time (Today, This Week, Last Week) and contain the headline, date/time, and source of the news article. Important events are detected and categorized, including management changes, earnings releases, new offerings, cost cutting, growth, legal issues, acquisitions, and partnerships.

You can use a new custom control to add and configure a news feed for the mobile apps.

📝 Note

The Company news timeline solution is offered as a preview feature for CRM Online customers only. A preview feature is a feature that is not complete, but is made available before it's officially released so customers can get early access and provide feedback. Preview features aren't meant for production use and may have limited or restricted functionality. This feature is currently available only in the following markets: United States, United Kingdom, Canada, and Australia. Preview features must be enabled by a system administrator.

Get the Company news and social timeline for CRM for phones and tablets

Organization Insights Dashboard shows system usage stats

Use the new Organization Insights Dashboard to get a quick overview of key areas (such as activity and usage) for your CRM Online instance. See views like the number of active users and form load times.
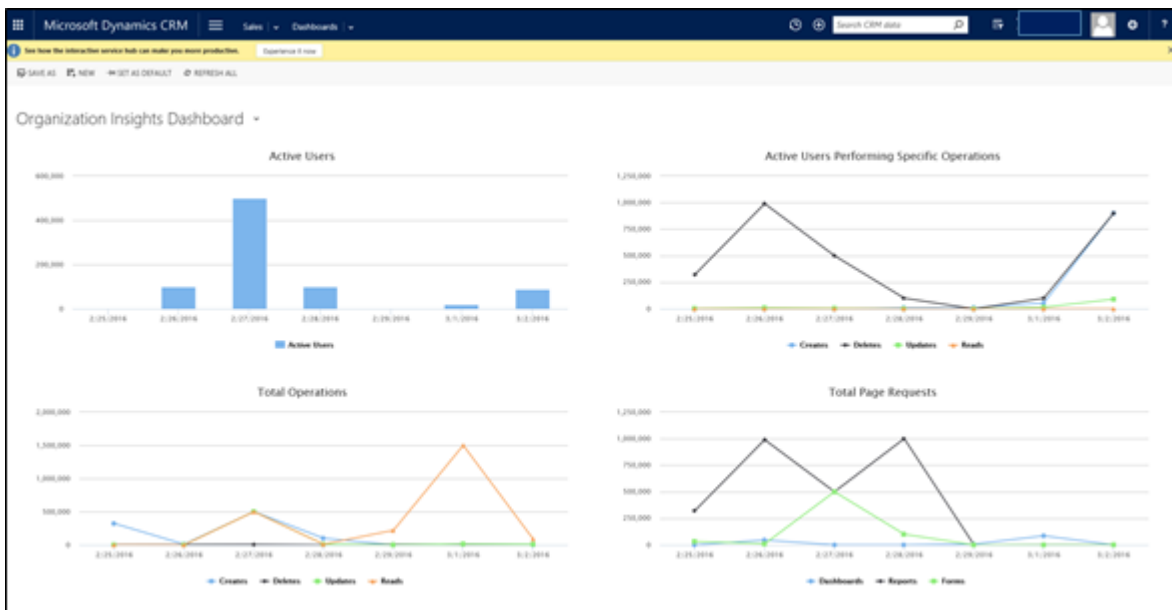
More information: [Preview feature: View metrics about your instance with Organization Insights dashboard](#)

Performance - optimize query load time

Review and analyze query performance aggregated through a custom entity by providing a list of performance logs that help identify long-running queries (3 seconds or longer), such as a plug-in with custom FetchXML or a sub-grid. When you optimize an entity that has long-running queries, it can significantly reduce the amount of time the query takes to load. Behind the scenes, optimizations add one or more SQL Server indexes.

Hybrid server-side sync (CRM on-premises to Exchange Online)

You can use server-side synchronization to automatically synchronize email, tasks, appointments, and contacts between CRM and Microsoft Exchange.

In CRM 2016, we [Set up server-side synchronization of email, appointments, contacts, and tasks](#). Now you can do a reverse-hybrid scenario by connecting CRM on-premises with Exchange Online. This means you can now use server-side synchronization for all four connection scenarios:
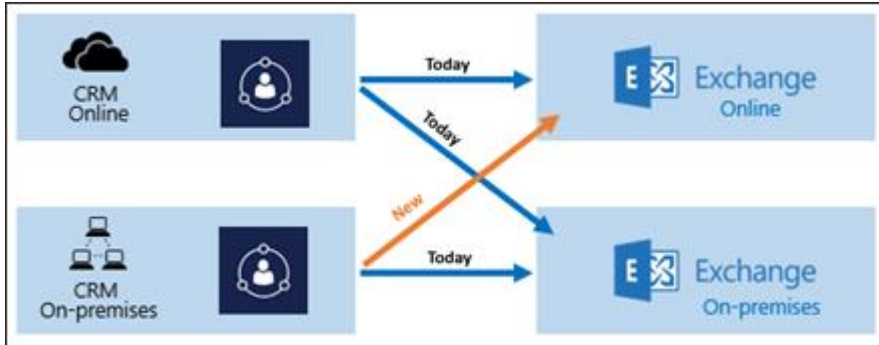
☑ **Note**

This feature will be available soon after the initial public release of Microsoft Dynamics CRM 2016 Service Pack 1.

Server-side synchronization is required for [CRM App for Outlook (lightweight app)](#)or for [Exchange folder tracking.](#) It's not required for [CRM for Outlook (full app)](#), but you can use it as the synchronization method for Dynamics CRM for Outlook.

CRM App for Outlook available for CRM on-premises

We [introduced CRM App for Outlook](#) in CRM Online 2016 Update. You can use this lightweight app to track email from within Outlook. In Dynamics CRM App for Outlook, CRM data appears right in your Outlook Inbox.

Now you can use Dynamics CRM App for Outlook with CRM on-premises.
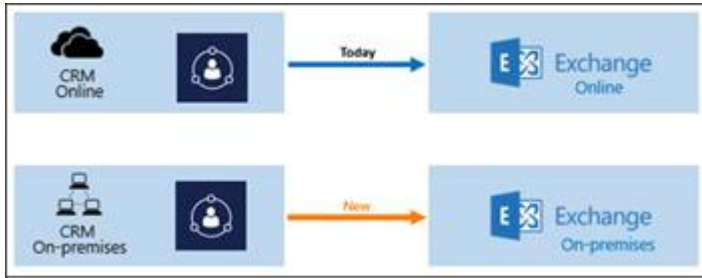
You can use Dynamics CRM App for Outlook with the following capabilities on the following clients.

	Read email	Compose email
Outlook on the web (OWA) on all major desktop browsers	Yes	Yes
Outlook 2013	Yes	No
Outlook 2016	Yes	Yes
Outlook for Mac	Yes	No

 *Note

This feature will be available soon after the initial public release of Microsoft Dynamics CRM 2016 Service Pack 1.

Dynamics CRM App for Outlook requires Exchange Server 2013, 2013 SP1, or 2016. Previous versions of ExchangeServer don't support the add-in platform that Dynamics CRM App for Outlook requires.

Customer field for any entity

Previously, several out-of-the-box entities in Dynamics CRM, such as the Case, Lead, and Opportunity, entities contained a field that represented a customer (account or contact). With this release, you'll be able to add the Customer field to any system or custom entity to track the customer information you need.

 *Note

This feature will be available soon after the initial public release of CRM Online 2016 Update 1 and Microsoft Dynamics CRM 2016 Service Pack 1.

New datacenter in India (CRM Online)

We're opening a new datacenter in India. Once available, you can open new tenants or migrate existing tenants to this datacenter.

Package Deployer tool now runs from a command prompt

The Package Deployer tool has been expanded to run from a command prompt and it accepts a parameter that allows for more control over solution package deployment, including language selection and the option to preserve data. The Windows PowerShell cmdlets for the Package Deployer include the same enhanced functionality. More information: Deploy packages using CRM Package Deployer and Windows PowerShell

What's new in CRM Online 2016 and CRM 2016 (on-premises)

- Improve performance with the Prepare Client Customizations button

- Store and manage private documents in OneDrive for Business

- Use pre-formatted Excel templates to quickly create Excel documents directly from CRM

- Create standardized documents with Word templates

- Use Office Delve to find relevant and trending documents (CRM Online only)

- Preview mobile forms and dashboards before deploying to CRM for phones and tablets

- Experience the new visual controls in CRM for phones and tablets

- Manage just about any device with Intune device management

- Mobile apps now support iFrames and HTML web resources

- Preview feature: Create a task flow in CRM for phones and tablets

- Customize interactive service hub dashboards and forms

- SharePoint server-based integration now supports all four connectivity combinations, including hybrids

- Use server-side synchronization to connect CRM Online to Exchange on-premises

- Monitor mailbox health using improved Server-Side Synchronization Performance dashboard

- Define business rules based on business process flows

- Preview feature: Import bulk data with the new Data Loader service

- Solution segmentation provides tighter control for solutions exports and patches

- New, improved Unified Service Desk

- Install Microsoft Dynamics CRM Server roles on Windows Server Core (on-premises only)

- CRM Online 2015 Update 1 features now apply to CRM 2016 on-premises

Improve performance with the Prepare Client Customizations button

Once you publish customizations, the first user to start one of the CRM mobile apps or the interactive service hub can experience performance issues, because their sign in prompts CRM to prepare the metadata package for download. That means the first user has to wait for both the metadata package preparation and the download (subsequent users only have to wait for the download).

With Dynamics CRM 2016 Update 0.1 or later, you can improve performance for that first user by clicking the **Prepare Client Customizations** button after publishing your customizations. This prompts CRM to prepare the metadata package right then instead of waiting for the first user to start a mobile app or the interactive service hub.

Store and manage private documents in OneDrive for Business

Now your users can use the right storage option for the right situation. For example, store private documents using the new OneDrive for Business option. For collaborative storage, use Office 365 Groups, and for documents you want to share with a larger group or company-wide, use SharePoint.

✎ Note

OneDrive for Business is currently available in SharePoint Online and coming to SharePoint on-premises with SharePoint 2016.

More information:

- 🎥 Watch a short video (2:39) about OneDrive for Business
- Connect to OneDrive for Business

Use pre-formatted Excel templates to quickly create Excel documents directly from CRM

If your team frequently creates the same Excel documents over and over in CRM, use Excel templates to speed up document creation. For example, use a pre-formatted template to monitor sales and project cash flow (pipeline analysis) or forecast sales. After creating and uploading a template, share it with the team.
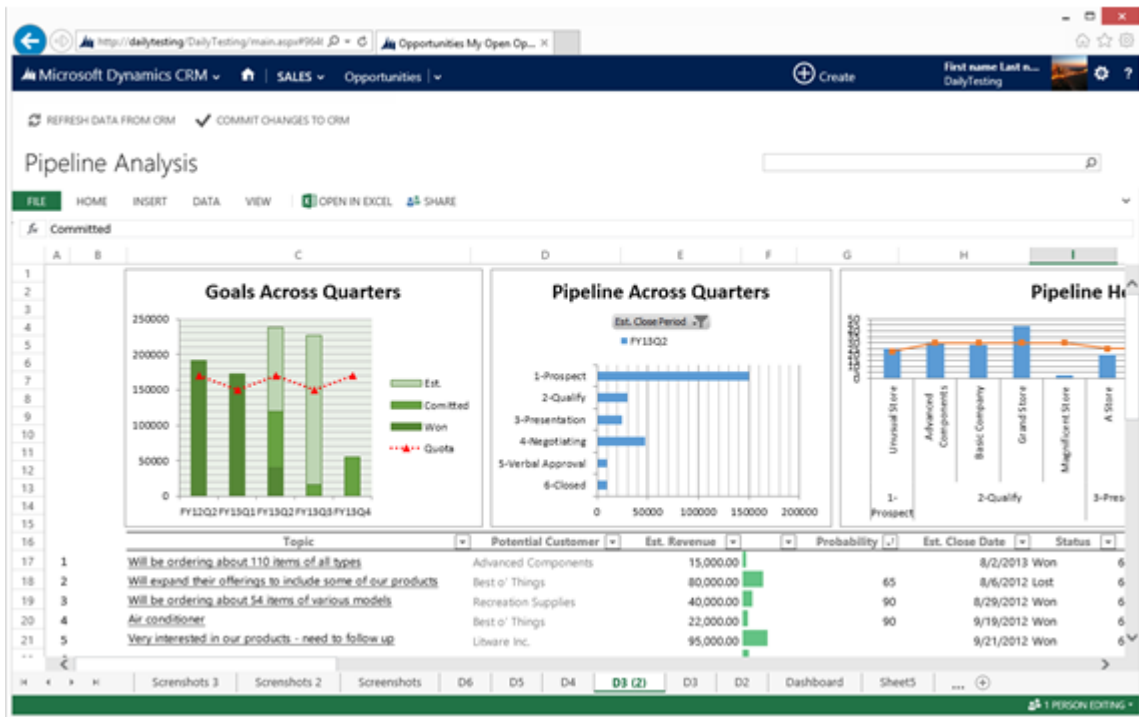
More information:

- 📹 [Watch a short video (2:38) about Excel templates](#)
- [Analyze your data with Excel templates](#)

Create standardized documents with Word templates

Standard documents are a cornerstone of business dealings – from quotes and contracts to work orders and invoices. With this release, your users can create documents from standardized templates, and pull in CRM data at the same time. Use templates to enhance productivity, reduce human error, and ensure consistent communication across the company.

More information:

- 📹 [Watch a short video (2:38) about Word templates](#)
- [Using Word templates in CRM](#)

Use Office Delve to find relevant and trending documents (CRM Online only)

Office Delve proactively surfaces trending documents relevant to you and your work. Discover new content and make new connections right from a dashboard.
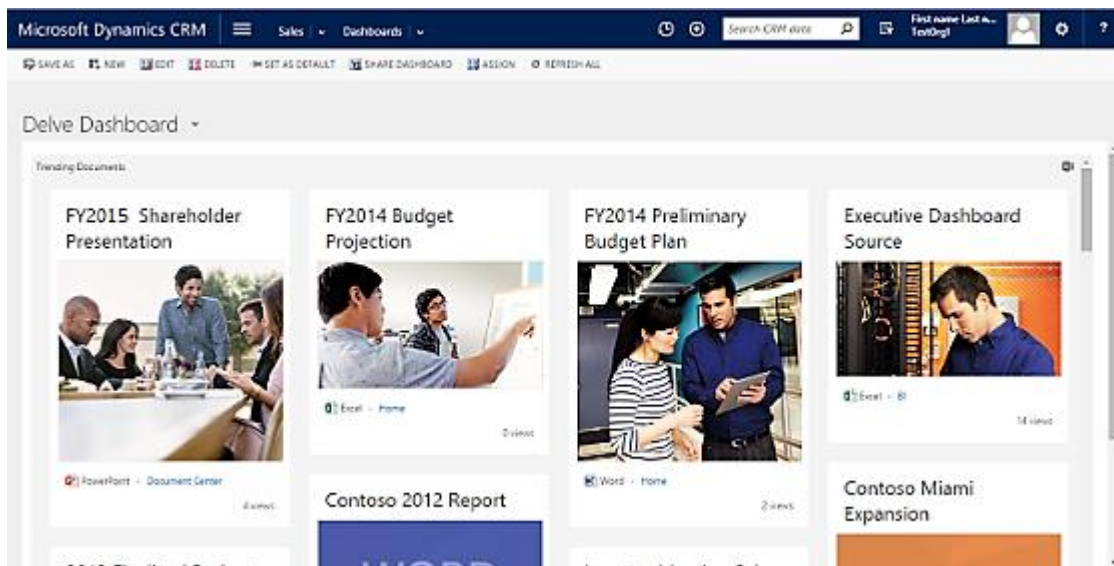
More information:

- 🎥 [Watch a short video (2:39) about Delve](#)

- [Enable Office Delve](#)

Preview mobile forms and dashboards before deploying to CRM for phones and tablets

Now it's easier to configure CRM for phones and tablets once and deploy everywhere. See how your changes will look on tablets and phones in the new mobile form and dashboard previewer.

More information: [Use the form editor](#)
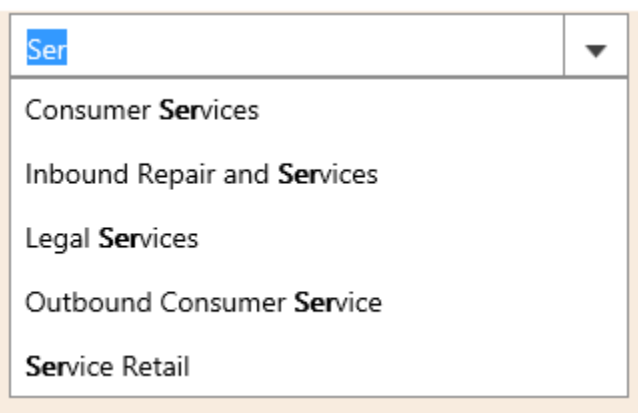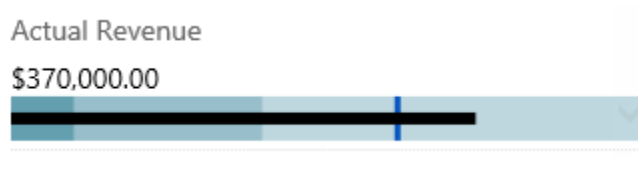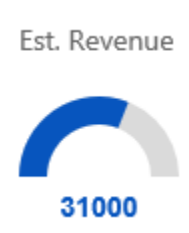
Experience the new visual controls in CRM for phones and tablets

Use new visual controls in CRM for phones and tablets to help mobile users enter CRM data faster, and to provide a richer visual experience. This set of custom controls includes sliders, switches, star ratings, video embedding, and a calendar control that you can use to give users a view of their activities in a calendar format instead of a list.

Control	Example
Linear slider	Annual Revenue 520000 ━━━━━━━●━━━━━━━━

Option set	Purchase Process Direct **Indirect** Unknown
Flip switch	Marketing Materials ⬤ Send
Star rating	Rating ★ ★ ★ ★ ☆
Radial knob	Probability 90
Multimedia control	Presentation Video https://www.youtube.com/watch?v=aiz95DWXFR8

Pen control	Customer Initials MS Clear ✓
Website preview	Website https://www.yahoo.com/ YAHOO! Yahoo A new welcome to Yahoo. The new Yahoo experience makes it easier to discover the news and information that you care about most. It's the web ordered for you.
Number input	**Annual Revenue** − $1,000,000.00 +

Auto-complete	Ser Consumer **Ser**vices Inbound Repair and **Ser**vices Legal **Ser**vices Outbound Consumer **Ser**vice **Ser**vice Retail
Input mask	Phone (555)-015-8222
Linear gauge	No. of Employees 14431
Bullet graph	Actual Revenue $370,000.00
Arc knob	Est. Revenue 31000

Calendar control, phone	
Calendar control, tablet	
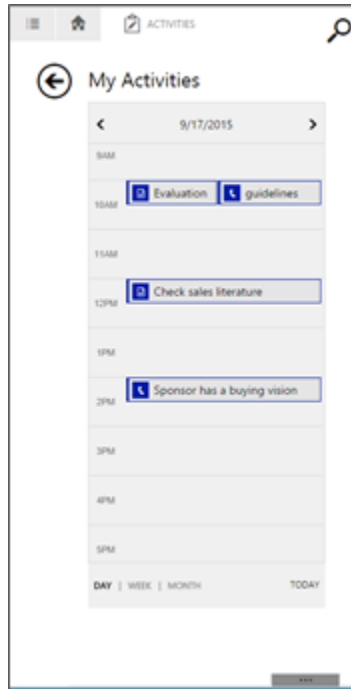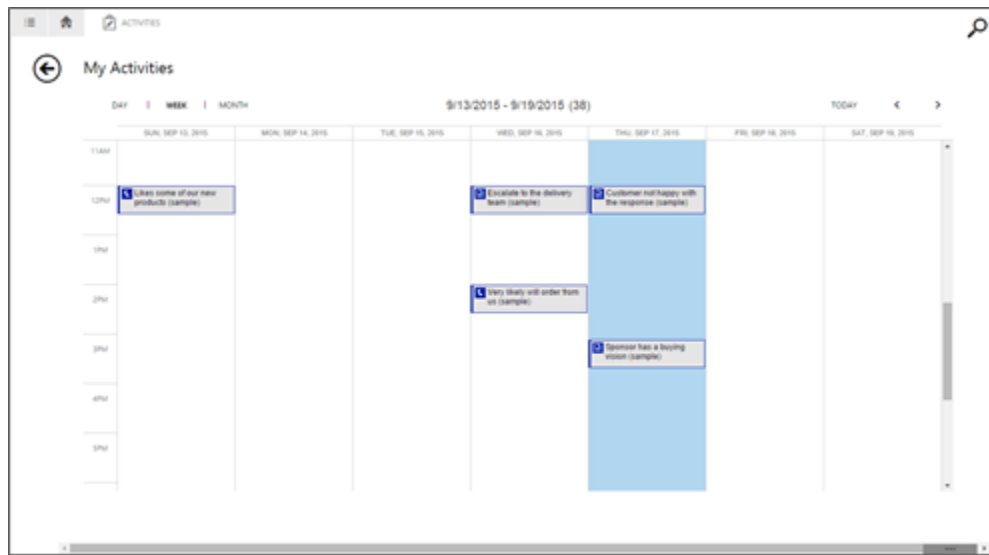
More information:

- [Watch a short video (4:32) about new visual controls](#)
- [Use the form editor](#)

Manage just about any device with Intune device management

Use the CRM mobile apps in conjunction with Microsoft Intune. Intune provides mobile management capabilities that allow you to encrypt, remotely wipe, and apply policies to your CRM mobile apps to comply with your company's security policies. Encrypt data with Intune on Apple, Android, and Windows devices.

More information:

- Watch a short video (3:54) about managing CRM mobile apps with Microsoft Intune

- Secure and manage CRM for phones and tablets

Mobile apps now support iFrames and HTML web resources

You can now use iFrames and web resources in forms for mobile apps, just like you can in the CRM web app.

Note

For Windows devices, you must be using Windows 10.

More information:

- Watch a short video (4:32) about mobile mashups

- iFrame and web resource support

Preview feature: Create a task flow in CRM for phones and tablets

New task-based experiences are immersive experiences that allow users to focus on the tasks they need to do, not the records they need to interact with. With task-based experiences, you can bring data from multiple entities into a single user experience. For example, if users need to do a series of follow-up steps after client meetings, create a task flow.
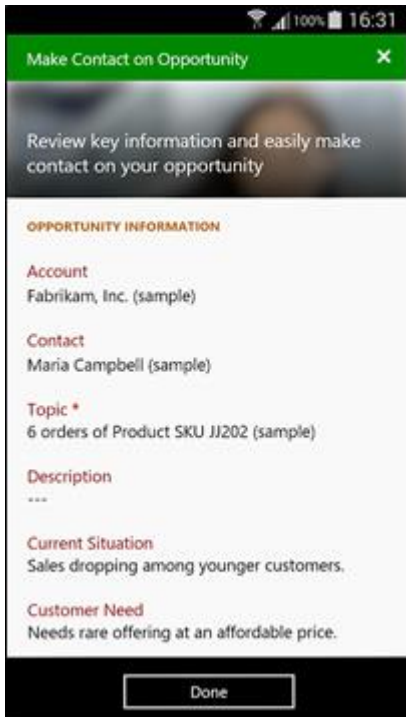
✎ Note

Mobile task flows are offered as a preview feature for CRM Online. Preview features are subject to specific limitations. Learn more about preview features.

More information: Create a new task flow

Customize interactive service hub dashboards and forms

Interactive service hub dashboards provide workload information across single and multiple streams and enable service personnel to take action directly from a dashboard.
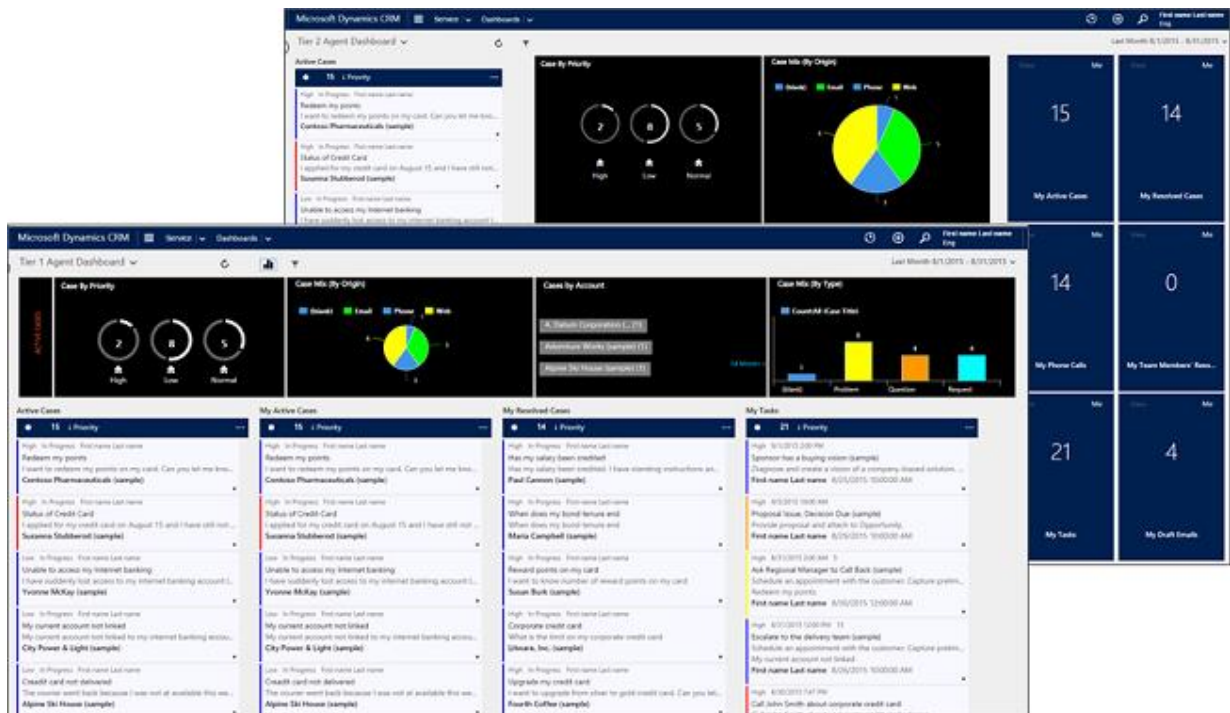
You can choose from four layouts to customize these dashboards. For example, customize streams, charts, filters, and sortable filters. Or create all-new dashboards.

This release also introduces two new types of forms for the interactive service hub: Card and Main InteractionCentric.

By default, these new forms are available for selected out-of-the-box entities enabled for the interaction-centric design. These include:

1. Case

2. Account

3. Contact

4. Social Profile

5. Custom entity

6. Activities:

    a. Email

    b. Phone call

    c. Task

    d. Appointment

    e. Social Activity

    f. Custom Activity

You can customize these forms or create new interactive-centric forms for any new custom entity that's enabled for the interactive design. Quick create and quick view forms are shared between the web client and the interactive service hub.

You can also customize the Reference Panel (related items) on interactive service hub forms by adding vertical tabs.

✍ Note

Upgrades aren't supported for version 1 of the interactive service hub. When you upgrade to CRM 2016, your service hub forms (for valid service hub entities) won't automatically be upgraded to include all customizations that you make to web client forms for the same entity. For example, if you have customized the main case form in the web client, the service hub case main form will be the system-defined form—it will not include any customizations. You'll need to make those customizations manually (provided those customizations are supported in version 1).

More information:

- 🎥 Watch a short video (3:34) about the interactive service hub
- Configure interactive experience dashboards
- Help & Training: Interactive service hub dashboards and forms help you prioritize workloads

SharePoint server-based integration now supports all four connectivity combinations, including hybrids

You can now integrate CRM and SharePoint in all four possible combinations:

- CRM Online to SharePoint Online
- CRM Online to SharePoint on-premises
- CRM on-premises to SharePoint Online
- CRM on-premises to SharePoint on-premises

More information: Set up SharePoint integration with Microsoft Dynamics CRM

Use server-side synchronization to connect CRM Online to Exchange on-premises

If you currently use CRM Online and Exchange on-premises, and you synchronize email, appointments, contacts, and tasks with Dynamics CRM for Outlook, or if you synchronize email with the Email Router, you can now synchronize email, appointments, contacts, and tasks by using server-side synchronization.
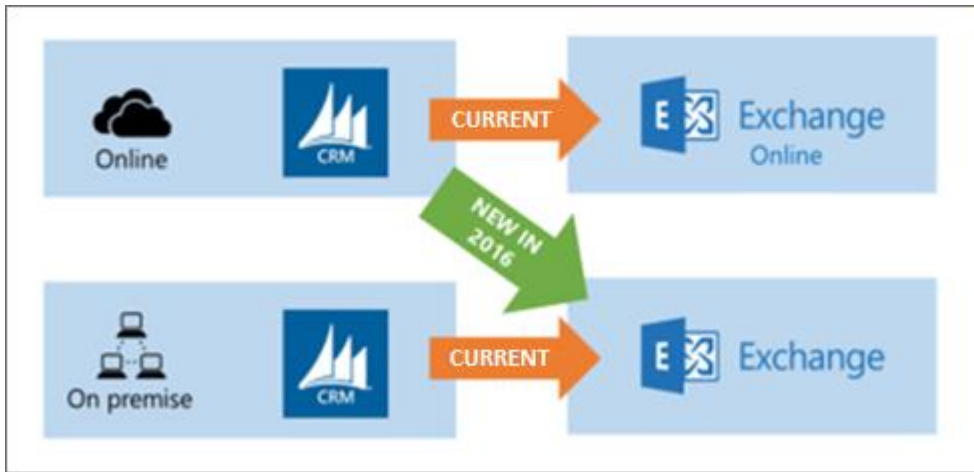
More information: Connect CRM Online to Exchange Server (on-premises)

Monitor mailbox health using improved Server-Side Synchronization Performance dashboard

If your organization uses server-side synchronization for email processing, you can use the improved Server-Side Synchronization Performance dashboard to monitor the health of mailboxes in your organization, and quickly troubleshoot problems.

More information: Troubleshooting and monitoring server-side synchronization

Define business rules based on business process flows

In CRM 2015, we enabled powerful scenarios where business logic could be executed based on the business process and stage. However, to use this functionality, you needed to write JavaScript. By enabling rules to be defined based on the currently active process, the active stage, its category, or the selected stage, business logic can now be defined by business analysts. It's much less costly to define these rules through the user interface and you can make updates to business logic more frequently to keep up with the pace of an ever-adapting business.

More information: Create business rules based on business process flows

Preview feature: Import bulk data with the new Data Loader service

Use the new Data Loader service (accessed from a link in the CRM Admin Center) to import bulk data into CRM Online. Upload large data files to cloud staging tables where you can perform light data quality functions, and then push the data to CRM Online. This service also supports recurring data imports.

✎ Note

The Data Loader service is offered as a preview feature for CRM Online. Preview features are subject to specific limitations. Learn more about preview features.

More information: Learn more about the Data Loader service

Solution segmentation provides tighter control for solutions exports and patches

With solution segmentation, you can export solutions with selected entity components, such as attributes, forms, or views, rather than entire entities with all the components. This will provide a tighter control over what you distribute in solutions and solution patches. You don't have to write any code to create segmented solutions.

More information: Use segmented solutions and patches to simplify solution updates

New, improved Unified Service Desk

Unified Service Desk provides an agent desktop with information from CRM and third-party applications in a combined user interface. Improvements in Unified Service Desk 2.0 include:

- An improved installation and deployment experience

- Support for OAuth

- Ability to integrate with third-party telemetry systems and analytics systems such as Azure HDInsight

- Improved administration and agent experience

- Performance and stability improvements

More information:

- What's new in Unified Service Desk

Install Microsoft Dynamics CRM Server roles on Windows Server Core (on-premises only)

You can install most Microsoft Dynamics CRM 2016 Server server roles on a Server Core installation of Microsoft Windows Server. More information: [Referenced topic '1f5d3be8-bec4-44b2-86c7-e4dbd18a8eae' is not in the TOC.](#)

CRM Online 2015 Update 1 features now apply to CRM 2016 on-premises

The following Microsoft Dynamics CRM Online 2015 Update 1 features now apply to Microsoft Dynamics CRM 2016 on-premises:

Easy navigation with the remodeled navigation bar

With the new navigation bar design, you can find information easier and faster, even if you have to navigate through a large number of entities. We also provided access to most recently viewed records (up to 30 records) and quick navigation in large forms with many fields.

More information:
[Video: New navigation tour](#)
[Help & Training: Get around in Microsoft Dynamics CRM, CRM for Outlook, and mobile devices](#)

Form rendering enhancements

Microsoft Dynamics CRM Online 2015 Update 1 made enhancements to Microsoft Dynamics CRM forms so that they load faster. However, if you have forms that include unsupported customizations, these enhancements can cause compatibility problems. To avoid these compatibility problems, you can temporarily turn off the form enhancements in System Settings by setting **Use legacy form rendering** to **Yes**. More information: [How to check an organization for unsupported customizations](#)

⬥ **Important**

The **Use legacy form** rendering setting is expected to be removed in an upcoming release of Microsoft Dynamics CRM. Therefore, we recommend that you update your customizations as soon as possible and set **Use legacy rendering** to **No** to take advantage of the form rendering enhancements.

When a form is used that has unsupported customizations, such as unsupported JavaScript, the user will receive an error message. To see information about the error, choose **View the data that will be sent to Microsoft** and see the details within the CrmScriptErrorReport tags.

Use Exchange folder-level tracking to automatically track email

You can enable folder-level tracking for Microsoft Exchange folders to map an Exchange folder to a CRM record. Any email moved to that folder will automatically be linked to the mapped record in CRM. For example, let's say you have an account called "Adventure Works" in CRM. You can create a folder in Microsoft Outlook called "Adventure Works" in your Inbox folder, and then create Exchange rules to automatically route email messages to that folder based on the subject or body of an email message. Next, in CRM map the Adventure Works folder to the account record (Adventure Works).

More information: <u>Configure Outlook or Exchange folder-level tracking</u>

"Older Than X" clause improvements

Earlier versions of Microsoft Dynamics CRM were limited to the **Older Than X Months** clause for filtering, by using **Older Than**. You can now filter on additional units of time including minutes, hours, days, weeks, and years. The **Older Than X** clauses can be used with Advanced Find, the saved view editor, and queries that are based on FetchXML.

Change the color scheme or add a logo to match your organization's brand

You can create a custom look and feel (theme) for your application by changing the default colors and visual elements provided in the uncustomized CRM system. For example, without writing any code, you can create your personal product branding, add a company logo, and provide entity-specific coloring. The theme colors are applied globally throughout the application, with the exception of some legacy areas, such as gradient buttons. You can define multiple themes, but only one can be set and published as the default theme. Custom themes are also supported by Microsoft Dynamics CRM for Outlook.

🖉 **Note**

Changes made to an organization's theme aren't included in solutions exported from the organization. To learn how to export\import a custom theme, see: <u>Manage configuration data</u>.

More information:
<u>Change the color scheme or add a logo to match your organization's brand</u>
<u>Help & Training: Change the color scheme or add a logo to match your organization's brand</u>

New behavior and format of the Date and Time field

Previously, the behavior of the **Date and Time** field was limited to the current user's local time zone. With this "time zone aware" behavior, we couldn't properly address cases where the date and time needed to be presented independently of the user's local time zone, such as for birthdays or hotel check-in times. In this release, we introduced two new time zone independent behaviors for the **Date and Time** data type to address such cases:

- Date Only

- Time Zone Independent

More information: <u>Behavior and format of the date and time field</u>

Calculated field enhancements

You can now compute the difference between two dates by using new built-in functions available for calculated fields: **DIFFINDAYS**, **DIFFINHOURS**, **DIFFINMINUTES**, **DIFFINMONTHS**, **DIFFINWEEKS**, **DIFFINYEARS**.

More information: <u>Define calculated fields</u>

Rollup field enhancements

Rollup fields help you obtain insights into data by monitoring key business metrics. In this release, we're further enriching your experience with rollup fields by adding new capabilities that include:

- Calculations using the **AVG** operator.

- Aggregating data across all activities related to a record, such as phone calls, emails, or appointments.

- Aggregating data across all activities related to a record and activities indirectly related to a record via the **Activity Party** entity. For example, by using the **Activity Party** participation types, you can include emails where the account is listed only on the To: and Cc: lines for aggregation.

More information: Define rollup fields

Clear field values with business rules

Enhancements to business rules let you clear field values on both the client and server to ensure accuracy of your CRM records. No code required.

More information: Create and edit business rules

Call custom actions from workflows or dialogs

Workflows and dialogs support many business scenarios. In previous releases, you could call basic SDK actions, such as create, update, and delete a record, from a workflow or a dialog. In this release, we coupled workflow and dialog capabilities with the power of custom actions, so now you can invoke a custom action directly from a workflow or a dialog without writing any code.

More information: Invoke custom actions from a workflow or dialog

Create alternate keys for referencing records in Microsoft Dynamics CRM

To improve performance of certain operations in CRM systems and help correctly identify data imported into CRM from external systems, we provided a new way of uniquely referencing records in CRM through alternate keys. Until now, the records in CRM were only referenced by unique identifiers, known as GUIDs. However, some external systems can't be extended to store CRM record GUIDs. For these cases, you can now reference records by using alternate keys that aren't GUIDs. An alternate key has a unique name and you use one or more entity fields to define the key, for example, account name and account number. While you can define an alternate key in the Customization area in the web application (**Components** >**Entities** > **Entity <X>** > **Keys**), the key can only be used programmatically, in code.

More information: Define alternate keys to reference CRM records

Full-featured phone and mobile app and phone-specific customizations

The new phone app features the "design once, deploy everywhere" paradigm. It allows administrators to deliver the same feature-rich experience available on CRM for tablets to users of the phone app. The

app includes full support for charts, processes, multiple dashboards, customization, and business logic (business rules or JavaScript). The administrator can also selectively hide tabs, sections, or fields.

More information: [Set up and manage phones and tablets](#) and [Customize CRM for phones and tablets](#)

Microsoft Dynamics CRM for Good

Microsoft Dynamics CRM for Good is a special version of CRM for tablets that works with Good Technology's mobile security platform. Microsoft Dynamics CRM for Good is currently supported for Apple iPad running iOS 7 or later. To use Microsoft Dynamics CRM for Good, you must have Good Dynamics server software and services from [Good Technology](#). The app is listed in the [Good Dynamics Marketplace](#) and can be downloaded from the [Apple App store](#).

More information: [Secure your mobile data with CRM for Good](#)

Enable track changes to control data synchronization

Large CRM organizations that synchronize their data with external data sources can now enable entities for change tracking, which will enable a new change tracking API to be executed against the given entity. Using the new API, you can reduce the load on your server resources and save processing time when extracting CRM data and syncing it to an external store.

More information: [Enable change tracking to control data synchronization](#)

See Also

[Administering CRM 2016](#)
[Referenced topic '89f41190-e266-450d-b3c9-95b09eef5f63' is not in the TOC.](#)

Getting started

Applies To: CRM 2016 on-prem, CRM Online

As a CRM administrator, you'll find the information that you need here to get your organization started with Microsoft Dynamics CRM.

In This Section

[64-bit supported configurations for Microsoft Dynamics CRM](#)

[Supported web browsers and mobile devices](#)

[Performance tuning and optimization](#)

[Set up a CRM organization](#)

[Turn off the welcome screen (navigation tour)](#)

See Also

64-bit supported configurations for Microsoft Dynamics CRM

Applies To: CRM 2016 on-prem, CRM Online

Installing and running Microsoft Dynamics CRM applications that connect to database, reporting services, and email features running on other 32-bit computers is generally supported.

CRM for Outlook

- Dynamics CRM for Outlook includes a 64-bit version that can be installed on any of the supported 64-bit Windows operating systems. More information:Microsoft Dynamics CRM for Outlook software requirements

- The 32-bit version of Dynamics CRM for Outlook can be installed and run on a 64-bit Windows operating system but the version of Microsoft Outlook must be 32-bit.

Email Router

Microsoft Exchange Server 2010 or Microsoft Exchange Server 2013 editions, which are available only for 64-bit systems, are supported, and can run 64-bit, or 32-bit, editions of the Microsoft Dynamics CRM Email Router.

SQL Server (on-premises only)

32-bit versions of Microsoft SQL Server database engine or Microsoft SQL Server reporting services aren't supported with Microsoft Dynamics CRM. You can't use a computer that is running a Microsoft SQL Server 32-bit edition as the database server or reporting services server for Microsoft Dynamics CRM Server. For more information about the supported versions of Microsoft SQL Server, see Referenced topic '1f5d3be8-bec4-44b2-86c7-e4dbd18a8eae' is not in the TOC. and Referenced topic '6d0d42e2-0ad0-4dfa-aa42-72ab4e92b001' is not in the TOC..

See Also

[Web application requirements for Microsoft Dynamics CRM](#)

Supported web browsers and mobile devices

Applies To: CRM 2016 on-prem, CRM Online

Users can access the Microsoft Dynamics CRM Web application on the most recent versions of the following browsers:

- Internet Explorer on Windows

- Firefox on Windows

- Safari on Mac OS X

- Chrome on Windows or Google Nexus 10

For more detailed information about supported browsers, see [Web application requirements for Microsoft Dynamics CRM](#).

For a mobile device, such as an iPad or smartphone, the following apps are available:

- Microsoft Dynamics CRM for iPad

- Microsoft Dynamics CRM for Windows 8

For more detailed information about supported phones and tablets, see [Support for CRM for phones and CRM for tablets](#).

 Note

- Users who try to view Microsoft Dynamics CRM on an unsupported browser may be redirected to Microsoft Dynamics CRM for phones. This is a basic service that has limited functionality, and isn't intended to serve as a substitute for the full feature set of Microsoft Dynamics CRM. We recommend that users choose a supported browser or a Microsoft Dynamics CRM app specific to the device.

- If you have added content to forms or dashboards in an iFrame, you might have implemented security restrictions around certain actions in that content, such as external links. Keep in mind that in Firefox, this security restriction code will likely be unsupported.

Known issues when you run Microsoft Dynamics CRM with certain web browsers

This section describes the known issues when you run Microsoft Dynamics CRM in a web browser.

Limited copy and paste support in Firefox and Chrome

Copy and paste functionality by using the clipboard is not yet fully supported on the Firefox and Chrome web browsers; the **Copy a Link** button at the top of the page may not function as expected.

You receive an error opening an Excel worksheet when you use Safari

If you export a Microsoft Office Excel worksheet as a Dynamic Worksheet while using Safari, you may receive an error when trying to open the file. To remedy this, right-click the file, click **Get Info**, and, under **Open With**, select Excel.

See Also

Getting started
Key preparation and configuration tasks

Web application requirements for Microsoft Dynamics CRM

Applies To: CRM 2016 on-prem, CRM Online

This section lists the hardware and software requirements for the Microsoft Dynamics CRM (on-premises) and Microsoft Dynamics CRM Online web and mobile device client applications.

In This Topic

Microsoft Dynamics CRM web application hardware requirements
Supported versions of Internet Explorer and Microsoft Edge
Supported non-Internet Explorer web browsers
Supported versions of Microsoft Office
Printing reports

Microsoft Dynamics CRM web application hardware requirements

The following table lists the minimum and recommended hardware requirements for the Microsoft Dynamics CRM web application.

Component	Minimum	Recommended
Processor	2.9 gigahertz (GHz) or faster x86- or x64-bit dual core	3.3 gigahertz (GHz) or faster 64-bit dual core processor with SSE2

Component	Minimum	Recommended
	processor with SSE2 instruction set	instruction set and 3 MB or more L3 cache
Memory	2-GB RAM	4-GB RAM or more
Display	Super VGA with a resolution of 1366 x 768	Super VGA with a resolution of 1366 x 768

Running Microsoft Dynamics CRM on a computer that has less than the recommended requirements may result in inadequate performance.

Network requirements

Microsoft Dynamics CRM is designed to work best over networks that have the following elements:

- Bandwidth greater than 50 KBps (400 kbps)

- Latency under 150 ms

Notice that these values are recommendations and don't guarantee satisfactory performance. The recommended values are based on systems using out-of-the box forms that aren't customized. If you significantly customize the out-of-box forms, we recommend that you test the form response to understand bandwidth needs. More information: Verify network capacity and throughput for Dynamics CRM clients

Network requirements when you use Microsoft Dynamics CRM interactive service hub experience

The Microsoft Dynamics CRM interactive service hub experience is designed to work best over networks that have the following elements:

- Bandwidth greater than 1Megabit per second (125 KBps/Kilobyte per second)

- Latency under 150 ms

Notice that the suggested network requirements include the metadata download needed for first run or newly published customizations. The Microsoft Dynamics CRM interactive service hub typically requires more bandwidth when metadata has to be downloaded. These values are recommendations and don't guarantee satisfactory performance. The values are based on systems using uncustomized, out-of-the box forms. If you significantly customize the out-of-box forms, we recommend that you test the form response to understand bandwidth needs.

Supported versions of Internet Explorer and Microsoft Edge

The following table describes the Windows and Internet Explorer or Microsoft Edge versions supported for use with the Microsoft Dynamics CRM web application.

Windows version	Internet Explorer 10	Internet Explorer 11	Microsoft Edge
Windows 10	Not supported1	Supported	Supported

Windows version	Internet Explorer 10	Internet Explorer 11	Microsoft Edge
Windows 8.1	Not supported1	Supported	Not supported
Windows 8	Supported	Not supported1	Not supported
Windows 7	Supported	Supported	Not supported

1 This version of Windows doesn't support the version of Internet Explorer. More information: Internet Explorer 11 – FAQ for IT Pros

◆ **Important**

Although you may be able to use Internet Explorer 8 , Internet Explorer 9, or an Internet Explorer and Windows combination that is not supported in the previous table, those web browsers are not recommended and are not supported with this version of Microsoft Dynamics CRM.

Using plug-ins or other third-party extensions in your browser can increase load times on pages with lists of data.

Supported non-Internet Explorer web browsers

The Microsoft Dynamics CRM web application can run in any of the following web browsers running on the specified operating systems.

- Mozilla Firefox (latest publicly released version) running on Windows 8.1 or Windows 8, or Windows 7

- Google Chrome (latest publicly released version) running on Windows 8.1 or Windows 8, or Windows 7, or Bookmark link 'BKMK_Nexus' is broken in topic '{"project_id":"d1ee8af7-0e8f-4e94-9793-0d06bbfa9b16","entity_id":"7f9d8425-f26c-43ac-bdc7-ff258977ff80","entity_type":"Article","locale":"en-US"}'. Rebuilding the topic '{"project_id":"d1ee8af7-0e8f-4e94-9793-0d06bbfa9b16","entity_id":"7f9d8425-f26c-43ac-bdc7-ff258977ff80","entity_type":"Article","locale":"en-US"}' may solve the problem. 10 tablet

- Apple Safari (latest publicly released version) running on Mac OS X 10.8 (Mountain Lion), 10.9 (Mavericks), 10.10 (Yosemite), or Bookmark link 'BKMK_iPad' is broken in topic '{"project_id":"d1ee8af7-0e8f-4e94-9793-0d06bbfa9b16","entity_id":"7f9d8425-f26c-43ac-bdc7-ff258977ff80","entity_type":"Article","locale":"en-US"}'. Rebuilding the topic '{"project_id":"d1ee8af7-0e8f-4e94-9793-0d06bbfa9b16","entity_id":"7f9d8425-f26c-43ac-bdc7-ff258977ff80","entity_type":"Article","locale":"en-US"}' may solve the problem.

To find the latest release for these web browsers, visit the software manufacturer's website.

◆ **Important**

Using plug-ins or other third-party extensions in your browser can increase load times on pages with lists of data.

Supported versions of Microsoft Office

To use Microsoft Dynamics CRM with Microsoft Office integration features, such as Export to Excel and Mail Merge, you must have one of the following Microsoft Office versions on the computer that is running the Microsoft Dynamics CRM web application:

- Microsoft Office 365

- Microsoft Office 2016

- Microsoft Office 2013

- Microsoft Office 2010

Printing reports

The Reporting Services Microsoft ActiveX control is required to print reports. If you try to print a report, but the control isn't installed, you'll be prompted to install it. The installer package is named RSClientPrint.cab and can found on the Microsoft SQL Server Reporting Services server at <drive>:\Program files\Microsoft SQL Server\<MSSQL>\Reporting Services\ReportServer\bin.

See Also

Supported web browsers and mobile devices
64-bit supported configurations for Microsoft Dynamics CRM
Referenced topic 'e2c85d76-2b14-4d80-b6a7-5ea53fafcc8d' is not in the TOC.

Performance tuning and optimization

Applies To: CRM 2016 on-prem, CRM Online

Use this information to help you plan and optimize application performance with Microsoft Dynamics CRM.

In This Section

Verify network capacity and throughput for Dynamics CRM clients
Key preparation and configuration tasks
Analyze and improve data query performance

Related Sections

Getting started
Set up a CRM organization

Verify network capacity and throughput for Dynamics CRM clients

Applies To: CRM 2016 on-prem, CRM Online

The primary characteristics of a network that affect the performance of Microsoft Dynamics CRM clients, such as the web application or Dynamics CRM for Outlook, are *bandwidth* and *latency*.

- Bandwidth is the width or capacity of a specific communications channel.
- Latency is the time required for a signal to travel from one point on a network to another, and is a fixed cost between two points.

One of the main causes of poor performance of Microsoft Dynamics CRM clients is the latency of the network over which the clients connect to the Microsoft Dynamics CRM organization. Lower latencies (measured in milliseconds) generally provide better levels of performance.

Notice that, even if the latency of a network connection is low, bandwidth can become a performance degradation factor if there are many resources sharing the network connection, for example, to download large files or send and receive email.

Networks with high bandwidth don't guarantee low latency. For example, a network path traversing a satellite link often has high latency, even though throughput is very high. It's common for a network round trip traversing a satellite link to have five or more seconds of latency. An application designed to send a request, wait for a reply, send another request, wait for another reply, and so on, will wait at least five seconds for each packet exchange, regardless of the speed of the server.

How to check latency

Microsoft Dynamics CRM includes a basic diagnostic tool that analyzes the client-to-organization connectivity and produces a report. To run the CRM Diagnostics tool, follow these steps.

1. On the user's computer or device, start a web browser, and sign in to a Microsoft Dynamics CRM organization.

2. Enter the following URL, *https://myorg.crm.dynamics.com/tools/diagnostics/diag.aspx*, where *myorg.crm.dynamics.com* is the URL of your Microsoft Dynamics CRM Online organization. Similarly, you can enter the path to your Microsoft Dynamics CRM Server for on-premises deployments.

3. Click **Run**.

The report displays a table with test and benchmark information. Of particular importance is the **Latency Test** row value. This value is an average of twenty individual test runs. Generally, the lower the number, the better the performance of the client. Although users may receive a satisfactory experience by using connections with more latency, for best application performance we recommend that the value be 150 ms (milliseconds) or less.

Best practices for improving application performance

- Maximize how quickly your forms load. More information: Optimize form performance

- Make sure you aren't using legacy form rendering, which can make forms take significantly longer to load. More information: System Settings dialog box - General tab

See Also

Performance tuning and optimization
Key preparation and configuration tasks

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Key preparation and configuration tasks

Applies To: CRM 2016 on-prem, CRM Online

This topic, which is intended for administrators and business users of Microsoft Dynamics CRM, describes common configuration settings and tasks that can help you keep your organization optimized so that you can focus on what's important. It's designed to improve your overall experience with Microsoft Dynamics CRM, even before your business begins to use it.

In This Topic

Common configuration settings for Internet Explorer
Configuration settings for Microsoft Dynamics CRM for Outlook
Network connections settings
Antivirus or malware application settings
Important email messages from Microsoft Dynamics CRM
Available resources for Microsoft Dynamics CRM users
Technical support for Microsoft Dynamics CRM

Common configuration settings for Internet Explorer

Microsoft Dynamics CRM is a web-based application and uses web browsers, such as Internet Explorer, as the user interface to view, add, or edit information that you've stored in the CRM database. Make the following common Internet Explorer configuration settings to optimize your CRM experience.

Increase disk space for temporary Internet files

To make sure that Internet files for Microsoft Dynamics CRM are not being deleted, increase the disk space for temporary Internet files.

1. Open Internet Explorer, and on the **Tools** menu, click or tap **Internet Options**.

2. On the **General** tab, in the **Browsing history** section, click or tap **Settings**.

3. Set the **Disk space to use** field to **350**.

4. Click or tap **OK**, and then click or tap **OK** again.

Retain browsing history

To optimize your CRM experience, we recommend that you do not select the option to delete the browsing history when you exit from your browser. If you select this option, it deletes everything marked in your **Browsing history** settings, such as temporary Internet files, cookies, and history (by default, the check boxes for these options are selected). Deleting your temporary Internet files causes Internet Explorer to cache the files again, and deleting cookies signs you out of CRM.

1. Open Internet Explorer, and on the **Tools** menu, click or tap **Internet Options**.

2. Click or tap the **General** tab, and in the **Browsing history** section, make sure that the **Delete browsing history on exit** check box is cleared.

Microsoft Dynamics CRM occasionally uses pop-up windows. Your browser may be blocking these windows because of the pop-up blocker settings. You must configure the pop-up blocker settings to allow pop-up windows for the CRM websites.

Microsoft Dynamics CRM   occasionally uses pop-up windows. Your browser may be blocking these windows because of the pop-up blocker settings. You must configure the pop-up blocker settings to allow pop-up windows for the CRM websites.

If you experience slower performance in Internet Explorer

If your CRM performance is slower in Internet Explorer than in other browsers, set **JavaScript Timer Frequency** to **Maximum Performance**.

1. Go to **Control Panel** > **System and Security** > **Power Options**.

2. For your active power plan, click **Change plan settings** > **Change advanced power settings**.

3. Expand **Internet Explorer** > **JavaScript Timer Frequency**, for **On battery** and **Plugged in**, choose **Maximum Performance**.
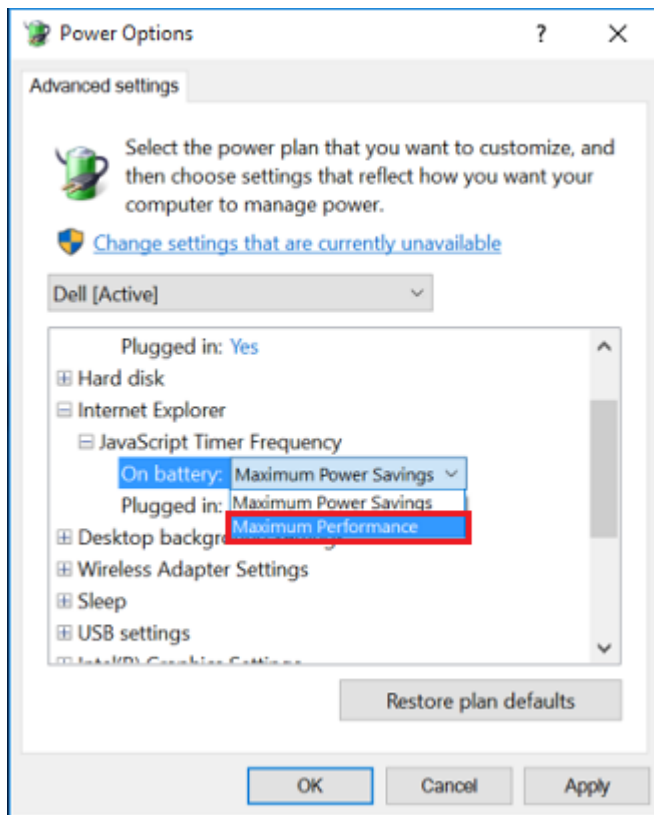
Increase data storage limits for websites

Every time you visit a website, Internet Explorer stores the website data as cache, and uses it when you open the website again. This increases your browsing speed. Internet Explorer can store up to a maximum of 10 MB cache data. If your users visit a particular website often, it will store a lot of content on their system, and it may reach the maximum limit of data storage. To avoid this, you may want to increase the data storage limit for your browser.

Here are two ways you can increase the data storage limit for Internet Explorer.

Increase data storage limit by using group policy

1. On your keyboard, press the Windows key + R.

2. In the **Run** dialog box, type **gpedit.msc**, and click **OK**.

   Local Group Policy Editor opens.

3. Navigate to **Computer Configuration** > **Administrative Templates** > **Windows Components** > **Internet Explorer** > **Internet Control Panel** > **General Page** > **Browsing History**.

4. In the right pane, double-click the setting **Set default storage limits for websites**.

5. In the **Set default storage limits for websites** dialog box, click **Enabled**, and then in the **Options** section, in the **Set default storage limit for websites** field, add the required limit.

6. Click **Apply**, and then click **OK**.

7. Close Local Group Policy Editor, and restart the computer.

Increase data storage limit by using Registry Editor

1. On your keyboard, press the Windows key + R.

2. In the **Run** dialog box, type **regedit**, and click **OK**.

   Registry Editoropens.

3. Navigate to the key: HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft.

4. Create a subkey **Internet Explorer** inside **Microsoft**.

   a. Right-click **Microsoft**, and then click **New** > **Key**.

   b. Type **Internet Explorer** as the name of the subkey.

5. Similarly, create a subkey **BrowserStorage** in the newly created subkey **Internet Explorer**.

6. Click the **BrowserStorage** subkey, and in the right pane, right-click, and then click **New** > **DWORD Value**.

7. Type **DeafultDomainCacheLimitInMB** as the name.

8. Double-click the DWORD item you just created.

9. In the **Edit DWORD Value** dialog box, select **Decimal** as **Base**, and then enter the required storage limit in MB, and click **OK**.

10. Close Registry Editor, and restart the computer.

Configuration settings for Microsoft Dynamics CRM for Outlook

You can configure the following settings to optimize the performance of Dynamics CRM for Outlook.

Install recent updates for Dynamics CRM for Outlook

Use Windows Update to check for updates to Dynamics CRM for Outlook. Typically, these updates help improve performance or ensure greater stability.

Automatic synchronization for Outlook Online and Offline modes

Enabling automatic synchronization allows Dynamics CRM for Outlook to systematically synchronize the data from the Microsoft Dynamics CRM data center. This ensures that your local data is regularly updated. Therefore, when you go offline, the data required to synchronize locally is a manageable size.

1. Open Outlook that has Dynamics CRM for Outlook installed.

2. On the **File** tab, click or tap **CRM**, and then click or tap **Options**.

3. On the **Synchronization** tab, in the **Schedule automatic synchronization with Outlook** section, make sure that the **Synchronize the CRM items in my Outlook folders every __ minutes** check box is selected.

   - OR -

   For offline synchronization, on the **Local Data** tab, in the **Select how often to update local data** section, make sure that the **Update local data every __ minutes** check box is selected.

Synchronize only essential data for Outlook Online and Offline modes

By limiting the data that you synchronize with Dynamics CRM for Outlook, you can reduce the network bandwidth consumed by CRM users, and therefore improve your overall application performance. To control which records synchronize with Outlook, edit the Outlook filters. More information: Help & Training: Choose the records to synchronize between CRM and Outlook or Exchange

Track Microsoft Dynamics CRM calendar appointments in Dynamics CRM for Outlook

To make sure that your calendar appointments don't disappear from CRM after you begin to track these in Dynamics CRM for Outlook, make sure that your user email address on the respective user record matches your email address being used for Outlook.

 Note

The email address may differ from your Microsoft account. It depends on the email addresses you're using in Outlook and on your CRM user record.

Network connections settings

Network connections are established based on the order that the device is listed in the **Adapters and Bindings** tab of the Network Connections window. For example, if you have enabled a Local Area Network (LAN) and a wireless connection, the order of how a device is connected to the Internet is based on its order in the **Adapter and Bindings** list. If the LAN connection is higher in the list, most network connections will be established by using the LAN adapter instead of the wireless adapter. To make sure that your network connections are optimized, organize the connections according to your network administrator's recommendation.

To change the network connection order

1. Right-click **Start** and then click or tap **Run**.

2. Type: **control netconnections** and then click or tap **OK**.

3. Click or tap **Organize** > **Layout** > and verify **Menu bar** is checked.

4. Click or tap **Advanced** > **Advanced Settings**.

5. Click or tap the **Adapters and Bindings** tab, and then, under **Connections**, click or tap the connection that you want to move in the list, click or tap the up or down arrow button, and then click or tap **OK**.

Antivirus or malware application settings

Depending on your antivirus or malware application settings, virus scanning can block certain files, making them inaccessible to other applications and causing an adverse effect on Microsoft Dynamics CRM performance.

Each environment requires a thoughtful decision on what to include and exclude, and there is always a possibility that excluding files from scans could lead to unwanted consequences. Use the following list alongside your well-planned internal IT management policies:

- Check for any interference from desktop security software. Some antivirus programs include a feature known as ScriptScan that can affect the performance of CRM. Most programs have

functionality to disable scanning on certain websites. Make sure that the CRM URL is added to this list. For McAfee specifically, see the following KB articles for this setting:

- McAfee Knowledge Base Article: KB65382
- Microsoft Support Knowledge Base Article: KB924341

- If you use other antivirus software, make sure that the URL of the CRM website is included in the trusted zone for the virus scanning, and disable on-access scanning for the CRM website. For more information, see the specific antivirus application documentation.

Important email messages from Microsoft Dynamics CRM

Microsoft occasionally sends out email messages to Microsoft Dynamics CRM users or administrators. These messages provide information about how to use CRM and also contain important billing or upgrade details.

Make sure that the following email addresses are added to the allowed list for your email application:

- **crmonl@microsoft.com**. This email alias sends information about updates to the service.

- **billing@microsoft.com**. This email alias sends information about CRM billing.

- **msonlineservicesteam@microsoftonline.com**. This email alias sends informational email messages when you sign up for CRM.

Available resources for Microsoft Dynamics CRM users

We want you and your organization to take full advantage of the extensive content and materials available that can help your business be more successful while you are using Microsoft Dynamics CRM. For a list of available resources, including training materials and information about how to support your online organization, see the CRM Help Center.

Technical support for Microsoft Dynamics CRM

If you cannot find the answers you need in the resources discussed earlier, you can submit a technical support request to Microsoft Customer Support Services. Technical support incidents provide reactive support that focuses on a specific problem, error message, or functionality that is not working as intended. For assistance information, see Support.

Maximize your technical support experience

When you request help for technical issues or questions, it is important that you have as much information available as possible. Here are common questions that you may be asked when you request technical support:

- What part of the application are you having issues with?

  For example, installation issues with Dynamics CRM for Outlook.

- What is the exact error or problem that you are experiencing?

  Provide detailed information, including the exact error message that you are seeing. Include a screen capture if you can.

- What were you doing in Microsoft Dynamics CRM when the error occurred?

  Provide the exact steps that you are performing to reproduce the error. This lets the Support team better analyze why you may be experiencing it.

- What are the details of the environment you are experiencing the issue on?

  Provide the version of the operating system, browser, and if applicable, the version of Microsoft Office on the computers where the issue is occurring.

- Does the issue affect all users or a certain type of Microsoft Dynamics CRM security role or only certain users?

When possible, provide log files (if you know how to find them). This applies to applications such as Dynamics CRM for Outlook or Microsoft Dynamics CRM Email Router. The following table lists the location of the log or trace files for these applications.

Logs or Traces	Log File Location
Microsoft Dynamics CRM for Outlook logs	%Userprofile%\Local Settings\Application Data\Microsoft\MSCRM\Logs
Microsoft Dynamics CRM for Outlook Trace files	%Userprofile%\Local Settings\Application Data\Microsoft\MSCRM\Traces
Microsoft Dynamics CRM E-mail Router logs	%Userprofile%\AppData\Roaming\Microsoft\MSCRM\Logs

See Also

Getting started
Set up a CRM organization

Analyze and improve data query performance

Applies To: Dynamics CRM Online

You can analyze query performance aggregated through an out-of-box or custom entity using Data Performance, which provides a list that identifies entities with long-running queries. A long running query is defined as a query that takes three seconds or longer to complete. Typical examples of a component that can have a long running query is a plug-in with custom FetchXML or a sub-grid. When you optimize an entity that has long-running queries, it may significantly reduce the amount of time the query takes to load. Behind the scenes, optimizations add one or more Microsoft SQL Server indexes.

Impact of adding or removing optimizations

Optimizations may significantly improve the performance of slow running queries. However, optimizations require storage space. Before you add an optimization carefully consider the entity to be optimized and keep the following best practices in mind.

- Only add optimizations for entities that are used often. For example, a commonly used custom view for a sales department.

- Review the impact of adding an optimization and remove optimizations that are not useful.

- Depending on the number of tables associated with the entity, some entities cannot have more than twenty optimizations.

- Applying an optimization does not guarantee query performance improvement. Additionally, some optimizations can improve read performance, but cause a degradation in update performance.

 Note

The Data Performance feature is only available with Microsoft Dynamics CRM Online.

This feature was first introduced in Microsoft Dynamics CRM Online 2016 Update 1.

Use data performance

1. To apply an optimization, go to **Settings** > **Administration** > **Data Performance**.

2. In the **All Data Performance Logs** view, if one or more long running entity queries are detected, log items are displayed in the view. If several items appear in the view, you can sort by the **Count** or **Optimization Status** columns to easily identify the most used queries that do not already have an optimization. Notice that out-of-box and custom entity queries that complete within three seconds are not displayed.

3. These columns display information that can help you determine whether to add an optimization or not.

    - **Optimization Status**. Indicates whether an optimization has been created for the entity. **Optimization Available** indicates that the entity does not have an optimization created or that a new optimization is available for an entity that already has at least one optimization.

    - **Count**. Indicates the number of times a query has been executed, which indicates the popularity of the query.

    - **Optimization Impact**. After an optimization is applied, an integer value is displayed that represents query performance impact. After one week since the optimization was applied, the value can help indicate whether an optimization has improved or degraded query performance for the given entity. A negative value suggests an improvement in query performance, whereas a positive number suggests a degradation in query performance. For example, an optimization applied one week ago that has a value of -10% suggests a 10 percent improvement in query performance.

Optimizations take effect immediately after they are applied. However, for entities that have large tables, it can take two or more hours before the optimization fully takes effect. Optimizations are processed as an asynchronous process and can be viewed in the **Settings** > **System Jobs** area of Microsoft Dynamics CRM. Notice that an optimization may not be completely applied even after the system job is completed because the actual index must be built in the back-end storage engine.

See Also

Performance tuning and optimization
Set up a CRM organization

Set up a CRM organization

Applies To: CRM 2016 on-prem, CRM Online

This section describes how to set up your Microsoft Dynamics CRM organization. You will learn about managing business units and sites, adding resources and selecting language options.

In This Section

Create or edit business units

Delete a business unit

Assign a business unit a different parent business

Create or edit a site

Add resources to a site

Add or remove a currency

Change regional and language options for your organization

Enhanced service level agreements

Enable languages

Configure Quick Find options for the organization

Related Sections

Getting started

Install CRM for Outlook

Create or edit business units

Applies To: CRM 2016 on-prem, CRM Online

In Microsoft Dynamics CRM, a business unit is a logical grouping of related business activities.

If your CRM organization is structured around departments or divisions that have separate products, customers, and marketing lists, you might want to create business units. Business units are mapped to an organization's departments or divisions. Users can securely access data in their own business unit, but they can't access data in other business units.

Business units, security roles, and users are linked together in a way that conforms to the Microsoft Dynamics CRM role-based security model. Use business units together with security roles to control data access so people see just the information they need to do their jobs. More information: Security concepts for Microsoft Dynamics CRM

Keep the following in mind when creating business units:

- The organization (also known as the root business unit) is the top level of a Microsoft Dynamics CRM business unit hierarchy. CRM automatically creates the organization when you install or provision CRM. You can't change or delete the organization name.

- Each business unit can have just one parent business unit.

- Each business unit can have multiple child business units.

- CRM security roles and users are associated with a business unit. You must assign every user to one (and only one) business unit.

- You can assign a team to just one business unit, but a team can consist of users from one or many business units. Consider using a team if you have a situation where users from different business units need to work together on a shared set of records.

In This Topic

Create a new business unit
Change the settings for a business unit
Change the business unit for a record

Create a new business unit

1. Go to **Settings** > **Security**.
2. Choose **Business Units**.
3. On the Actions bar, select **New**.
4. In the **Business Unit** dialog box, type a name for the new business unit. CRM automatically fills in the **Parent Business** field with the name of the root business unit.
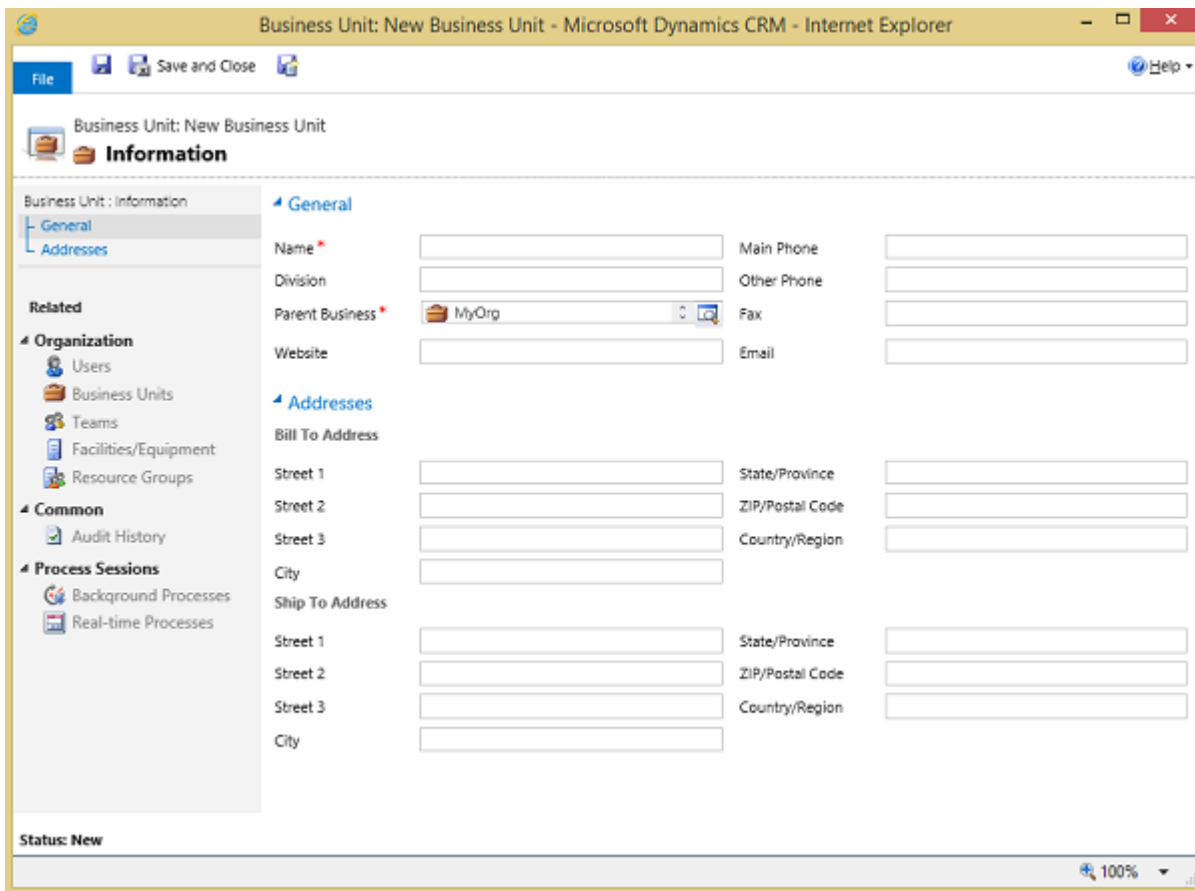
5. If you want to change the parent business unit, select the **Lookup** button , **Look Up More Records**, and then do one of the following:

- Select an existing business unit from the list.

  Create a new parent business unit:

    i. Choose **New**, and then add the information for the new parent business unit in the **Business Unit** dialog box.

    ii. When you're done adding information, select **Save and Close**.

    iii. In the **Look Up Record** dialog box, select **Add**.

6. In the **Business Unit** dialog box, fill in any of the other optional fields, such as the Division, Website, contact information, or addresses.

7. When you're done making entries, select **Save and Close**.

Change the settings for a business unit

1. Go to **Settings** > **Security**.

2. Choose **Business Units** and then select a business unit name.

3. In the **Business Unit** dialog box, do one or more of the following:

   • Modify the data in one or more fields.

   ✎ **Note**

   You can't change the name of a business unit or delete a business unit after it has been created. You can disable a business unit or change the parent, however. When you disable a business unit, all users and teams associated with the business unit are also disabled.

   • Make a selection on the **Actions** menu. For example, to change the parent business unit, select **Actions**, and then **Change Parent Business**.

   ✎ **Note**

   Changing the parent business removes security roles for users and teams associated with the business unit. You must reassign them.

   • Select a record type under **Organization** to see a list of related records. For example, select **Users** to view a list of users in the selected business unit or to add a **New User** to the business unit.

4. When you're done making changes select **Save and Close**.

Change the business unit for a record

You can change the business unit for an individual facility, equipment, or user. By changing the business unit for a user, you remove all security role assignments for the user. At least one security role must be assigned to the user in the new business unit. More information: Security roles and privileges

Change the business unit for facilities or equipment

1. Go to **Settings** > **Business Management**.

2. Choose **Facilities/Equipment**.

3. Select the **Name** of a piece of equipment or a facility.

4. In the **Facility/Equipment** dialog box, on the **Actions** menu, choose **Change Business Unit**.

5. In the **Change Business Unit** dialog box, use the **Lookup** button to select a new business unit, and then select **OK**.

6. Select **Save and Close**.

Change the business unit for a user

1. Go to **Settings** > **Security**.

2. Choose **Users**.

3. Select a user name.

4. On the **More Commands** (**…**) menu, select **Change Business Unit**.

5. In the **Change Business Unit** dialog box, use the **Lookup** button to select a new business unit, and then select **OK**.

See Also
Set up a CRM organization
Delete a business unit
Assign a business unit a different parent business

Delete a business unit

Applies To: CRM 2016 on-prem, CRM Online
You can delete a business unit to completely remove it from Microsoft Dynamics CRM.

◆ **Important**

Before deleting a business unit, be sure to consider the following:

• Deleting a business unit is irreversible.

• The records owned by the business unit are deleted at the same time you delete the business unit.

• You can't delete a business unit until you delete any associated users, teams, and child business units.

1. Go to **Settings** > **Security**.

2. Choose **Business Units**.

3. Click to select the business unit that you want to delete.

4. On the Actions toolbar, choose **More Actions** > **Disable**.

5. In the **Confirm Deactivation** dialog box, choose **Deactivate**.

6. With the entry for the business unit you're deleting still selected, on the Actions toolbar, choose the **Delete** icon ✕.

7. In the **Confirm Deletion** dialog box, choose **Delete**.

See Also

Set up a CRM organization
Assign a business unit a different parent business

Assign a business unit a different parent business

Applies To: CRM 2016 on-prem, CRM Online

You can assign a different parent business to a business unit to accommodate changes in your business requirements. When you reassign a business unit, any child business units are also reassigned with it.

1. Go to **Settings** > **Security**.

2. Choose **Business Units**.

3. Choose to select the business unit you want to change the settings for.

4. On the Actions toolbar, choose **More Actions** > **Change Parent Business**.

5. In the **Change Parent Business** dialog box, in the New parent business text box, type part or all of the name of the parent business you want to assign the business unit to, and then choose the **Click to select a value for New parent business** icon .

6. Select the record for the parent business you want to assign the business unit to, and then click **OK**.

See Also

Security roles and privileges
Set up a CRM organization
Create or edit a site

Create or edit a site

Applies To: CRM 2016 on-prem, CRM Online

You can create a new site to add an office location or other facility where service operations take place. You can also edit the details, such as the street address or phone number, for an existing site.

1. Go to **Settings** > **Business Management**.

2. Choose **Sites**.

3. To create a new site, on the Actions toolbar, choose **New**.

   - OR -

   To edit an existing site, in the list of sites, under Name, double-click or tap the entry for the site you want to edit details for.

4. Under **General**, in the **Name** text box, specify or edit the name for the site.

   You can also enter or update contact information for the site.

5. Under **Primary Address**, enter or update address details.

6. In the **Time Zone** box, ensure that the default time zone is appropriate for the site.

7. Choose **Save and Close**.

See Also

Add resources to a site

Applies To: CRM 2016 on-prem, CRM Online

After you create a site, you can add resources such as users, equipment, or facilities to it.

1. Go to **Settings** > **Business Management**.
2. Choose **Sites**.
3. In the list of sites, under **Name**, double-click or tap the site that you want to add resources to.
4. In the Navigation Pane, expand **Common** if necessary, and then click or tap **Resources**.
5. On the Actions toolbar, click or tap **Add Resources**.
6. In the **Look Up Records** dialog box, in the **Search** text box, type in a part of the name of the resource you want to add to the site, and then click or tap the **Start search** icon .
7. In the list of records, under **Full Name**, click or tap the entry for the resource you want to add to the site, and then click or tap **Add**.
8. Close the site record.

See Also

Add or remove a currency

Applies To: CRM 2016 on-prem, CRM Online

Microsoft Dynamics CRM is a multicurrency system, in which each record can be associated with its own currency. You can perform financial transactions like opportunities, quotes, orders, and invoices in multiple currencies.

In This Topic

Add a currency
Delete or deactivate a currency

Add a currency

1. Go to **Settings** > **Business Management**.
2. Choose **Currencies**.
On the Actions toolbar, choose **New**.

Add a custom currency

    a. After you select **New**, next to **Currency Type** choose **Custom**.

    b. Enter the currency code, name, precision, and symbol for the custom currency, and then proceed to Step 5.

3. Use the **Lookup** button next to the **Currency Code** box, to select the currency that you want to add.
You can change the **Currency Name**, **Currency Precision**, or **Currency Symbol**.
4. Under **Currency Conversion**, in the **Exchange Rate** box, type the rate of exchange between your base currency and the new currency you are adding.
5. After you have completed your entries, select **Save and Close**.

Delete or deactivate a currency

Currencies that are in use by other records cannot be deleted, but you can deactivate them. Deactivating currency records does not remove the currency information stored in existing records, such as opportunities or orders. The original currency information stays in those records, but the currency cannot be selected for new transactions.

🔶 **Important**

The base currency cannot be deleted.

1. Go to **Settings** > **Business Management**.

2. Choose **Currencies**.

3. Select the currency you want to delete or deactivate.

4. On the **Actions** menu, select **Delete Currency** or **Deactivate Currency**.

5. Confirm the deletion or deactivation and choose **Close**.

See Also

Set up a CRM organization
Change regional and language options for your organization

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Change regional and language options for your organization

Applies To: CRM 2016 on-prem, CRM Online

You can change how Microsoft Dynamics CRM displays dates, times, numbers, and currencies. You can also select the language in which CRM displays the user interface and Help.

🔹 **Important**

If you're running Dynamics CRM for Outlook, you must download one or more Language Packs before you can enable additional languages.

The following table shows tasks that are associated with changing regional and language options for your organization.

Task	Description
Set the base language	The base language determines default settings for regional and language options in CRM. After the base language is set, you can't change it.
Enable or disable languages	You can enable or disable available languages in the **Settings** area. More information: Enable or disable languages
Add and remove currencies	Similar to setting the base language, you select your organization's base currency during the purchasing process for a subscription to CRM. After the base currency is set, you can't change it. However, if your organization uses more than one currency to track financial transactions, you can

Task	Description
	add currencies.
Deactivate or activate currency records	You can't delete currency records that are being used by other records, such as opportunities or invoices. However, you can deactivate currency records so they won't be available for future transactions.

See Also

Set up a CRM organization
Add resources to a site

Enhanced service level agreements

Applies To: CRM 2016 on-prem, CRM Online

Service level agreements (SLAs) are a formalized method to help organizations meet service levels when they provide customer service and support. For example, an organization can have an SLA to complete the first customer response within 48 business hours after a case is created. Another example is to escalate an unresolved case after a specified duration, such as five business days. SLAs are used to define these different aspects of service.

Microsoft Dynamics CRM includes two kinds of SLAs, standard and enhanced. Enhanced SLAs include the following features not available in standard SLAs:

- Case-on-hold support

- Auto-pause and resume of time calculation

- Support for success actions

- Creation of dashboards or reports based on the SLA KPI Instance entity

Case-on-hold support

One feature of SLA tracking is the ability to control the case-on-hold status. For example, this functionality lets you pause a case for a time when the case is on hold waiting for a response from the customer. Once the response is received, the case is resumed.

System administrators turn on SLAs and select case hold functionality in **Settings** > **Service Management** > **Service Configuration Settings**. Afterwards, CSR Managers can create SLAs using the enhanced SLA type that allows pause and resume functionality. SLAs are created in **Settings** > **Service Management**.

More information: Help & Training: Define service level agreements (SLAs)

Considerations when you choose a SLA type

Because there are two types of SLAs that have different functionality, consider the following features before you choose an SLA type. We recommend that you use only one type of SLA for an organization.

- After you select an SLA type, either standard or enhanced, you cannot change the SLA type for any record associated with the SLA.

- Because standard and enhanced SLAs exist as separate entities with separate forms, views, and fields, the following behaviors exist.

    - Case views cannot be sorted by enhanced SLA fields. To display enhanced SLA fields in Case views, you can modify any of the Case views to display the fields from the enhanced SLA (which has the entity name SLA KPI Instance). Although you can sort on the fields that are part of the Case entity, because the enhanced SLA fields are on a related entity, you cannot sort on columns that are associated with the enhanced SLA fields.

    - Queue Item views do not display enhanced SLA fields. Although, Queue Item views display the standard fields SLA (First Response By and Resolve By), because the enhanced SLA (SLA KPI Instance entity) is not directly related to the Queue Item entity, the columns associated with enhanced SLAs cannot be displayed.

💡 **Tip**

To monitor enhanced SLA details, consider creating custom dashboards based on the SLA KPI Instance entity or custom views using the Regarding (Case) relationship.

See Also

Video: SLA Enhancements in Microsoft Dynamics CRM 2015
Set up a CRM organization
Enable languages

Enable languages

Applies To: CRM 2016 on-prem, CRM Online

Enable languages in your organization to display the user interface and Help in a language that's different from the base language.

In This Topic

Enable the language
Select the language to display the user interface and Help
Known issues with Language settings

Enable the language

Before users can start using a Language Pack to display a language, the Language Pack must be enabled in your Microsoft Dynamics CRM organization.

1. Start the Microsoft Dynamics CRM web application. You'll need a System Administrator security role or equivalent privileges for the Microsoft Dynamics CRM organization that you want to provision a Language Pack for.
2. Go to **Settings** > **Administration**.
3. Click **Languages** to open the **Language Settings** dialog box. Here you'll see each Language Pack installed in your Microsoft Dynamics CRM deployment, with a check box to the left of each listed Language Pack
4. For each Language Pack that you want to provision (enable), select the check box next to it. For each Language Pack that you want to unprovision (disable), clear the check box.
5. Click **Apply**.
6. Click **OK** on any confirmation dialog boxes that open.

 Note

It may take several minutes for Microsoft Dynamics CRM to provision or unprovision the languages.

7. To close the **Language Settings** dialog box, click **Close**.

Repeat the previous steps for each organization in your Microsoft Dynamics CRM deployment.

Select the language to display the user interface and Help

Each user selects the language to display in both the Microsoft Dynamics CRM web client and Dynamics CRM for Outlook applications.

 Important

For Microsoft Dynamics CRM for Outlook, you must download and install the Language Packs before you can select them. More information: [Referenced topic '3ffb8f29-2bc2-4074-8c44-f7e3cb4a14be' is not in the TOC.](#)

1. Sign in to Microsoft Dynamics CRM and open the **Set Personal Options** page, as follows:
   - If you're using the Microsoft Dynamics CRM web client, click the **Settings** button , and then click **Options**.

- If you are using Dynamics CRM for Outlook, on the top menu bar, choose **CRM**, and then click **Options**.

2. Choose the **Languages** tab.

3. In the **User Interface Language** list, select the language in which you want to display Microsoft Dynamics CRM.

4. In the **Help Language** list, select the language in which you want to display Microsoft Dynamics CRM Help.

5. To save your changes and close the dialog box, click **OK**.

 Note

In Dynamics CRM for Outlook, the user language settings only apply to Dynamics CRM for Outlook features, such as the user interface display of the **CRM** menu, and don't affect other areas of Microsoft Office Outlook. To display all of the Dynamics CRM for Outlook user interface or Help in multiple languages, you need to install one or more Microsoft Office Language Packs. More information: Office 2013 Language Options.

Known issues with Language settings

Distorted characters are displayed in some languages when you run CRM for Outlook on Windows 10

By default, Windows 10 includes a limited number of available languages. If your language is not already available on Windows 10, you'll need to download and install it before you install Dynamics CRM for Outlook. More information: Language packs.

See Also

Help & Training: Enable or disable languages

Configure Quick Find options for the organization

Applies To: CRM 2016 on-prem

The Quick Find search feature provides quick results to users who enter simple queries to commonly-searched entities. You can tailor the Quick Find functionality by selecting record return limits, an indexing method, and which entities are included.

In this topic

Choose the method used for Quick Find indexing

By default, Microsoft Dynamics CRM uses the same search functionality as in previous releases, which is based mostly on string matches.

System administrators have the option to use full-text indexing for Quick Find. We recommend you enable full-text indexing for Quick Find because it can provide a better search experience by improving query performance. Full-text search also uses more sophisticated indexing methods that include support for linguistic-based searches and superior relevance ranking.

While the previous search method (standard indexing) returns results based on literal matches, full-text indexing returns linguistic-based matches. For example the term *service* can return similar words like *servicing* and *serviced*. More information: Full-Text Search (SQL Server)

To find information, standard indexing often requires users to add wildcards to search strings. This results in poor performance for large data sets, due to the required full table scans instead of using an index. Full-text indexing doesn't use wildcards, which leads to improved query and system performance. Notice that, although users can include wildcards in search strings, wildcards are ignored.

♦ **Important**

 Quick Find full-text search is not available with Microsoft Dynamics CRM Online.

What system administrators should consider before enabling or disabling full-text indexing

Changes made to how and when Microsoft Dynamics CRM data is indexed are not initiated until a certain time of day, typically during the late evening. Before you enable or disable full-text indexing, consider the following:

- Because indexing is a maintenance job that runs one time every day, it can take up to 24 hours for the system to enable or disable full-text search, or add and remove find columns.

- When customizers add an item for Quick Find, such as a find column, the column data won't appear in Quick Find search results until the next maintenance job completes. These items can still be discoverable through Quick Find searches, but will use the previous search method. Any columns that have not finished indexing for full-text will continue to use the standard indexing method for Quick Find searches. When indexing for a column completes, Quick Find will use full-text search. When full-text search for Quick Find is enabled, columns newly added to a Quick Find view will not have any indexing until the next maintenance job completes. This may cause poor Quick Find performance.

- Advanced Find search is not affected when you enable full-text indexing for Quick Find. Advanced Find will continue to use the same standard indexing that was available in previous releases of Microsoft Dynamics CRM.

- Because full-text indexing for Quick Find uses SQL Server full-text indexing, certain queries made up of mostly or entirely common words (stopwords such as on, or, for, and, like) may not return expected results. SQL Server database administrators can create a custom stoplist or choose not to use a stoplist by dropping the system stoplist (not recommended). More information: TechNet: Configure and Manage Stopwords and Stoplists for Full-Text Search

For Microsoft Dynamics CRM on-premises administrators

When you enable full-text indexing for a database with a large number of columns, the size of the transaction log of the organization database may increase. We recommend you monitor and consider shrinking the transaction log. More information: MSDN: Manage the Size of the Transaction Log File

The aspects of resource consumption for full-text indexing are different from standard indexing, which may lead to SQL Server performance issues. Performance can especially be affected during the initial full-text indexing for all Quick Find text fields. More information: MSDN: Improve the Performance of Full-Text Indexes > Common Causes of Performance Issues

Index creation is a background process, so for large amounts of data serviced by busy SQL Servers, it can take several hours to multiple days for the full-text indexes to fully complete.

Enable or disable full-text indexing for Quick Find

Before you enable or disable full-text indexing for Quick Find, review the preceding What system administrators should consider before enabling or disabling full-text indexing section.

1. Go to **Settings** > **Administration** > **System Settings** >**General** tab.

2. Select **Yes** or **No** next to **Enable full-text search for Quick Find**.

See Also
Enable languages
Manage security, users, and teams

Preview feature: Configure Relevance Search for the organization

Applies To: Dynamics CRM Online

Relevance Search delivers fast and comprehensive search results in a single list, sorted by relevance. It uses a dedicated search service external to Microsoft Dynamics CRM powered by Microsoft Azure to boost CRM search performance. As an administrator or customizer, you'll be able to enable and

configure Relevance Search in the CRM user interface without writing code. Many of the configuration steps will look familiar to you, as they use a similar user interface to the Quick Find configuration.

◆ **Important**

- Relevance Search is available as a preview feature for Microsoft Dynamics CRM Online organizations, if you've installed the Microsoft Dynamics CRM Online 2016 Update.

- Relevance Search is available in the Microsoft Dynamics CRM Web client, CRM for tablets and CRM for phones.

- We expect changes to this feature, so you shouldn't use it in production. Use it only in test and development environments.

- A preview feature is a feature that is not complete, but is made available before it's officially in a release so customers can get early access and provide feedback. Preview features aren't meant for production use and may have limited or restricted functionality.

- Microsoft doesn't provide support for this preview feature. Microsoft Dynamics CRM Technical Support won't be able to help you with issues or questions. Preview features aren't meant for production use and are subject to a separate supplemental terms of use.

Send us feedback

We'd love your feedback on Dynamics CRM Relevance Search! To send us your feedback, register your account on the Microsoft Connect site, and then submit your feedback.

Relevance Search is available in addition to other CRM searches you're already familiar with. You can still use single-entity Quick Find on the entity grid. You can also use multi-entity Quick Find (now called Categorized Search) from the **Search CRM data** search box in the navigation bar.

Relevance Search brings the following enhancements and benefits:

- Improves performance with external indexing and Azure Search technology.

- Finds matches to any word in the search term in any field in the entity. Matches may include inflectional words, such as "stream," "streaming," or "streamed."

- Returns results from all searchable entities in a single list sorted by relevance, based on factors, such as number of words matched or their proximity to each other in the text.

- Matches in the result list are highlighted.

In This Topic

Compare Dynamics CRM searches
How Relevance Search works
Relevance Search architecture
Enable Relevance Search
Select entities for Relevance Search
Configure searchable fields for Relevance Search
Set managed property for Relevance Search

Compare Dynamics CRM searches

There are three kinds of search in Dynamics CRM:

- Relevance Search
- Full-text Quick Find (single-entity or multi-entity)
- Quick Find (single-entity or multi-entity)

The following table provides a brief comparison of the three available searches.

Functionality	Relevance Search	Full-text Quick Find	Quick Find
Availability	Available for Microsoft Dynamics CRM Online organizations that have installed Microsoft Dynamics CRM Online 2016 Update. Not available for Microsoft Dynamics CRM on-premises organizations.	Available for Microsoft Dynamics CRM on-premises organizations, starting with Microsoft Dynamics CRM 2015 Update Rollup 1.	Available for Microsoft Dynamics CRM Online organizations and Microsoft Dynamics CRM on-premises organizations.
Enabled by default?	No. An administrator must manually enable it.	No. An administrator must manually enable it.	Yes
Single-entity search scope	Not available in an entity grid. You can filter the search results by an entity on the results page.	Available in an entity grid.	Available in an entity grid.
Multi-entity search scope	There is no maximum limit on the number of entities you can search.	Searches up to ten entities, grouped by an entity.	Searches up to ten entities, grouped by an entity.
Search behavior	Finds matches to any word in the search term in any field in the entity.	Finds matches to all words in the search term in one field in an entity, however, the words can be matched in any order in the field.	Finds matches as in a SQL query with the "Like" clauses. You have to use the wildcard characters in the search term to search within a string. All matches must be an exact match to the search term.
Search results	Returns the search results in order of their relevance, in a single list.	For single-entity, returns the search results in an entity grid. For multi-entity, returns the search results grouped by categories, such as	For single-entity, returns the search results in an entity grid. For multi-entity, returns the search results grouped by categories, such as

Functionality	Relevance Search	Full-text Quick Find	Quick Find
		accounts, contacts, or leads.	accounts, contacts, or leads.

For more information about Quick Find, see: TechNet: Configure Quick Find options for the organization

How Relevance Search works

Relevance Search uses the same default scoring concepts as Azure Search. Scoring refers to the computation of a search score for every item returned in search results. The score is an indicator of an item's relevance in the context of the current search operation. The higher the score, the more relevant the item. In search results, items are rank in order from high to low, based on the search scores calculated for each item. By default, a search score is computed based on statistical properties of the data and the query. Relevance Search finds documents that include the search terms in the query string, favoring the documents that contain many instances of the words in the search term and their close proximity to each other in the document. The search score goes up even higher if the term is rare across the index, but common within the document. The results are then ranked by search score before they're returned to the calling application. Search score values can be repeated throughout a result set. For example, you might have 10 items with a score of 1.2, 20 items with a score of 1.0, and 20 items with a score of 0.5. When multiple hits have the same search score, the ordering of same scored items isn't defined, and isn't stable. Run the query again and you might see items shift position. Given two items with an identical score, there is no guarantee which one appears first. More information:MSDN: Add scoring profiles to a search index (Azure Search Service REST API)

Searchable fields are analyzed in the Azure Search index to provide a more natural, end-user friendly search experience by breaking words into their root forms, text normalization, and filtering out noise words. All searchable fields in Relevance Search are analyzed with the Microsoft Natural language analyzer which uses Lemmetization to break words down into their root linguistic forms. For example, "ran" will match to "run" and "running" since "run" is considered the base form of the word. Word stemmers, such as SQL full-text indexes, don't have any linguistic context and only consider matches where the root is the same as the inflectional form. With stemming, "run" would match to "running" and "runner", but not "ran" since it doesn't consider "ran" to be a word linguistically related to "run". All searchable fields in Relevance Search use an analyzer that most closely matches the organization's base language. For Kazakh, which is the only language supported by Dynamics CRM but not by Azure Search, all fields are analyzed using the default analyzer. For more information about language analysis and a list of the supported languages, see: MSDN: Language support (Azure Search Service REST API).

Relevance Search architecture

Relevance Search is hosted on the Microsoft Azure cloud computing platform and infrastructure that uses Azure Search, which provides the search results. Changes made in CRM may take up to 15 minutes to appear in the search service. It may take up to up to an hour or more to complete a full sync for average to large size organizations.

The following diagram shows the high level Relevance Search architecture.

Dynamics CRM Search Architecture
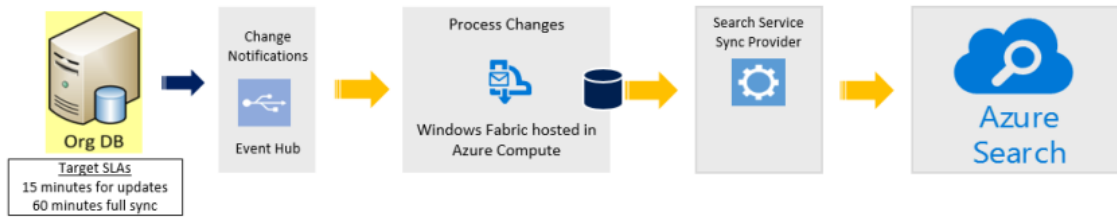
Enable Relevance Search

◆ Important

Data in your application begins syncing to the external search index immediately after you enable Relevance Search. We strongly recommend that you configure the entities and entity fields participating in Relevance Search before you enable the search, to prevent sensitive data from being indexed in a service external to Microsoft Dynamics CRM Online. For more information about configuring Relevance Search, see Select entities for Relevance Search, Configure searchable fields for Relevance Search and   Set managed property for Relevance Search.

Because you'll be sharing your CRM data with the external system, Relevance Search is disabled by default. To enable it, you must accept the consent terms. Depending on the size of your organization, it may take up to an hour or more for the data to become available in the external search index after you enable the search.

To enable Relevance Search, do the following:

1. Go to **Settings** > **Administration**.

2. Click **System Settings** and open the **Previews** tab.

3. In the **Relevance Search Preview** sub-area, set the **Enable Dynamics CRM Relevance Search Preview** to **Yes**, as shown here:
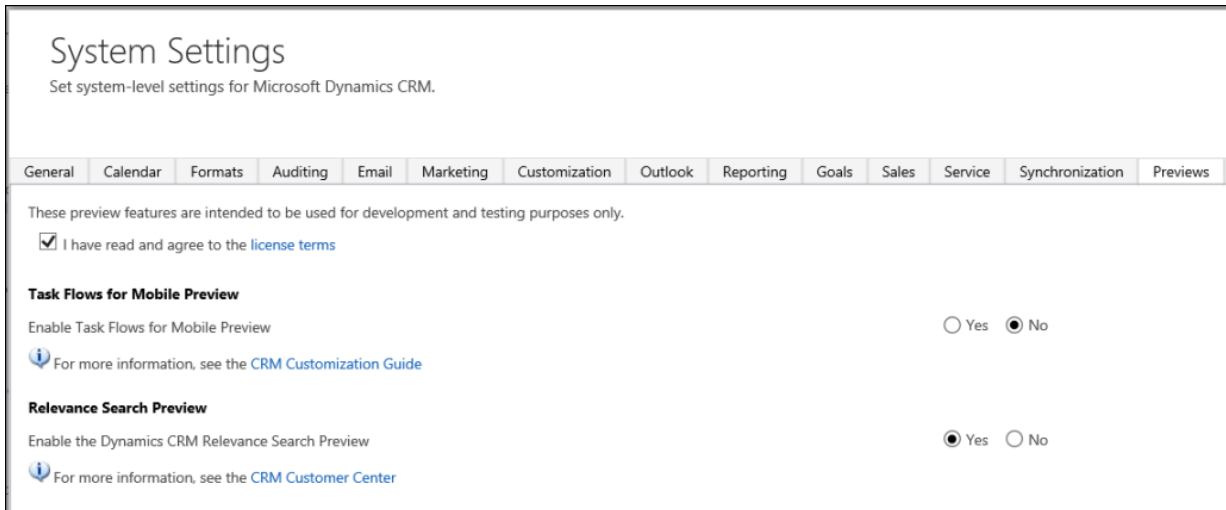
4. When you click **Yes**, the **Enable Search** consent dialog box opens. Click **OK** to give your consent.
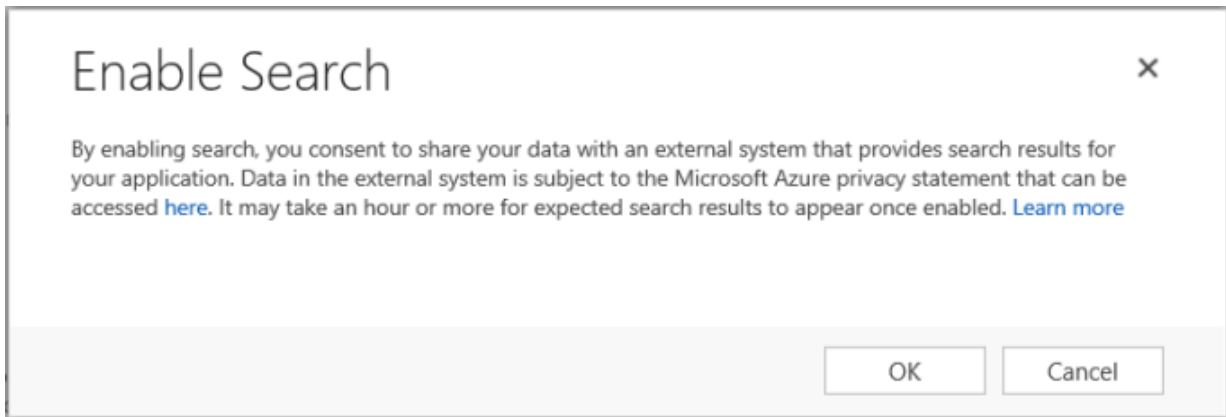
5. Click **OK** to close the **System Settings** dialog.

Select entities for Relevance Search

To configure Relevance Search, use the **Configure Relevance Search** selection on the task bar, as shown here:
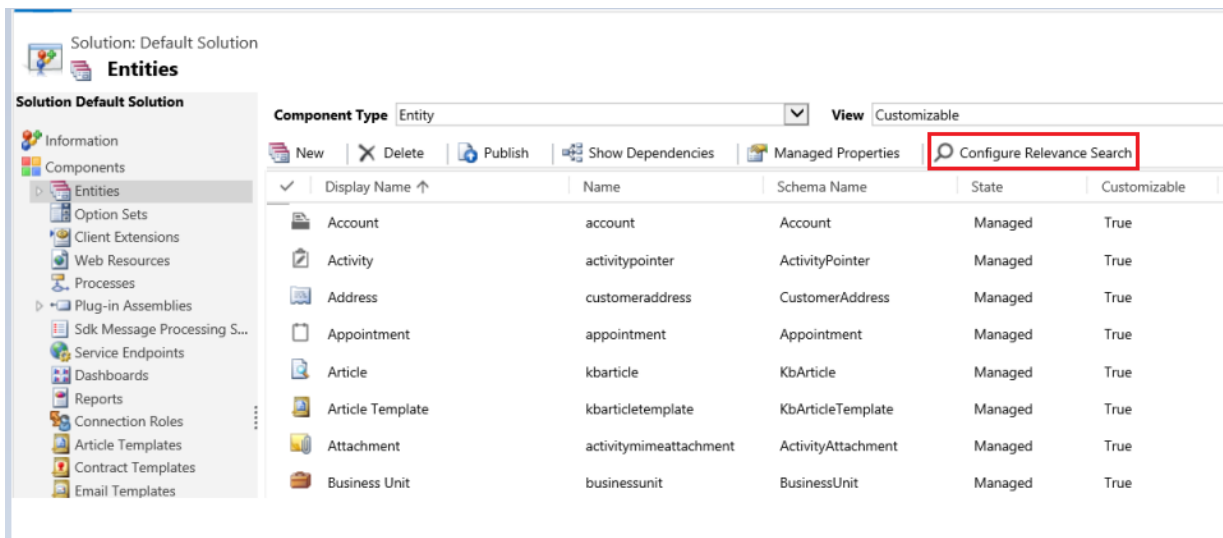
There is no limit on how many entities you can include in the Relevance Search results. However, there is a limit on the total number of fields you index. Currently, the maximum is 1000 searchable fields for an organization. When you select an entity to be included in the search results, you'll notice a number in parenthesis next to the entity name. The number indicates how many fields of the entity will be synced to the external search index. Some fields, such as **Primary Name** and **Id**, are shared by multiple entities and are not counted towards the total. The progress bar **Total fields indexed** shows the percentage of indexed fields to the maximum allowed number of searchable fields.

When you have reached the indexed field limit, you'll receive a warning message. If you want to add more fields to the index, you'll have to either remove some of the fields that are already in the index or remove entire entities from Relevance Search, to free up space.

To select the entities for the Relevance Search results, do the following:

1. Go to **Settings** > **Customizations**.
2. Click **Customize the System**.
3. Under **Components**, expand **Entities**, and then click **Configure Relevance Search**.
4. The **Select Entities** dialog box opens. Click **Add** to select the entities for the search results. When you're done, click **OK**.

Select Entities

Select the entities that will be included in the Relevance Search results. The number in parentheses indicates the number of fields for an entity that will be synced to the external search index.

Available Entities

- Business Unit (2)
- Connection Role (0)
- Facility/Equipment (0)
- Position (0)
- Security Role (0)
- Site (1)
- Team (0)
- Territory (0)
- User (7)

Add >

< Remove

Selected Entities

- Account (7)
- Appointment (3)
- Campaign (3)
- Campaign Activity (0)
- Campaign Response (0)
- Case (2)
- Competitor (1)
- Contact (8)
- Contract (1)
- Email (1)
- Fax (1)
- Goal (6)
- Goal Metric (1)
- Invoice (1)
- Lead (8)

Total fields indexed: 6.70% used (67 of 1000)

OK   Cancel

5. Click **Publish All Customizations** for your changes to take effect.

By default, some of the out-of-the-box system entities are included in Relevance Search. However, custom entities aren't included. You have to add them to Relevance Search.

Configure searchable fields for Relevance Search

The fields you add in the Quick Find view become a part of the external search index. There is no limit on how many searchable fields you can add for each entity. However, there is a limit on the total number of indexed fields, as was explained in the previous section. The **Find Columns** on a **Quick Find View** define the searchable fields in the external search index. The **View Columns** on a **Quick Find View** define the fields that are displayed in the user interface by default, when the matched results are returned. The fields that are highlighted replace the fields that don't have the highlighting. The first four matched fields are displayed in the results.

1. Go to **Settings** > **Customizations**.
2. Click **Customize the System**.
3. Under **Components**, expand **Entities**, and then expand the entity you want.
4. In the navigation tree, click **View**. Double-click **Quick Find View**. The following illustration shows the **Quick Find View** for the **Account** entity.
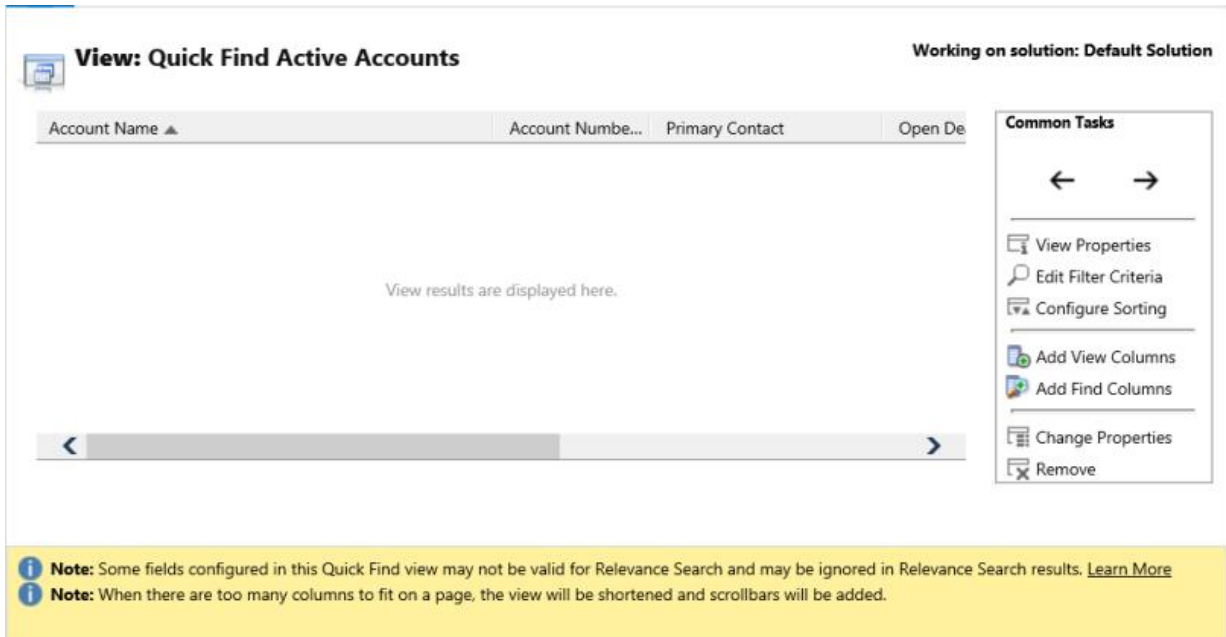
5. Click **Add Find Columns**. In the dialog box, select the fields you want to add to the search index. When done, click **OK**. In the following illustration, you see the **Account** entity fields added to the external search index.
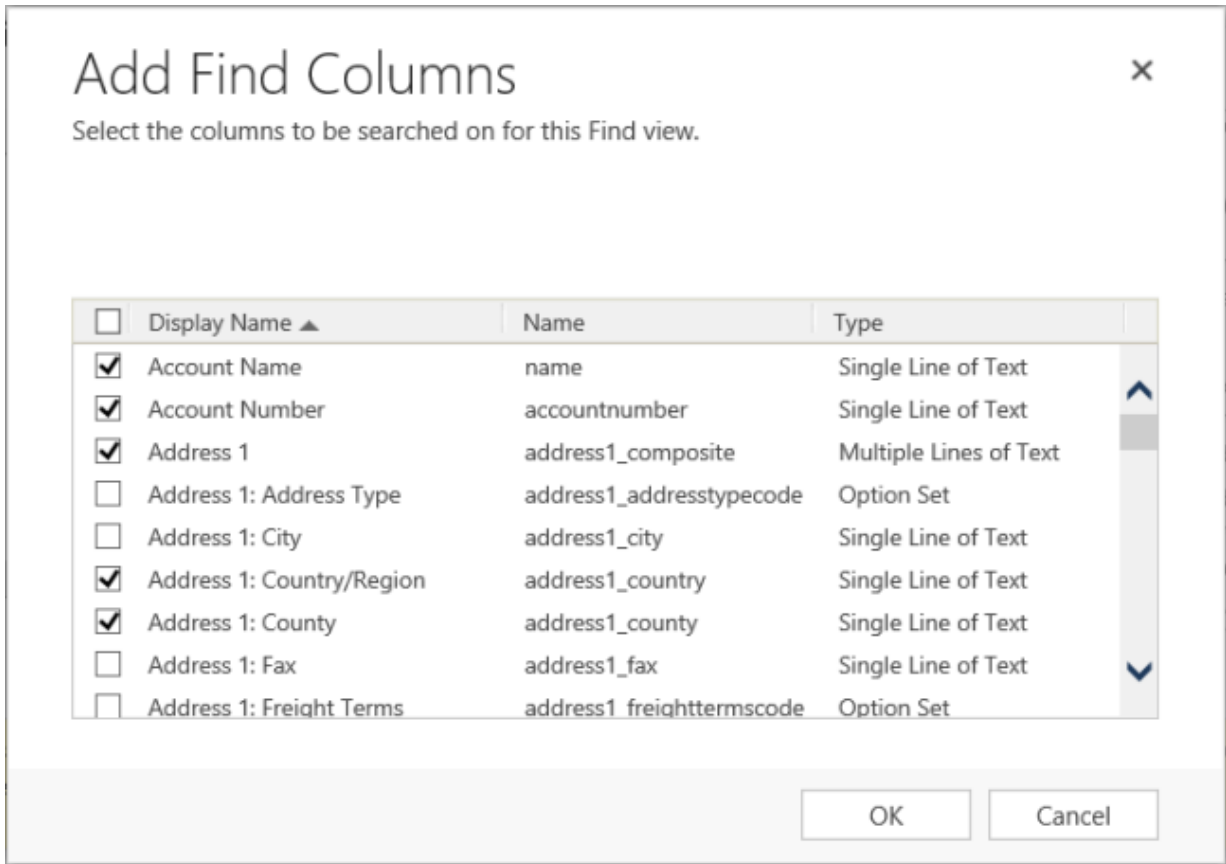
6. Repeat the steps for the **VIEW Columns**.

7. Click **Publish All Customizations** for your changes to take effect.

📝 **Note**

The changes you make in **Quick Find View** also apply to single-entity and multi-entity (Categorized Search) Quick Find configurations. This is why we don't prevent you from including the fields that aren't supported for Relevance Search when you configure **Quick Find View**. However, unsupported fields aren't synced to the external index and don't appear in the Relevance Search results.

The following fields aren't supported for Relevance Search:

- Find fields
  - Lookup
  - Option Set
  - Rollup and calculated fields are supported, but they are only updated when the row is updated.
  - Non-text

- View fields
  - Lookup
  - Option Set
  - Fields on the related entity
- Filter fields
  - Lookup
  - Option Set
  - Fields on the related entity

The following table contains the **Quick Find Filter** operators that aren't supported for Relevance Search:

CRM Operator
Like
NotLike
BeginsWith
DoesNotBeginWith
EndWith
DoesNotEndWith
ChildOf
Mask
NotMask
MaskSelect
EqualUserLanguage
Under
NotUnder
UnderOrEqual
Above
AboveOrEqual

Set managed property for Relevance Search

If you want to include an entity in Relevance Search, the **Can enable sync to external search index** managed property for this entity must be set to **True**. By default, the property is set to **True** for some of the out-of-the-box system entities and all custom entities. Some of the system entities can't be enabled for Relevance Search.

To set the managed property, do the following:

1. Go to **Settings** > **Customizations**.
2. Click **Customize the System**.
3. Under **Components**, expand **Entities**, and then click the entity you want.
4. On the menu bar, click **Managed Properties**. For **Can enable sync to external search index**, click **True** or **False** to set the property to the desired state. Click **Set** to exit, as shown here.
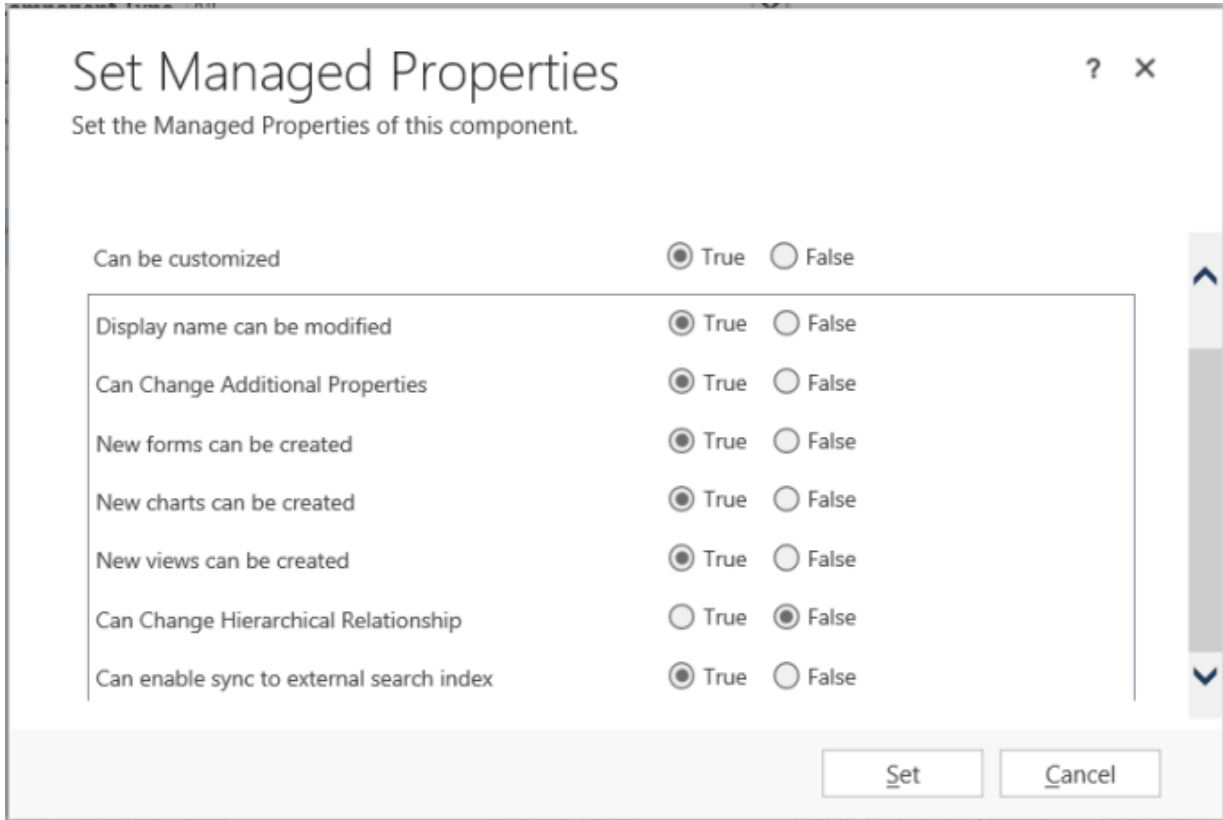
5. Click **Publish** for your changes to take effect.

If you want to change the **Can enable sync to external search index** property to **False**, you must first deselect the entity from Relevance search. If the entity is included in Relevance Search, you'll see the following message: "This entity is currently syncing to an external search index. You must remove the entity from the external search index before you can set the **Can Enable Sync to External Search Index** property to **False**." If **Can Enable Sync to External Search Index** is set to **False**, you'll see the following message when you try to include an entity in Relevance Search: "Entity can't be enabled for relevance search because of the configuration of its managed properties." For custom entities with particularly sensitive data, you may consider setting the **Can enable sync to external search index**

property to **False**. Keep in mind, after you install the managed solution on the target system, you won't be able to change the value of the property because it's a managed property.

Privacy notice

By enabling the CRM Relevance Search feature, CRM Online data in participating Entities and Attributes will begin syncing to and will ultimately be stored in the external Azure Search index.

Relevance Search is turned off by default, and an administrator determines whether or not to enable to functionality within a CRM Online organization. After the feature is enabled, Administrators and System Customizers have full control over the data that is synchronized to the external search index.

System Customizers can use the Configure Relevance Search dialog in Customization Tools to select the Entities enabled for search and then configure Quick Find views on these Entities to select the searchable Attributes. Data change are synchronized continuously between Dynamics CRM Online and Azure Search via a secure connection. Organization configuration is encrypted and any required secrets are stored in Key Vault.

A list of the Azure components and services that are involved with Relevance Search functionality is provided below.

 Note

For more information about additional Azure service offerings, see the [Microsoft Azure Trust Center](#).

Azure Search Services

An Azure Search index is used to provide high quality search results with quick response times. Azure Search adds powerful and sophisticated next generation search capabilities to Dynamics CRM Online. This is a dedicated search service external to Dynamics CRM Online provided by Microsoft Azure.

Azure SQL Database

Relevance Search uses the Azure SQL database to store:

- Configuration data related to organization and corresponding index

- Metadata relating the search service and indexes

- Pointers to system metadata and data when synchronizing changes.

Azure Event Hubs

Azure Event Hub is used for message exchange between CRM and Azure. It is used to maintain work items that are processed by the synchronization process. Each message stores information such as the org id and entity name for which to sync data.

Azure Cloud Services

The internal compute worker roles for processing and indexing data are also hosted on cloud services. Powers the logic that drives the data synchronization and indexing process.

Azure Service Fabric Cluster

Hosts internal APIs for search and the synchronization process Microsoft Azure VMs managed through the service fabric runtime.

All of the compute related to processing and indexing of data will also be handled via micro-services deployed on VMs managed via service fabric runtime.

Service Fabric was born from years of experience at Microsoft delivering mission-critical cloud services and is now production-proven for over five years. It's the foundational technology on which we run our

Azure core infrastructure, powering services including Skype for Business, Intune, Azure Event Hubs, Azure Data Factory, Azure DocumentDB, Azure SQL Database, and Bing Cortana—which can scale to process more than 500 million evaluations per second.

Azure Key Vault

Secrets management for encryption keys used in the search process.

Azure Storage (Blob Storage)

Changes to customer data is stored for up to 2 days in Azure Blob Storage. These blobs are encrypted by leveraging the latest feature in the Azure Storage SDK, which provides symmetric and asymmetric encryption support and integration with Key Vault.

Azure Active Directory Service

Azure Active Directory is used to authenticate between the Dynamics CRM Online and Microsoft Azure services.

Azure Load Balancer

The Azure Load Balancer delivers high availability and network performance to your applications. It is a Layer-4 (TCP, UDP) type load balancer that distributes incoming traffic among healthy service instances in cloud services or virtual machines defined in a load balancer set. We use it to load balance our end points in a deployment.

See Also

What are Preview features and how do I enable them?
Supplemental Terms of Use for Microsoft Dynamics CRM Online Previews
Configure Quick Find options for the organization
Help & Training: Preview feature: Use Relevance Search for faster comprehensive results

Turn off the welcome screen (navigation tour)

Applies To: CRM 2016 on-prem, CRM Online

When people first start Microsoft Dynamics CRM, they are offered a quick overview of CRM. They can start the navigation tour by choosing **Let's go**.

System Settings
Set system-level settings for Microsoft Dynamics CRM.

If they don't want to see the welcome screen (navigation tour) each time they start, they can select the **Don't show me this again** check box, to turn it off. However, they will see the welcome screen again, if they log in from a different device, use a new browser, or delete their cache. As an administrator, you can turn off the welcome screen (navigation tour) permanently for the whole organization, so, it doesn't re-appear every time the users sign in to Microsoft Dynamics CRM.

To do that:

1. Go to **Settings** > **Administration**.

2. Choose the **System Settings** > **General** tab.

3. In **Set whether users see navigation tour**, set the **Display navigation tour to users when they sign in** to **No**, as shown below:

See Also

Manage security, users, and teams

Applies To: CRM 2016 on-prem, CRM Online

The following section contains information about users, teams, and security in Microsoft Dynamics CRM.

In This Section

See Also

Security concepts for Microsoft Dynamics CRM

Applies To: CRM 2016 on-prem, CRM Online

You use the security model in Microsoft Dynamics CRM to protect the data integrity and privacy in a Microsoft Dynamics CRM organization. The security model also promotes efficient data access and collaboration. The goals of the model are as follows:

- Provide a multi-tiered licensing model for users.

- Grant users access that allows only the levels of information required to do their jobs.

- Categorize users and teams by security role and restrict access based on those roles.

- Support data sharing so that users can be granted access to objects they do not own for a one-time collaborative effort.
- Prevent access to objects a user does not own or share.

You combine business units, role-based security, record-based security, and field-based security to define the overall access to information that users have in your Microsoft Dynamics CRM organization.

In this topic

Business units
Role-based security
User-based access and licensing
Teams
Record-based security
Hierarchy security
Field-based security
Deployment-wide administrative-level security (on-premises only)
Security Modeling with Microsoft Dynamics CRM

Business units

A business unit basically is a group of users. Large organizations with multiple customer bases often use multiple business units to control data access and define security roles so that users can access records only in their own business unit. More information: Create or edit business units

Role-based security

You can use role-based security to group sets of privileges together into *roles* that describe the tasks that can be performed by a user or team. Microsoft Dynamics CRM includes a set of predefined security roles, each of which is a set of privileges aggregated to make security management easier. The bulk of the privileges define the ability to create, read, write, delete and share records of a specific entity type. Each privilege also defines how broadly the privilege applies: at the user level, business unit level, the entire business unit hierarchy or across the entire organization.

For example, if you sign in as a user that is assigned the Salesperson role, you have the privileges to read, write and share accounts for the entire organization, but you can only delete account records that you own. Also, you have no privileges to perform system administration tasks such as install product updates, or to add users to the system.

A user that has been assigned the Vice President of Sales role can perform a wider set of tasks (and has a greater number of privileges) associated with viewing and modifying data and resources than can a user who has been assigned to the Salesperson role. A user assigned the Vice President of Sales role can, for instance, read and assign any account to anyone in the system, while a user assigned the Salesperson role cannot.

There are two roles that have very broad privileges: System Administrator and Customizer. To minimize misconfiguration, the use of these two roles should be limited to a few people in your organization responsible for administering and customizing Microsoft Dynamics CRM. Organizations can also

customize existing roles and create its own roles to meet their needs. More information: [Security roles and privileges](#)

User-based access and licensing

By default, when you create a user the user has read and write access to any data for which they have permission. Also, by default, the user client access license (CAL) is set to Professional. You can change either of these settings to further restrict data and feature access.

Access mode. This setting determines the level of access for each user.

- Read-Write access. By default, users have Read-Write access that allows them access to data for which they have appropriate permission set by security roles.

- Administrative access. Allows access to areas that the user has appropriate permission set by security roles but doesn't allow the user to view or access business data typically found in the Sales, Service, and Marketing areas, such as accounts, contacts, leads, opportunities, campaigns, and cases. For example, Administrative access can be used to create CRM administrators who can have access to perform a complete variety of administrative tasks, such as create business units, create users, set duplicate detection, but cannot view or access any business data. Notice that users who are assigned this access mode do not consume a CAL.

- Read access. Allows access to areas for which the user has appropriate access set by security role but the user with Read access can only view data and can't create or change existing data. For example, a user with the system administrator security role who has read access can view business units, users, and teams but can't create or modify those records.

License type. This sets the user CAL and determines what features and areas are available to the user. This feature and area control is separate from the user's security role setting. By default, users are created with Professional CAL for the most feature and area access that they have permission granted.

Teams

Teams provide an easy way to share business objects and let you collaborate with other people across business units. While a team belongs to one business unit, it can include users from other business units. You can associate a user with more than one team. More information: [Manage teams](#)

Record-based security

You can use record-based security to control user and team rights to perform actions on individual records. This applies to instances of entities (records) and is provided by access rights. The owner of a record can share, or grant access to a record to another user or team. When this is done, they must choose which rights they are granting. For example, the owner of an account record can grant read access to that account information, but not grant write access.

Access rights apply only after privileges have taken effect. For example, if a user does not have the privileges to view (read) account records, they will be unable to view any account, regardless of the access rights another user might grant them to a specific account through sharing.

Hierarchy security

You can use the hierarchy security model for accessing hierarchical data. With this additional security, you gain a more granular access to records, allowing managers to access the records of their reports for approval or do work on reports' behalf. More information: [Hierarchy security](#)

Field-based security

You can use field-level security to restrict access to specific high business impact fields in an entity only to specified users or teams. Like record-based security, this applies after privileges have taken affect. For example, a user may have privileges to read an account, but can be restricted from seeing specific fields in all accounts. More information: [Field level security](#)

Deployment-wide administrative-level security (on-premises only)

During installation, Microsoft Dynamics CRM Server Setup creates a special deployment-wide administrator role and attaches it to the user account that is used to run Microsoft Dynamics CRM Server Setup. Deployment Administrators have complete and unrestricted access to all organizations in Deployment Manager in the Microsoft Dynamics CRM (on-premises) deployment. The Deployment Administrator role is not a security role and does not appear in the Microsoft Dynamics CRM web application as such.

Deployment Administrators can create new organizations or disable any existing organization in the deployment. Conversely, members of the System Administrator Role only have permissions within the organization where the user and security role are located.

◆ Important

When a deployment administrator creates an organization, that administrator must give db_owner privileges for the org's databases to the other deployment administrators so that they also have full access to those organizations.

For more information about the Deployment Administrator role, see [Referenced topic '96c87bbc-9735-4cb9-8549-10a144461c25' is not in the TOC.](#).

Security Modeling with Microsoft Dynamics CRM

For detailed information about and best practices with designing the security model in Microsoft Dynamics CRM, read the [Scalable Security Modeling with Microsoft Dynamics CRM](#) white paper available from the Microsoft Download Center.

See Also

[Referenced topic '507567f3-2354-4ef3-a093-0f209ebf2b29' is not in the TOC.](#)
[Field level security](#)
[Hierarchy security](#)
[Security roles and privileges](#)

Security roles and privileges

Applies To: CRM 2016 on-prem, CRM Online

To control data access, you must set up an organizational structure that both protects sensitive data and enables collaboration. You do this by setting up business units, security roles, and field security profiles.

Security roles

A security role defines how different users, such as salespeople, access different types of records. To control access to data, you can modify existing security roles, create new security roles, or change which security roles are assigned to each user. Each user can have multiple security roles.

Security role privileges are cumulative: having more than one security role gives a user every privilege available in every role.

Each security role consists of record-level privileges and task-based privileges.

Record-level privileges define which tasks a user with access to the record can do, such as Read, Create, Delete, Write, Assign, Share, Append, and Append To. *Append* means to attach another record, such as an activity or note, to a record. *Append to* means to be attached to a record. More information: Record-level privileges

Task-based privileges, at the bottom of the form, give a user privileges to perform specific tasks, such as publish articles or perform a mail merge.

The colored circles on the security role settings page define the access level for that privilege. Access levels determine how deep or high in the organizational business unit hierarchy the user can perform the specified privilege. The following table lists the levels of access in Microsoft Dynamics CRM, starting with the level that gives users the most access.

●	**Global**. This access level gives a user access to all records in the organization, regardless of the business unit hierarchical level that the instance or the user belongs to. Users who have Global access automatically have Deep, Local, and Basic access, also. Because this access level gives access to information throughout the organization, it should be restricted to match the organization's data security plan. This level of access is usually

	reserved for managers with authority over the organization.
	The application refers to this access level as **Organization**.
	Deep. This access level gives a user access to records in the user's business unit and all business units subordinate to the user's business unit.
	Users who have Deep access automatically have Local and Basic access, also.
	Because this access level gives access to information throughout the business unit and subordinate business units, it should be restricted to match the organization's data security plan. This level of access is usually reserved for managers with authority over the business units.
	The application refers to this access level as **Parent: Child Business Units**.
	Local. This access level gives a user access to records in the user's business unit.
	Users who have Local access automatically have Basic access, also.
	Because this access level gives access to information throughout the business unit, it should be restricted to match the organization's data security plan. This level of access is usually reserved for managers with authority over the business unit.
	The application refers to this access level as **Business Unit**.
	Basic.
	This access level gives a user access to records that the user owns, objects that are shared with the user, and objects that are shared with a team that the user is a member of.
	This is the typical level of access for sales and service representatives.
	The application refers to this access level as **User**.
	None. No access is allowed.

 Important

To ensure that users can view and access all areas of the web application, such as entity forms, the

nav bar, or the command bar, all security roles in the organization must include the Read privilege on the **Web Resource** entity. For example, without read permissions, a user won't be able to open a form that contains a web resource and will see an error message similar to this: "Missing **prvReadWebResource** privilege." More information: [Create or edit a security role](#)

Record-level privileges

Dynamics CRM has eight different record-level privileges that determine the level of access a user has to a specific record or record type.

Privilege	Description
Create	Required to make a new record. The records that can be created depends on the access level of the permission defined in your security role.
Read	Required to open a record to view the contents. The records that can be read depends on the access level of the permission defined in your security role.
Write	Required to make changes to a record. The records that can be changed depends on the access level of the permission defined in your security role.
Delete	Required to permanently remove a record. The records that can be deleted depends on the access level of the permission defined in your security role.
Append	Required to associate a record with the current record. For example, if a user has Append rights on an opportunity, the user can add a note to an opportunity. The records that can be appended depends on the access level of the permission defined in your security role.
Append To	Required to associate the current record with another record. For example, a note can be attached to an opportunity if the user has Append To rights on the note. The records that can be appended to depends on the access level of the permission defined in your security role.
Assign	Required to give ownership of a record to another user. The records that can be assigned depends on the access level of the permission defined in your security role.
Share	Required to give access to a record to another user while keeping your own access. The records that can be shared depends on the access level of

Privilege	Description
	the permission defined in your security role.

Overriding security roles

The owner of a record or a person who has the Share privilege on a record can share a record with other users or teams. Sharing can add Read, Write, Delete, Append, Assign, and Share privileges for specific records.

Teams are used primarily for sharing records that team members ordinarily couldn't access. More information: Manage security, users, and teams

It's not possible to remove access for a particular record. Any change to a security role privilege applies to all records of that record type.

In This Section

Create or edit a security role
Copy a security role
View your user profile

See Also

Security concepts for Microsoft Dynamics CRM
Manage security, users, and teams
Create or edit a security role

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Create or edit a security role

Applies To: CRM 2016 on-prem, CRM Online

You can create new security roles to accommodate changes in your business requirements or you can edit the privileges associated with an existing security role.

If you need to back up your security role changes, or export security roles for use in a different implementation of Microsoft Dynamics CRM, you can export them as part of exporting customizations. More information: Help & Training: Export your customizations as a solution

Create a security role

Make sure that you have the System Administrator or System Customizer security role or equivalent permissions.

Check your security role

- Follow the steps in [View your user profile](#).
- Don't have the correct permissions? Contact your system administrator.

1. Go to **Settings** > **Security**.
2. Click **Security Roles**.
3. On the Actions toolbar, click **New**.

4. Set the privileges on each tab.

   To change the access level for a privilege, click the symbol until you see the symbol you want. The possible access levels depend on whether the record type is organization-owned or user-owned.

💡 **Tip**

To cycle through the access levels, you can also click the privilege column heading, or click the record type multiple times.

5. When you have finished configuring the security role, on the toolbar, click or tap **Save and Close**.

Edit a security role

Before you edit an existing security role, make sure that you understand the principles of data access. More information: [Security roles and privileges](#)

📝 **Note**

You can't edit the System Administrator security role. To create a security role similar to the System Administrator security role, copy the System Administrator security role, and make changes to the new role.

Make sure that you have the System Administrator or System Customizer security role or equivalent permissions.

Check your security role

- Follow the steps in [View your user profile](#).

- Don't have the correct permissions? Contact your system administrator.

1. Go to **Settings** > **Security**.
2. Click **Security Roles**.
3. In the list of security roles, double-click or tap a name to open the page associated with that security role.
4. Set the privileges on each tab.

   To change the access level for a privilege, click the symbol until you see the symbol you want. The possible access levels depend on whether the record type is organization-owned or user-owned.

💡 **Tip**

To cycle through the access levels, you can also click the privilege column heading, or click the record type multiple times.

5. When you have finished configuring the security role, on the toolbar, click or tap **Save and Close**.

Minimum privileges for common tasks

It's helpful to keep in mind the minimum privileges that are needed for some common tasks. These include:

- When logging in to Microsoft Dynamics CRM:

  - To render the home page, assign the following privileges on the Customization tab: Read Web Resource, Read Customizations

  - To render an entity grid (that is, to view lists of records and other data): Read privilege on the entity, Read User Settings on the Business Management tab, and Read View on the Customization tab

  - To view single entities in detail: Read privilege on the entity, Read System Form on the Customization tab, Create and Read User Entity UI Settings on the Core Records tab

- When logging in to Dynamics CRM for Outlook:

  - To render navigation for Microsoft Dynamics CRM and all Microsoft Dynamics CRM buttons: Read Entity and Read View on the Customizations tab

  - To render an entity grid: Read privilege on the entity, Read Customizations and Read Web Resource on the Customization tab, and Read Saved View on the Core Records tab

  - To render entities: Read privilege on the entity, Read System Form on the Customization tab, and Create, Read, and Write User Entity UI Settings on the Core Records tab

Privacy notices

Licensed Dynamics CRM Online users with specific Security Roles (CEO – Business Manager, Sales Manager, Salesperson, System Administrator, System Customizer, and Vice President of Sales) are automatically authorized to access the service by using CRM for phones, as well as other clients.

An administrator has full control (at the user security role or entity level) over the ability to access and the level of authorized access associated with the phone client. Users can then access CRM Online by using CRM for phones, and Customer Data will be cached on the device running the specific client.

Based on the specific settings at the user security and entity levels, the types of Customer Data that can be exported from CRM Online and cached on an end user's device include record data, record metadata, entity data, entity metadata, and business logic.

Licensed Dynamics CRM Online users with specific Security Roles (CEO – Business Manager, Sales Manager, Salesperson, System Administrator, System Customizer, and Vice President of Sales) are automatically authorized to access the service by using CRM for tablets, as well as other clients.

An administrator has full control (at the user security role or entity level) over the ability to access and the level of authorized access associated with the tablet client. Users can then access CRM Online by using CRM for tablets, and Customer Data will be cached on the device running the specific client.

Based on the specific settings at the user security and entity levels, the types of Customer Data that can be exported from CRM Online and cached on an end user's device include record data, record metadata, entity data, entity metadata, and business logic.

If you use Microsoft Dynamics CRM for Outlook, when you go offline, a copy of the data you are working on is created and stored on your local computer. The data is transferred from CRM Online to your computer by using a secure connection, and a link is maintained between the local copy and CRM Online. The next time you sign in to CRM Online, the local data will be synchronized with CRM Online.

An administrator determines whether or not an organization's users are permitted to go offline with Microsoft Dynamics CRM for Outlook by using security roles.

Users and administrators can configure which entities are downloaded via Offline Sync by using the **Sync Filters** setting in the **Options** dialog box. Alternatively, users and Administrators can configure which fields are downloaded (and uploaded) by using **Advanced Options** in the **Sync Filters** dialog box.

If you use Microsoft Dynamics CRM Online, when you use the Sync to Outlook feature, the CRM data you are syncing is "exported" to Outlook. A link is maintained between the information in Outlook and the information in CRM Online to ensure that the information remains current between the two. Outlook Sync downloads only the relevant CRM record IDs to use when a user attempts to track and set regarding an Outlook item. The company data is not stored on the device.

An administrator determines whether your organization's users are permitted to sync CRM data to Outlook by using security roles.

If you use Microsoft Dynamics CRM Online, exporting data to a *static* worksheet creates a local copy of the exported data and stores it on your computer. The data is transferred from CRM Online to your

computer by using a secure connection, and no connection is maintained between this local copy and CRM Online.

When you export to a *dynamic* worksheet or PivotTable, a link is maintained between the Excel worksheet and CRM Online. Every time a dynamic worksheet or PivotTable is refreshed, you'll be authenticated with CRM Online using your credentials. You'll be able to see the data that you have permissions to view.

An administrator determines whether or not an organization's users are permitted to export data to Excel by using security roles.

When Microsoft Dynamics CRM Online users print CRM data, they are effectively "exporting" that data from the security boundary provided by CRM Online to a less secure environment, in this case, to a piece of paper.

An administrator has full control (at the user security role or entity level) over the data that can be extracted. However, after the data has been extracted it is no longer protected by the security boundary provided by CRM Online and is instead controlled directly by the customer.

See Also
[Security concepts for Microsoft Dynamics CRM](#)
[Security roles and privileges](#)
[Manage security, users, and teams](#)
[Copy a security role](#)

Copy a security role

Applies To: CRM 2016 on-prem, CRM Online

If you want to create a security role that is similar to another security role, you can copy an existing security role and save it with a new name. You can then modify the privileges and access levels to accommodate the new security role.

 Note

You can't copy a security role to a different business unit.

Make sure that you have the System Administrator or System Customizer security role or equivalent permissions.

Check your security role

- Follow the steps in [View your user profile](#).
- Don't have the correct permissions? Contact your system administrator.

1. Go to **Settings** > **Security**.
2. Click **Security Roles**.
3. In the list of security roles, under **Name**, click or tap to select the security role you want to copy, and then on the Actions toolbar, click or tap **More Actions** > **Copy Role**.
4. In the **Copy Security Role** dialog box, in the **New Role Name** text box, type in the name for the new security role.
5. To modify the new security role after creating a copy, verify that the **Open the new security role when copying is complete** check box is selected; otherwise, clear the check box.
6. Click **OK**.

See Also

[Security concepts for Microsoft Dynamics CRM](#)
[Security roles and privileges](#)
[Field level security](#)

View your user profile

Applies To: CRM 2016 on-prem, CRM Online

Your user profile shows useful information about you to your entire organization; for example, your contact information, your organization, and your security role. Depending on your security role, you may be able to make changes to your user profile.

1. Click or tap the **Settings** gear ⚙ in the upper right side of the screen, then click or tap **Options**.

2. Scroll down and click or tap **View your user information**.

3. **To check your security role**, on the nav bar, click or tap the down arrow ⌄ next to your name, and then click or tap **Security Roles**.

4. To view other profile information, such as Work Hours, Connections, and Services, on the nav bar, click or tap the down arrow ⌄ next to your name.

Field level security

Applies To: CRM 2016 on-prem, CRM Online

Record-level permissions are granted at the entity level, but you may have certain fields associated with an entity that contain data that is more sensitive than the other fields. For these situations, you use field level security to control access to specific fields.

The scope of field level security is organization-wide and applies to all data access requests including the following:

• Data access requests from within a client application, such as web browser, mobile client, or Microsoft Dynamics CRM for Outlook.

• Web service calls using the Microsoft Dynamics CRM SDK (for use in plug-ins, custom workflow activities, and custom code)

• Reporting (using Filtered Views)

In This Topic

Overview of field level security
Example for restricting the mobile phone field for the Contact entity
Which fields can be secured?
Best practices when you use field security

Overview of field level security

Field level security is available for the default fields on most out-of-box entities, custom fields, and custom fields on custom entities. Field level security is managed by the security profiles. To implement field level security, a system administrator performs the following tasks.

1. Enable field security on one or more fields for a given entity.

2. Associate one more existing security profiles, or create one or more new security profiles to grant the appropriate access to specific users or teams.

A security profile determines the following:

- Permissions to the secure fields

- Users and Teams

A security profile can be configured to grant user or team members the following permissions at the field level:

- **Read**. Read-only access to the field's data.

- **Create**. Users or teams in this profile can add data to this field when creating a record.

- **Update**. Users or teams in this profile can update the field's data after it has been created.

A combination of these three permissions can be configured to determine the user privileges for a specific data field.

◆ **Important**

Unless one or more security profiles are assigned to a security enabled field, only Microsoft Dynamics CRM users with the system administrator security role will have access to the field.

Example for restricting the mobile phone field for the Contact entity

Imagine you company's policy is that sales members should have different levels of access to contact mobile phone numbers as described here.

User or Team	Access
Vice presidents	Full. Can create, update, and view mobile phone numbers for contacts.
Sales Managers	Read-only. Can only view mobile phone numbers for contacts.
Salespersons and all other CRM users	None. Cannot create, update or view mobile phone numbers for contacts.

To restrict this field, you would perform the following tasks.

Secure the field.

1. Go to **Settings** > **Customizations**.

2. Click **Customize the System**.

3. Click **Entities** > **Contact** > **Fields**.

4. Click **mobilephone**, click **Edit**.

5. Next to **Field Security**, click **Enable**, click **Save and Close**.

6. Publish the customization.

Configure the security profiles.

1. Create the field security profile for sales managers.

    a. Go to **Settings** > **Security**.

b. Click **Field Security Profiles**.

c. Click **New**, enter a name, such as *Sales Manager access contact mobile phone*, and click **Save**.

d. Click **Users**, click **Add**, select the users that you want to grant read access to the mobile phone number on the contact form, and then click **Add**.

💡 **Tip**

Instead of adding each user, create one or more teams that include all users that you want to grant read access.

e. Click **Field Permissions**, click **mobilephone**, click **Edit**, select **Yes** next to **Allow Read**, and then click **OK**.

2. Create the field security profiles for vice presidents.

a. Click **New**, enter a name, such as *VP access contact mobile phone*, and click **Save**.

b. Click **Users**, click **Add**, select the users that you want to grant full access to the mobile phone number on the contact form, and then click **Add**.

c. Click **Field Permissions**, click **mobilephone**, click **Edit**, select **Yes** next to **Allow Read**, **Allow Update**, and **Allow Create**, and then click **OK**.

3. Click **Save and Close**.

Any CRM users not defined in the previously created field security profiles will not have access to the mobile phone field on contact forms or views. The field value displays 🔒 ********, indicating that the field is secured.

Which fields can be secured?

Every field in the system contains a setting for whether field security is allowed. You can view this in the Customizations area of the web application. There are thousands of attributes that can be secured, so there are two easier ways to look for this information. To view the entity metadata for your organization, install the Metadata Browser solution described in [MSDN: Browse the Metadata for Your Organization](#). You can also view the metadata for an uncustomized organization in the Microsoft Office Excel file called EntityMetadata.xlsx included in the top-level folder of the SDK. [Download the Microsoft Dynamics CRM SDK](#)

Best practices when you use field security

When you use calculated fields that include a field that is secured, data may be displayed in the calculated field to users that don't have permission to the secured field. In this situation, both the original field and the calculated field should be secured.

Some data, such as addresses, are actually made up of multiple fields. Therefore, to completely secure data that includes multiple fields, such as addresses, you must secure and configure the appropriate field security profiles on multiple fields for the entity. For example, to completely secure addresses for an entity, secure all relevant address fields, such as address_line1, address_line2, address_line3, address1_city, address1_composite, and so on.

When a system administrator implements security for particular fields or records, it can affect the data that's synchronized between Microsoft Dynamics CRM and Outlook, including the inability to push data to the user running CRM for Outlook. Before you secure a field, consider how it may affect your users that are running CRM for Outlook. More information: How field security affects synchronization between CRM and CRM for Outlook

See Also

Video: Field Level Security in Microsoft Dynamics CRM 2015
Help & Training: Create a field security profile
Help & Training: Add or remove security from a field
Hierarchy security

Hierarchy security

Applies To: CRM 2016 on-prem, CRM Online

The hierarchy security model is an extension to the existing Microsoft Dynamics CRM security models that use business units, security roles, sharing, and teams. It can be used in conjunction with all other existing security models. The hierarchy security offers a more granular access to records for an organization and helps to bring the maintenance costs down. For example, in complex scenarios, you can start with creating several business units and then add the hierarchy security. This will achieve a more granular access to data with far less maintenance costs that a large number of business units may require.

In This Topic

Manager hierarchy and Position hierarchy security models
Set up hierarchy security
Set up Manager and Position hierarchies
Performance considerations

Manager hierarchy and Position hierarchy security models

Two security models can be used for hierarchies, the Manager hierarchy and the Position hierarchy. With the Manager hierarchy, a manager must be within the same business unit as the report, or in the parent business unit of the report's business unit, to have access to the report's data. The Position hierarchy allows data access across business units. If you are a financial organization, you may prefer the Manager hierarchy model, to prevent managers' accessing data outside of their business units. However, if you are a part of a customer service organization and want the managers to access service cases handled in different business units, the Position hierarchy may work better for you.

While the hierarchy security model provides a certain level of access to data, additional access can be obtained by using other forms of security, such as security roles.

Manager hierarchy

The Manager hierarchy security model is based on the management chain or direct reporting structure, where the manager's and the report's relationship is established by using the Manager field on the system user entity. With this security model, the managers are able to access the data that their reports have access to. They are able to perform work on behalf of their direct reports or access information that needs approval.

✍ **Note**

With the Manager hierarchy security model, a manager has access to the records owned by the user or by the team that a user is a member of, and to the records that are directly shared with the user or the team that a user is a member of.

In addition to the Manager hierarchy security model, a manager must have at least the user level Read privilege on an entity, to see the reports' data. For example, if a manager doesn't have the Read access to the Case entity, the manager won't be able to see the cases that their reports have access to.

For a non-direct report, a manager has the Read-only access to the report's data. For a direct report, the manager has the Read, Write, Update, Append, AppendTo access to the report's data. To illustrate the Manager hierarchy security model, let's take a look at the diagram below. The CEO can read or update the VP of Sales data and the VP of Service data. However, the CEO can only read the Sales Manager data and the Service Manager data, as well as the Sales and Support data. You can further limit the amount of data accessible by a manager with "Depth". Depth is used to limit how many levels deep a manager has Read-only access to the data of their reports. For example, if the depth is set to 2, the CEO can see the data of the VP of Sales, VP of Service and Sales and Service Managers. However, the CEO doesn't see the Sales data or the Support data.
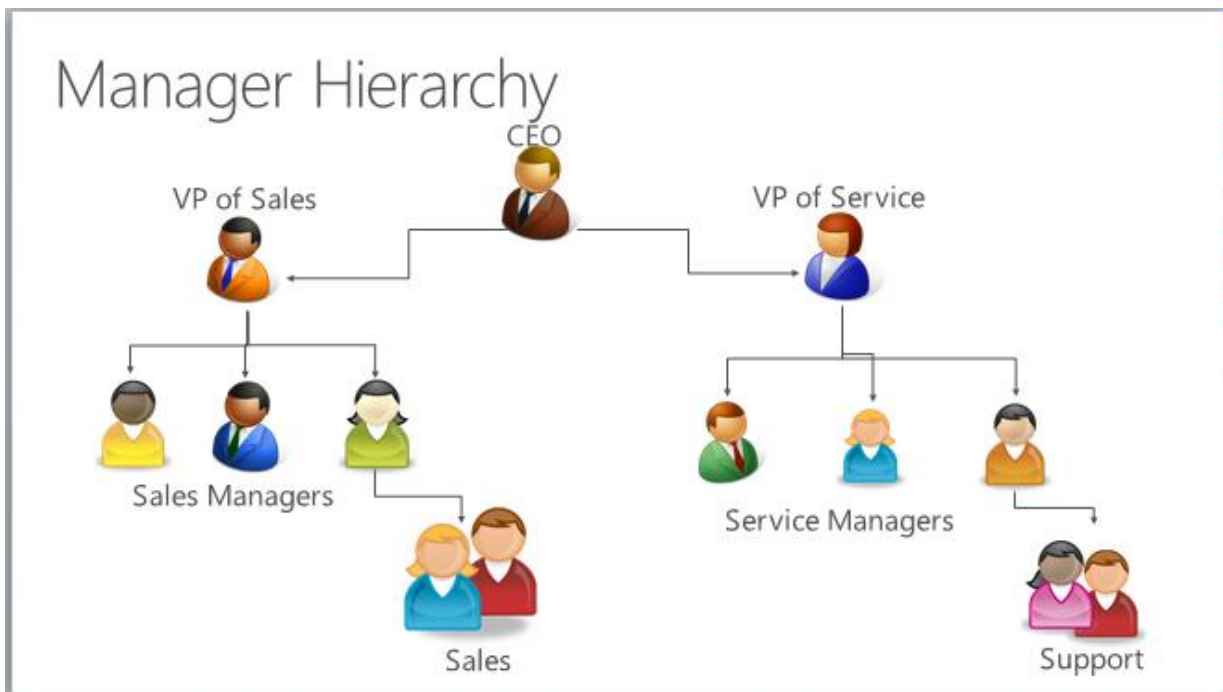
It is important to note that if a direct report has deeper security access to an entity than their manager, the manager may not able to see all the records that the direct report has access to. The following example illustrates this point.

- A single business unit has three users: User 1, User 2 and User 3.

- User 2 is a direct report of User 1.

- User 1 and User 3 have User level read access on the Account entity. This access level gives users access to records they own, the records that are shared with the user, and records that are shared with the team the user is a member of.

- User 2 has Business Unit read access on the Account entity. This allows User 2 to view all of the accounts for the business unit, including all of the accounts owned by User 1 and User 3.

- User 1, as a direct manager of User 2, has access to the accounts owned by or shared with User 2, and any accounts that are shared with or owned by a team that User 2 is a member of. However, User 1 doesn't have access to the accounts of User 3, even though his direct report may have access to User 3 accounts.

Position hierarchy

The Position hierarchy is not based on the direct reporting structure, like the Manager hierarchy. A user doesn't have to be an actual manager of another user to access user's data. As an administrator, you will define various job positions in the organization and arrange them in the Position hierarchy. Then, you add users to any given position, or, as we also say, "tag" a user with a particular position. A user can be tagged only with one position in a given hierarchy, however, a position can be used for multiple users. Users at the higher positions in the hierarchy have access to the data of the users at the lower

positions, in the direct ancestor path. The direct higher positions have Read, Write, Update, Append, AppendTo access to the lower positions' data in the direct ancestor path. The non-direct higher positions, have Read-only access to the lower positions' data in the direct ancestor path.

To illustrate the concept of the direct ancestor path, let's look at the diagram below. The Sales Manager position has access to the Sales data, however, it doesn't have access to the Support data, which is in the different ancestor path. The same is true for the Service Manager position. It doesn't have access to the Sales data, which is in the Sales path. Like in the Manager hierarchy, you can limit the amount of data accessible by higher positions with "Depth". The depth will limit how many levels deep a higher position has a Read-only access, to the data of the lower positions in the direct ancestor path. For example, if the depth is set to 3, the CEO position can see the data all the way down from the VP of Sales and VP of Service positions, to the Sales and Support positions.
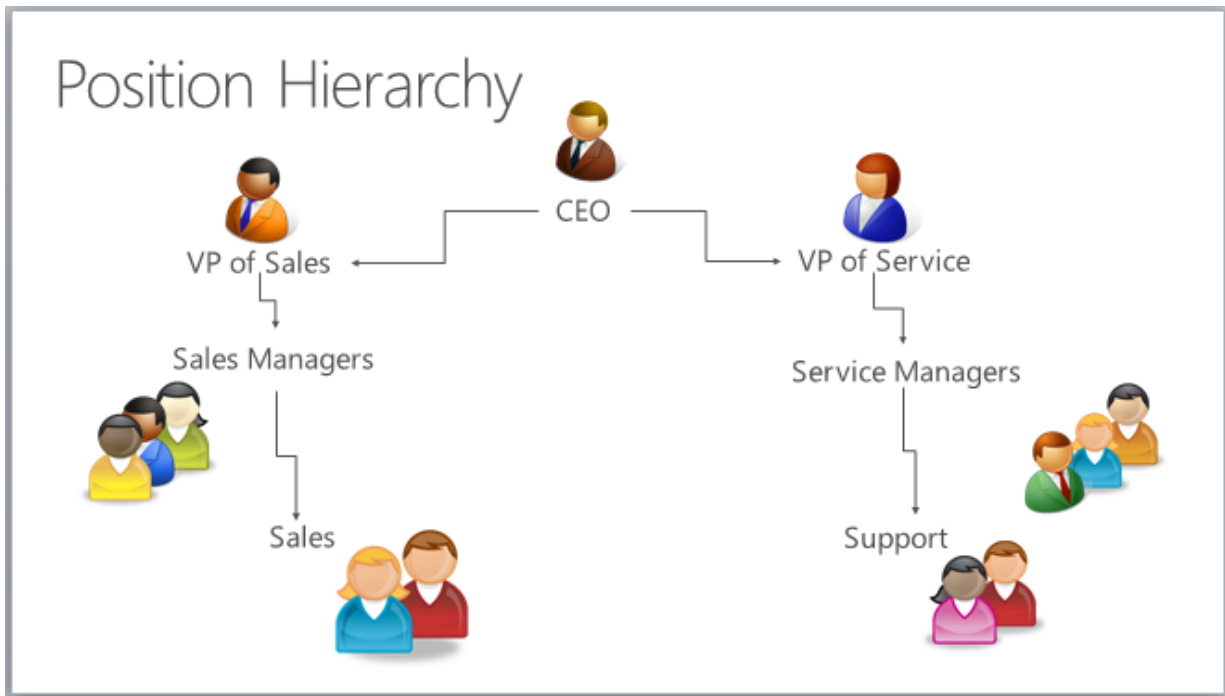
Note

With the Position hierarchy security, a user at a higher position has access to the records owned by a lower position user or by the team that a user is a member of, and to the records that are directly shared to the user or the team that a user is a member of.

In addition to the Position hierarchy security model, the users at a higher level must have at least the user level Read privilege on an entity to see the records that the users at the lower positions have access to. For example, if a user at a higher level doesn't have the Read access to the Case entity, that user won't be able to see the cases that the users at a lower positions have access to.

Set up hierarchy security

To set up the security hierarchy, you must have an Administrator security role.

The hierarchy security is disabled by default. To enable:

1. Go to **Settings** > **Security**.

2. Choose **Hierarchy security** and select **Enable Hierarchy Modeling**.

 ◆ **Important**

To make any changes in **Hierarchy security**, you must have the **Change Hierarchy Security Settings** privilege.

After you have enabled the hierarchy modeling, choose the specific model by selecting the **Manager Hierarchy** or **Custom Position Hierarchy**. All system entities are enabled for hierarchy security out-of-the-box, but, you can exclude selective entities from the hierarchy. The **Hierarchy Security** window shown below:

Set the **Depth** to a desired value to limit how many levels deep a manager has a Read-only access to the data of their reports. For example, if the depth equals to 2, a manager can only access his accounts and the accounts of the reports two levels deep. In our example, if you log in into CRM not as an Administrator, who can see all accounts, but, as the VP of Sales, you'll only be able to see the active accounts of the users shown in the red rectangle, as illustrated below:

Note

While, the hierarchy security grants the VP of Sales access to the records in the red rectangle, additional access can be available based on the security role that the VP of Sales has.

Set up Manager and Position hierarchies

The Manager hierarchy is easily created by using the manager relationship on the system user record. You use the Manager (**ParentsystemuserID**) lookup field to specify the manager of the user. If you have already created the Position hierarchy, you can also tag the user with a particular position in the Position hierarchy. In the following example, the sales person reports to the sales manager in the Manager hierarchy and also has the Sales position in the Position hierarchy:

To add a user to a particular position in the Position hierarchy, use the lookup field called Position on the user record's form, as show below:

◆ Important

To add a user to a position or change the user's position, you must have the **Assign position for a user** privilege.

To change the position on the user record's form, on the nav bar, choose **More** (…) and choose a different position, as shown below:
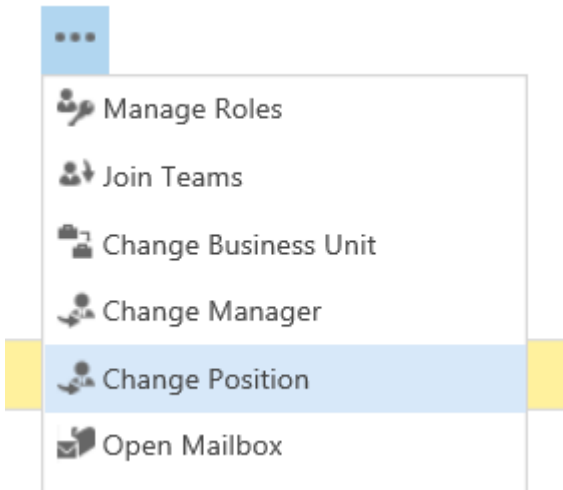
To create a Position hierarchy:

1. Go to **Settings** > **Security**.
2. Choose **Positions**.

For each position, provide the name of the position, the parent of the position, and the description. Add users to this position by using the lookup field called **Users in this position**. Below is the example of Position hierarchy with the active positions.
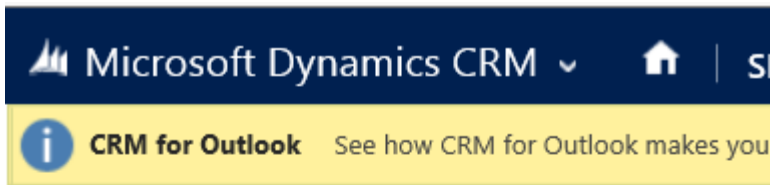
The example of the enabled users with their corresponding positions is shown below:

CRM for Outlook   See how CRM for Outlook makes you even more productive.   Get CRM for

+ NEW   NEW MULTIPLE USERS   COPY A LINK ∨   EMAIL A LINK ∨

📌 Enabled Users ∨

✓	Full Name ↑	Site	Business Unit...	Title	Position
	ceo ceo		example		Executive
	CRM Admin		example		Board
	sales manager		example		Sales
	sales person		example		Sales
	Sales rep		example		
	sales vp		example		Sales Executives

Performance considerations

To boost the performance, we recommend:

- Keep the effective hierarchy security to 50 users or less under a manager/position. Your hierarchy may have more than 50 users under a manager/position, but you can use the Depth setting to reduce the number of levels for Read-only access and with this limit the effective number of users under a manager/position to 50 users or less.

- Use hierarchy security models in conjunction with other existing security models for more complex scenarios. Avoid creating a large number of business units, instead, create fewer business units and add hierarchy security.

See Also

Manage users

Applies To: CRM 2016 on-prem, CRM Online

How you manage users, including creating new users and assigning security roles, depends on the version of Microsoft Dynamics CRM that you have.

In This Topic

Manage users in CRM Online

To manage users with subscriptions through the Microsoft Dynamics CRM Online environment, see Referenced topic 'd4ab2d51-15e7-4ad6-9792-35148984a68b' is not in the TOC..

Manage users in Microsoft Dynamics CRM 2016

With Microsoft Dynamics CRM 2016 (on-premises), you can add users to your organization one at a time, or add multiple users at the same time by using the **Add Users** wizard.

Add a user

1. Go to **Settings** > **Security**.
2. Choose **Users**.
3. On the toolbar, choose **New**.
4. On the **New User** page, in the **Account Information** section, specify the **User Name** for the user.
5. In the **User Information** section, specify the **Full Name** for the user.
6. In the **Organization Information** section, verify the **Business Unit** for the user.
7. Follow the step for the task you're doing:

- To save the information for the new user, choose **Save**.

- To save the information for the user and add another user, choose **Save & New**.

- To add another user without saving the information you entered for the user, choose **New**, and then in the **Message from webpage** dialog box, choose **OK**.

Next, you'll need to assign a security role to the newly added user. See "Assign a security role to a user" later in this topic.

Add multiple users

You can add multiple user records for the same set of security roles by using the Add Users wizard. Any users you add must be in the Active Directory directory service.

1. Go to **Settings** > **Security**.

2. Choose **Users**.

3. On the toolbar, choose **New Multiple Users**.
   The **Add Users** wizard opens.

4. On the **Select Security Roles** page, select one or more security roles, and then choose **Next**.

5. On the **Select Access and License Type** page, under **Access Type**, select the appropriate access type for this set of users.

6. Under **License Type**, specify the license type for this set of users.

7. Under **Email Access Configuration**, specify how this set of users will access incoming and outgoing email messages, and then choose **Next**.

8. On the **Select Domain or Group** page, specify to select users from all trusted domains and groups or users from a particular domain or group, and then choose **Next**.

9. On the **Select Users** page, type a part of the name of user you want to add to Microsoft Dynamics CRM. Use semi-colons between names.

 Note

You can also use Look Up to select users. More information: How Inline Lookup Works

10. Choose **Create New Users**.

11. On the **Summary** page, review the information about the user additions, and then follow the step for the task you are performing:

- To close the Add Users wizard, choose **Close**.

- If you need to add more users, for example with a different set of security roles, choose **Add More Users** to begin the wizard again.

📝 **Note**

To edit a specific user record, close the wizard, and then open the user record from the list.

Assign a security role to a user

After you create users, you must assign security roles for them to use Microsoft Dynamics CRM. Even if a user is a member of a team with its own security privileges, the user won't be able to see some data and may experience other problems when trying to use the system. More information: Security roles and privileges

1. Go to **Settings** > **Security**.

2. Choose **Users**.

3. In the list, select the user or users that you want to assign a security role to.

4. Choose **More Commands** (•••) > **Manage Roles**.

   Only the security roles available for that user's business unit are displayed.

5. In the **Manage User Roles** dialog box, select the security role or roles you want for the user or users, and then choose **OK**.

Enable or disable users

Enable a user

1. Go to **Settings** > **Security**.

2. Select **Users**.

3. Select the down arrow next to **Enabled Users**, and then choose **Disabled Users**.

4. Select the checkmark next to the user you want to enable, and on the Actions toolbar, select **Enable**.

5. In the **Confirm User Activation** message, select **Activate**.

Disable a user

1. Go to **Settings** > **Security**.

2. Choose **Users**.

3. In the **Enabled Users** view, select the checkmark next to the user you want to disable.

4. On the Actions toolbar, select **Disable**.

5. In the **Confirm User Record Deactivation** message, select **Deactivate**.

Update a user record to reflect changes in Active Directory

When you create a new user or update an existing user in Microsoft Dynamics CRM 2016 (on-premises), some fields in the CRM user records, such as the name and phone number, are populated with the information obtained from Active Directory Domain Services (AD DS). After the user record is created in CRM, there is no further synchronization between Active Directory user accounts and CRM user records. If you make changes to the Active Directory user account, you must manually edit the CRM user record to reflect the changes.

1. Go to **Settings** > **Security**.
2. Choose **Users**.
3. In the list, select the user you want to update, and then choose **Edit**.

The following table shows the fields that are populated on the CRM user form (user record) from the Active Directory user account:

CRM user form	Active Directory user	Active Directory object tab
User name	User logon name	Account
First name	First name	General
Last name	Last name	General
Main Phone	Telephone number	General
Primary Email	Email	General
*Address	City	Address
*Address	State/province	Address
Home phone	Home	Telephones

* The CRM Address field is comprised of the values from the City and State/province fields in Active Directory.

Privacy notice

As you assign security roles to your users, you will enable access and the ability to extract your data. Access is enabled through multiple clients (such as CRM for Outlook, CRM for tablets, and web client). You may administer these access privileges by configuring your users' security roles or entity attributes.

See Also

Security roles and privileges
Manage security, users, and teams
Manage teams
Manage passwords

Manage teams

Applies To: CRM 2016 on-prem, CRM Online

Using teams in Microsoft Dynamics CRM is optional. However, teams provide an easy way to share business objects and let you collaborate with other people across business units. While a team belongs to one business unit, it can include users from other business units. You can associate a user with more than one team.

You can use two types of teams:

- An *owner* team owns records and has security roles assigned to the team. The team's privileges are defined by these security roles. In addition to privileges provided by the team, team members have the privileges defined by their individual security roles and by the roles from other teams in which they are members. A team has full access rights on the records that the team owns.

- An *access* team doesn't own records and doesn't have security roles assigned to the team. The team members have privileges defined by their individual security roles and by roles from the teams in which they are members. The records are shared with an access team and the team is granted access rights on the records, such as Read, Write, or Append.

In This Topic

Owner team or access team?
About owner teams
About access teams and team templates
Maximum settings for system-managed access teams

Owner team or access team?

Choosing the type of the team may depend on the goals, nature of the project, and even the size of your organization. There are a few guidelines that you can use when choosing the team type.

When to use owner teams

- Your organization's policies require the ability for records to be owned by entities other than users, such as the team entity.

- The number of teams is known at the design time of your Microsoft Dynamics CRM system.

- Daily reporting on progress by owning teams is required.

When to use access teams

- The teams are dynamically formed and dissolved. This typically happens if the clear criteria for defining the teams, such as established territory, product, or volume are not provided.

- The number of teams is not known at the design time of your Microsoft Dynamics CRM system.

- The team members require different access rights on the records. You can share a record with several access teams, each team providing different access rights on the record. For example, one team is granted the Read access right on the account and another team, the Read, Write, and Share access rights on the same account.

- A unique set of users requires access to a single record without having an ownership of the record.

About owner teams

An owner team can own one or more records. To make a team an owner of the record, you must assign a record to the team.

While teams provide access to a group of users, you must still associate individual users with security roles that grant the privileges they need to create, update, or delete user-owned records. These privileges can't be applied by assigning security roles to a team and then adding the user to that team.

If an owner team doesn't own records and doesn't have security roles assigned to the team, it can be converted to an access team. It is a one-way conversion. You can't convert the access team back to the owner team. During conversion, all queues and mailboxes associated with the team are deleted. When you create a team in the Web application, you have to choose the team type **Owner**.

More information: Help & Training: Create or edit a team, Help & Training: Assign a record to a user or team

About access teams and team templates

You can create an access team manually by choosing the team type **Access**, or let the system create and manage an access team for you. When you create an access team, you can share multiple records with the team.

A system-managed access team is created for a specific record, other records can't be shared with this team. You have to provide a team template that the system uses to create a team. In this template, you define the entity type and the access rights on the record that are granted to the team members when the team is created.

A team template is displayed on all record forms for the specified entity as a list. When you add the first user to the list, the actual access team for this record is created. You can add and remove members in the team by using this list. The team template applies to the records of the specified entity type and the related entities, according to the cascading rules. To give team members different access on the record, you can provide several team templates, each template specifying different access rights. For example, you can create a team template for the Account entity with the Read access right, which allows the team members to view the specified account. For another team that requires more access to the same account, you can create a team template with Read, Write, Share and other access rights. To be added to the team, a minimum access level a user must have on the entity specified in the template is Basic (User) Read.

Because of the parental relationship between the team template and system-managed access teams, when you delete a template, all teams associated with the template are deleted according to the cascading rules. If you change access rights for the team template, the changes are applied only to the new auto-created (system-managed) access teams. The existing teams are not affected.

📝 **Note**

A user must have sufficient privileges to join an access team. For example, if the access team has the

Delete access right on an account, the user must have the Delete privilege on the Account entity to join the team. If you're trying to add a user with insufficient privileges, you'll see this error message: "You can't add the user to the access team because the user doesn't have sufficient privileges on the entity."

For the step-by-step instructions on how to create a team template and add it the entity form, see the article in the Help & Training: Create a team template and add to an entity form

Maximum settings for system-managed access teams

The maximum number of team templates that you can create for an entity is specified in the **MaxAutoCreatedAccessTeamsPerEntity** deployment setting. The default value is 2. The maximum number of entities that you can enable for auto-created access teams is specified in the **MaxEntitiesEnabledForAutoCreatedAccessTeams** deployment setting. The default value is 5. You can use the **Set-CrmSetting** Windows PowerShell command to update this value. More information: Bookmark link 'team' is broken in topic '{"project_id":"d1ee8af7-0e8f-4e94-9793-0d06bbfa9b16","entity_id":"f715ab04-f78f-4bcb-b260-4807091cf7d6","entity_type":"Article","locale":"en-US"}'. Rebuilding the topic '{"project_id":"d1ee8af7-0e8f-4e94-9793-0d06bbfa9b16","entity_id":"f715ab04-f78f-4bcb-b260-4807091cf7d6","entity_type":"Article","locale":"en-US"}' may solve the problem. or MSDN: Deployment Entities and Deployment Configuration Settings.

See Also

Manage security, users, and teams
Add teams or users to a field security profile
Referenced topic 'f715ab04-f78f-4bcb-b260-4807091cf7d6' is not in the TOC.
Help & Training: About team templates
Download: Access Teams in Microsoft Dynamics CRM
Download: Scalable security modeling with Microsoft Dynamics CRM
MSDN: Entity relationship behavior

Add teams or users to a field security profile

Applies To: CRM 2016 on-prem, CRM Online

Role-based security controls access to a specific entity type, record-based security controls access to individual records, and field-level security controls access to specific fields. You can use a field security profile to manage the permission of users and teams to read, create, or write in secured fields. For example, the System Administrator field security profile gives full access to all secured fields in Microsoft Dynamics CRM.

1. Go to **Settings** > **Security**.

2. Choose **Field Security Profiles**.

3. Choose the profile name that you want to add teams or users to.

4. Under Related, choose **Teams** or **Users**.

5. On the Actions toolbar, choose **Add**.

6. Select a team or user from the list. You can search for a team or user first.

7. Choose **Add**.

8. Close the field security profile record.

See Also

Security roles and privileges
Security concepts for Microsoft Dynamics CRM
Manage security, users, and teams
Synchronize user information between Microsoft Dynamics CRM and Active Directory

Synchronize user information between Microsoft Dynamics CRM and Active Directory

Applies To: CRM 2016 on-prem, CRM Online

Microsoft Dynamics CRM supports two methods for authenticating users:

- Integrated Windows Authentication

- Claims-based authentication

By default, customers who purchase Microsoft Dynamics CRM and deploy it on-premises use Windows Authentication. These customers also can set up claims-based authentication for Internet-facing deployments (IFDs) of the product.

With integrated Windows Authentication, each user record in CRM must be associated with a user account in Active Directory to enable log on to CRM. When the user records are associated, CRM automatically reads and stores other information about the user record (including the first and last name, the email address, and the globally unique identifier, or GUID) from the Active Directory directory service.

However, changes to the Active Directory information associated with a specific user can create discrepancies with the information maintained in CRM, thereby preventing the user from accessing

CRM. Specifically, if value of the **User SamAccountName logon** attribute in Active Directory changes for a user, the corresponding user information in CRM won't match and the user won't be able log on..

To ensure that the user can successfully log on to CRM, you must update the information in the CRM user record so that it matches the detail in Active Directory.

Before you start, be sure to record the value of the **User SamAccountName logon** attribute for the affected user before updating the corresponding user record in CRM.

 Note

For information about synchronizing Microsoft Dynamics CRM Online with Active Directory, see the blog post How to Synchronize CRM Online with your Active Directory.

1. Go to **Settings** > **Security**.

2. Choose **Users**.

3. In the list of users, choose to select the user record you want to update, and then choose **Edit**.

4. In the **User Name** text box, type an Active Directory user name that isn't used by any CRM user record.

 Important

If you specify a user name that already exists in Active Directory, CRM will try to map the user to the updated user in Active Directory, and when it locates an existing record with the same GUID, the mapping will fail.

 If all the user accounts in Active Directory are used by CRM user records, create a temporary Active Directory user account.

5. Save the user record, and then in the **User Name** text box, type in the **User SamAccountName logon** value that appears for the user Active Directory, which you recorded prior to starting this procedure.

6. Choose **Save and Close**.

See Also
Manage security, users, and teams
Add or remove territory members

Add or remove territory members

Applies To: CRM 2016 on-prem, CRM Online

To accommodate changes in sales territories or the representatives that are assigned to each territory, you can add or remove territory members in Microsoft Dynamics CRM.

1. Go to **Settings** > **Business Management**.
2. Choose **Sales Territories**.
3. In the list of territories, under **Territory Name**, double-click or tap the entry for the territory you want to add people to or remove people from.
4. In the Navigation Pane, expand **Common** if necessary, and then choose **Members**.

Follow the steps for the task you're performing:

Add people to a sales territory

   a. On the ribbon, choose **Add Members**, view the text in the **Message from webpage** dialog box, and then choose **OK** to close the dialog box.
   b. In the **Look Up Records** dialog box, in the **Search** text box, type in the name or a part of the name of the user you want to add to the sales territory, and then choose the **Start search** icon

   .
   c. In the list of records, select the people you want to add to the sales territory, and then tap or click **Add**.

Remove people from a sales territory

   a. In the list of members, select the people you want to remove from the sales territory, and then on the ribbon, choose **Remove Members**.
   b. In the **Remove Members** dialog box, choose **Remove**.

   ### Note

   When you remove someone from a sales territory, the updated list of members isn't displayed until you refresh the page.

See Also

Troubleshooting: User needs read-write access to the CRM organization

Applies To: CRM 2016 on-prem, CRM Online

You don't have sufficient permissions to access Microsoft Dynamics CRM. A CRM system administrator will need to do the following in the CRM application:

1. Go to **Settings** > **Security**.

2. Choose **Users**.

3. Open the user record.

4. Choose **More Commands** (⬤⬤⬤) > **Manage Roles**.

5. Make note of the role assigned to the user. If appropriate, select a different security role. Close the Manage User Roles dialog box.

6. Choose **Security** > **Security Roles**.

7. Choose the security role from step 4.

8. Choose **Core Records**.

9. Confirm that the **Read** permission for **User Entity UI Settings** is set to the User level (a yellow circle with a wedge-shaped segment).

   If the security role is missing this permission, the system administrator will need to change this setting by clicking or tapping on it.

Note

If you have multiple security roles assigned, confirm that at least one assigned role has the User Entity UI Settings privilege set to the User level.

See Also

Manage security, users, and teams

Audit data and user activity

Applies To: CRM 2016 on-prem, CRM Online

The Microsoft Dynamics CRM auditing feature logs changes that are made to customer records and user access so you can review the activity later. The auditing feature is designed to meet the auditing, compliance, security, and governance policies of many regulated enterprises.

The audit logs help the Microsoft Dynamics CRM Administrator answer questions such as:

- Which user was accessing the system and when?

- Who updated this field value on this record and when?

- What was the previous field value before it was updated?

- What actions has this user taken recently?

- Who deleted this record?

- What locale was used to make the update?

The following operations can be audited:

- Create, update, deactivate, and delete operations on records.

- Changes to the sharing privileges of a record.

- The N:N association or disassociation of records.

- Changes to security roles.

- Audit changes at the entity, attribute, and organization level. For example, enabling audit on an entity.

- Deletion of audit logs.

- For changes made to entity fields that can be localized, such as the Product entity name or description fields, the locale ID (LCID) appears in the audit record.

System administrators and customizers can start or stop auditing for an organization.

◆ **Important**

For Microsoft Dynamics CRM (on-premises), you may notice that auditing can significantly increase the size of the organization database over time. You can delete audit logs by going to **Settings** > **Auditing** > **Audit Log Management**. Additionally, you may want to stop auditing for maintenance purposes. Stopping auditing stops tracking for the organization during the period until auditing is started again. When you start auditing again, the same auditing selection is maintained that was previously used.

In This Topic

Start or stop auditing for an organization
View audit logging details
Enable or disable entities and fields for auditing

Start or stop auditing for an organization

This task requires the system administrator or customizer security role or equivalent permissions.

1. Go to **Settings** > **Administration**.

2. Choose **System Settings**.

3. On the **Auditing** tab, select the **Start Auditing** check box to start auditing. Clear the **Start Auditing** check box to stop all auditing.

4. Select the entities you want to track. To start or stop auditing on specific entities, select or clear the following check boxes:

- **Audit user access**. Tracks when a user accesses Microsoft Dynamics CRM including the user name and time.
- **Common Entities**. Tracks common entities like Account, Contact, Goal, Product, and User.
- **Sales Entities**. Tracks sales-related entities lilke Competitor, Opportunity, Invoice, Order, and Quote.
- **Marketing Entities**. Tracks Campaign entity activity.
- **Customer Service Entities**. Tracks Case, Contract, Queue, and Service entity activity.

5. Click **OK**.

View audit logging details

System administrators can see activity for the entities that are enabled for audit logging.

1. Go to **Settings** > **Auditing**.
2. Choose **Audit Summary View**.
3. In the **Audit Summary View**, you can do the following:
   - Click **Enable/Disable Filters** to turn on filtering. Then, you can filter on a specific event, such as **Delete** actions.
   - Choose an **Event** to view specific details about the activity, such as field changes that were made during an update to a record and who performed the update.
   - Click the **Refresh** button 🔄 to view the most recent activity.

Enable or disable entities and fields for auditing

System administrators or customizers can change the default audit settings for entities and for specific fields for an entity.

To enable or disable auditing for an entity

1. Go to **Settings** > **System**.
2. Click **Auditing**.
3. In the **Audit** area, choose **Entity and Field Audit Settings**.
4. Under **Components**, expand **Entities**.
5. Open the entity for which you want to enable or disable auditing.

6. To start auditing, on the **General** tab, in the **Data Services** section, select the **Auditing** check box to enable auditing, or clear the **Auditing** check box to disable it.

 By default, when you start or stop auditing for an entity, you also start or stop auditing for all the fields of this entity.

7. Click **Save**.

8. Publish the customization. To publish for a single entity, choose the entity, such as Account, and then click **Publish** on the toolbar.

To enable or disable auditing for specific fields on an entity

1. Under the entity for which you want to enable or disable auditing with specific fields, click **Fields**.

2. To enable or disable a single field, open the field and in the Auditing section, select **Enable** or **Disable**.

 To enable or disable more than one field, select the fields you want, and then on the toolbar click **Edit**. In the **Edit Multiple Fields** dialog box, in the Auditing area, click **Enabled** or **Disabled**.

3. Click **Save**.

4. Publish the customization. To publish for a single entity, choose the entity, such as Account, and then click **Publish** on the Actions toolbar.

See Also
Manage security, users, and teams
Customize your CRM system
TechNet: Audit data and user activity

Customize your CRM system

Applies To: CRM 2016 on-prem, CRM Online

IT Pros and CRM administrators can use the resources and topics provided in this section to help them customize the Microsoft Dynamics CRM Online 2016 Update and Microsoft Dynamics CRM 2016 (on-premises).

In This Section
Getting started with customization
Change the color scheme or add a logo to match your organization's brand
Changes to forms and views in Microsoft Dynamics CRM 2015
Create and edit metadata

[Create and design forms](#)

[Create and design interactive forms for the interactive service hub](#)

[Create and edit views](#)

[Create and edit dashboards](#)

[Configure interactive experience dashboards](#)

[Create and edit processes](#)

[Create and edit business rules](#)

[Create and edit web resources](#)

[Define alternate keys to reference CRM records](#)

[Query and visualize hierarchical data](#)

[Customize the Help experience](#)

[Customize CRM for phones and tablets](#)

See Also

Getting started with customization

Applies To: CRM 2016 on-prem, CRM Online

If you're new to customizing Microsoft Dynamics CRM, the topics in this section will help you learn how to customize the application to meet requirements for your organization.

In This Section

[Privileges required for customization](#)

[Customization concepts](#)

[Use solutions for your customizations](#)

See Also

Privileges required for customization

Applies To: CRM 2016 on-prem, CRM Online

Individuals can personalize the system and even share some of their customizations with others, but only users with the correct privileges can apply changes for everyone using Microsoft Dynamics CRM.

 Note

This section assumes you know how to work with security roles. For more information about working with security roles, see Manage security, users, and teams.

In This Topic

System Administrator and System Customizer security roles
Delegate customization tasks
Test customizations without customization privileges

System Administrator and System Customizer security roles

Almost everyone who customizes Microsoft Dynamics CRM will have the System Administrator or System Customizer security role associated with their CRM account. These security roles give you the permissions you need to customize your CRM deployment.

System Administrator	System Customizer
Has full permission to customize the system.	Has full permission to customize the system.
Can view all data in the system.	Can only view records for system entities that they create.

The difference between the System Administrator and System Customizer security roles is that a system administrator has read privileges on most records in the system and can see everything. Assign the System Customizer role to someone who needs to perform customization tasks but shouldn't see any data in the system entities. However, testing is an important part of customizing the system. If system customizers can't see any data, they will need to create records to test their customizations. By default, system customizers have full access to custom entities. If you want to have the same limitations that exist for system entities, you'll need to adjust the system customizer security role so that the access level is **User** rather than **Organization** for custom entities.

Delegate customization tasks

You might want to delegate some tasks to trusted people so that they can apply changes they need. Keep in mind that anyone can have multiple security roles associated with their user account and that

privileges and access rights granted by security roles is based on the *least restrictive* level of permissions.

This means that you can give the System Customizer security role to someone who already has another security role, perhaps a sales manager., This lets them customize the system in addition to other privileges they already have. You don't need to edit the security role they already have, and you can remove the System Customizer security role from the person's user account when you want.

Test customizations without customization privileges

You should always test any customizations you make with a user account that doesn't have customization privileges. This way you can make sure that people without the System Administrator or System Customizer security roles will be able to use your customizations. To do this effectively, you need access to two user accounts: One account with the System Administrator security role and another that has the security roles that represent the people who will be using the customizations.

◆ **Important**

Don't attempt to remove your System Administrator security role if you have only one user account. The system will warn you if you try, but if you proceed you could find that you won't be able to get it back. Most security roles don't allow editing of a user's security roles.

See Also

Getting started with customization
Customization concepts
Use solutions for your customizations

Customization concepts

Applies To: CRM 2016 on-prem, CRM Online

The way your organization works is unique. Some organizations have well-defined business processes that they apply using Microsoft Dynamics CRM. Others aren't happy with their current business processes and use CRM to apply new data and processes to their business. Whatever situation you find yourself in, you'll find a lot of customization capabilities in CRM so that it can work for your organization.

Of course you're eager to get started, but please take a few minutes to read the content in this section. This will introduce you to important terms, give you some background about why things are done a certain way, and help you avoid potential problems in the future.

In This Topic

What is metadata and why should you care?
What kinds of customizations are supported?

What is metadata and why should you care?

In the past, you customized business applications by editing the source code. This created complications because each organization had unique changes and it was very difficult, or extremely expensive, to upgrade. Then, application developers started exposing application programming interfaces (APIs) so that other developers could interact with the application and add their own logic without touching the source code. This was moderately better because it means developers can extend the application without changing it. But it still requires a developer to write code.

Today, modern business applications use a metadata-driven architecture so that people can customize the application without writing code. Metadata means "data about data" and it defines the structure of the data stored in the system. With this metadata, an application knows about any changes to the data structure and this enables the application to adapt as the data structure changes. Since the metadata is known, additional capabilities can be included that are tied to the metadata.

When you customize Microsoft Dynamics CRM using the customization tools in the application, you're adding or updating the metadata or data used by features that depend on the metadata. Because we know the kinds of data used to customize the system, we can take this data into account and add new features to CRM without breaking your system. This way you should always be able to apply an update rollup or upgrade to the latest version and enjoy the best new features.

Customize or Configure?
Most people say that they want to customize the application, so we use the word "customize" to describe changing the system to make it work the way you want. Some people prefer to use the word "configure" because it suggests that no code was required to make changes. Call it whatever you like, we just want to make it clear that you don't need to be a developer to customize Microsoft Dynamics CRM.

Microsoft Dynamics CRM provides a set of web services and APIs that allow developers to write code. When code is written using supported methods you can expect that it will continue to work when you upgrade your organization.

What kinds of customizations are supported?

We expect that you can do most of your customization with the tools in the application. Everything you do by using those tools is supported by Microsoft because they apply changes to the metadata or data that depends on the metadata.

But, if the customization tools don't meet your needs, you can install a solution provided by a third party or hire a developer to code your customizations. Either way, it's good for you to understand supported customizations. If you need to invest in a solution that requires code, you should make sure that the code is written using only supported APIs. This helps you protect your investment in both CRM and any solutions you get.

Developers who extend Microsoft Dynamics CRM have a responsibility to follow rules and best practices documented in the SDK: [MSDN: Best practices for developing with Microsoft Dynamics CRM](). The SDK documents the APIs available to developers and provides guidance about how to best use them. Microsoft supports only the APIs and practices that are documented in the SDK. You may find something on the Internet that describes how you can solve a problem, but if it doesn't leverage APIs documented in the SDK, it isn't supported by Microsoft. Before you have a developer apply a change you should verify whether it uses supported methods.

If developers use the APIs and best practices described in the SDK we can be sure to test whether any of the changes we make to CRM has the potential to break existing customizations. Our goal is that code customizations written using supported methods will continue to work when new versions or updates of CRM are released. You benefit because you can upgrade to new versions with improved features without having developers change their code each time.

If we detect that a change in a new version of CRM will cause a supported customization to break, we will document what is affected and how people can change their code to fix it.

What kinds of customizations aren't supported?

Just because certain APIs and programming practices aren't supported by Microsoft doesn't mean that they don't work. "Unsupported by Microsoft" means exactly what it says: you can't get support about these APIs or programming practices from Microsoft. We don't test them and we don't know if something we change will break them. We can't predict what will happen if someone changes code in our application.

The developer who uses unsupported APIs and programming practices assumes the responsibility to support their code. They will need to test their code to make sure it works.

If you choose to use unsupported customizations in your CRM deployment you should be sure to document what was done and have a strategy to remove those customizations before you contact Microsoft Dynamics CRM Technical Support. If you need help with unsupported customizations, contact the developer or organization who prepared the customizations.

Common unsupported customization practices

The following is a list of common customization practices that aren't supported. This is not a complete list. More information: [MSDN: Supported extensions for Microsoft Dynamics CRM: Unsupported customizations]()

Interacting with the web application Document Object Model (DOM) elements using JavaScript

Any JavaScript libraries used anywhere in the application must only interact with the documented APIs. When JavaScript developers work with applications they frequently access DOM elements using specific names. Because Microsoft Dynamics CRM is a web application these techniques work, but they are likely to break during an update because the names of the elements they reference are subject to change at any time. We reserve the right to make any changes necessary in the application and this frequently means changing how the page is constructed. Adding any changes that depend on the current structure of the page means that you'll need to invest in testing and perhaps changing the custom code in these scripts each time you apply an update to your application.

jQuery is a very common library used by JavaScript developers. Most of the benefit of using jQuery is that it simplifies a developer's ability to access and create DOM elements, which is exactly what we do not support in the CRM application pages. jQuery is recommended when developers are creating custom user interfaces with HTML web resources, but within the CRMapplication pages, the supported APIs do not require jQuery to be used.

Using any undocumented internal objects or methods using JavaScript

Microsoft Dynamics CRM uses many JavaScript objects within pages. A JavaScript developer can discover these objects by debugging a page and then access and reuse these objects. We reserve the right to make any changes necessary to these objects, including removing them or changing the names of the methods. If a script references these objects, the script will break if they are not found.

Directly changing files in the application

If you have Microsoft Dynamics CRM on-premises you have access to the web application installed on your server. The web application contains many text files that a developer could edit or replace to change the behavior or appearance of the application. Changing these files isn't supported because any update that you install could remove your changes and the files will be overwritten when you update to the next release.

Retrieving data directly from database tables

If you have Microsoft Dynamics CRM on-premises you have access to the database so that you could retrieve data directly from the tables. However, by doing this you're bypassing the security infrastructure. The recommended practice is to use special filtered views to retrieve the data. This will apply the calling user's security so that they can only see data that they should see.

Updating data directly in the database tables

If you have Microsoft Dynamics CRM on-premises you can perform updates on the CRM data directly in the database tables. The risk with this approach is that you can set invalid data that can break the application. Developers should always use the APIs provided with the application platform web services to update data.

Changing the database tables, stored procedures, or views

If you have Microsoft Dynamics CRM on-premises you can use database tools to change the database. The only direct database changes that are supported are adding or updating indexes. You should use the customization tools to add any new entities or entity attributes. This is the only supported way to apply changes to these parts of the database. Any direct changes you make risk breaking the application or your ability to apply update rollups. Any changes you apply may be destroyed when you apply an update or during an upgrade and any data that you may have included in custom database table columns will be lost.

How to check an organization for unsupported customizations

If you aren't certain your organization has unsupported customizations, you can run the Custom Code Validation Tool. This tool is a solution that scans the organization and can detect certain kinds of unsupported customizations, such as deprecated APIs, that may exist and then returns information about the customization. Notice that the Custom Code Validation Tool may not detect other unsupported customizations as described earlier in Common unsupported customization practices or in some cases may detect customizations that are supported as unsupported. For more information, see the documentation that is included with the tool.

Download and run the Custom Code Validation Tool

1. First, verify that the organization has one or more solutions imported. Outdated solutions are the most common cause of unsupported customizations. Go to **Settings** > **Solutions**. . Installed solutions will appear in the **All Solutions** view.

2. Download the Custom Code Validation Tool.

3. Import the Custom Code Validation Tool. More information: Import solutions

4. Run the Custom Code Validation Tool. For more information, see the Readme file that is included with the download.

What you need to know about solutions

Solutions exist so that a set of customizations can be purchased, shared or otherwise transported from one organization to another. You can get solutions in the Microsoft Dynamics Marketplace or from an independent software vendor (ISV). A CRM solution is a file that you can import to apply a set of customizations.

More information: Whitepaper: Patterns and Principles for CRM Online Solution Builders

 Note

If you're an ISV creating a customization that you will distribute, you'll need to use solutions. For more information about using solutions, see MSDN: Package and Distribute Extensions.

If you are just interested in customizing your organization, here is what you need to know about solutions:

- Creating solutions is optional. You can customize your CRM system directly without ever creating a solution.

- When you customize the CRM system directly, you work with a special solution called the **Default Solution**. This solution contains all the components in your system.

- You can export your Default Solution to create a backup of the customizations you have defined in your organization. This is good to have in a worst case scenario.

Solution components

A solution component represents something that you can potentially customize. Anything that can be included in a solution is a solution component. The following is a list of solution components that you can view in a solution:

- Application Ribbon

- Article Template

- Business Rule

- Chart

- Connection Role

- Contract Template

- Dashboard

- Email Template

- Entity

- Entity Relationship

- Field

- Field Security Profile

- Form

- Mail Merge Template

- Message

- Option Set

- Plug-in Assembly

- Process

- Sdk Message Processing Step

- Security Role

- Service Endpoint

- Site Map

- Web Resource

Most solution components are nested within other solution components. For example, an entity contains forms, views, charts, fields, entity relationships, messages, and business rules. Each of those solution components requires an entity to exist. A field can't exist outside of an entity. We say that the field is dependent on the entity. There are actually twice as many types of solution components as shown in the preceding list, but most of them are not visible in the application.

The purpose of having solution components is to keep track of any limitations on what can be customized using Managed properties and all the Solution dependencies so that it can be exported, imported, and (in managed solutions) deleted without leaving anything behind.

Managed and unmanaged solutions

A **managed** solution can be uninstalled after it is imported. All the components of that solution are removed by uninstalling the solution.

When you import an **unmanaged** solution, you add all the components of that solution into your default solution. You can't remove the components by uninstalling the solution.

When you import an **unmanaged** solution that contains solution components that you have already customized, your customizations will be overwritten by the customizations in the unmanaged solution. You can't undo this.

 Important

Install an unmanaged solution only if you want to add all the components to your default solution and overwrite any existing customizations.

Even if you don't plan on distributing your solution, you might want to create and use an unmanaged solution to have a separate view that only includes those parts of the application that you have customized. Whenever you customize something, just add it to the unmanaged solution that you created.

You can only export your Default Solution as an unmanaged solution.

To create a **managed** solution, you choose the managed solution option when you export the solution. If you create a managed solution, you can't import it back into the same organization you used to create it. You can only import it into a different organization.

How solutions are applied

All solutions are evaluated as layers to determine what your CRM application will actually do. The following diagram shows how managed and unmanaged solutions are evaluated and how changes in them will appear in your organization.
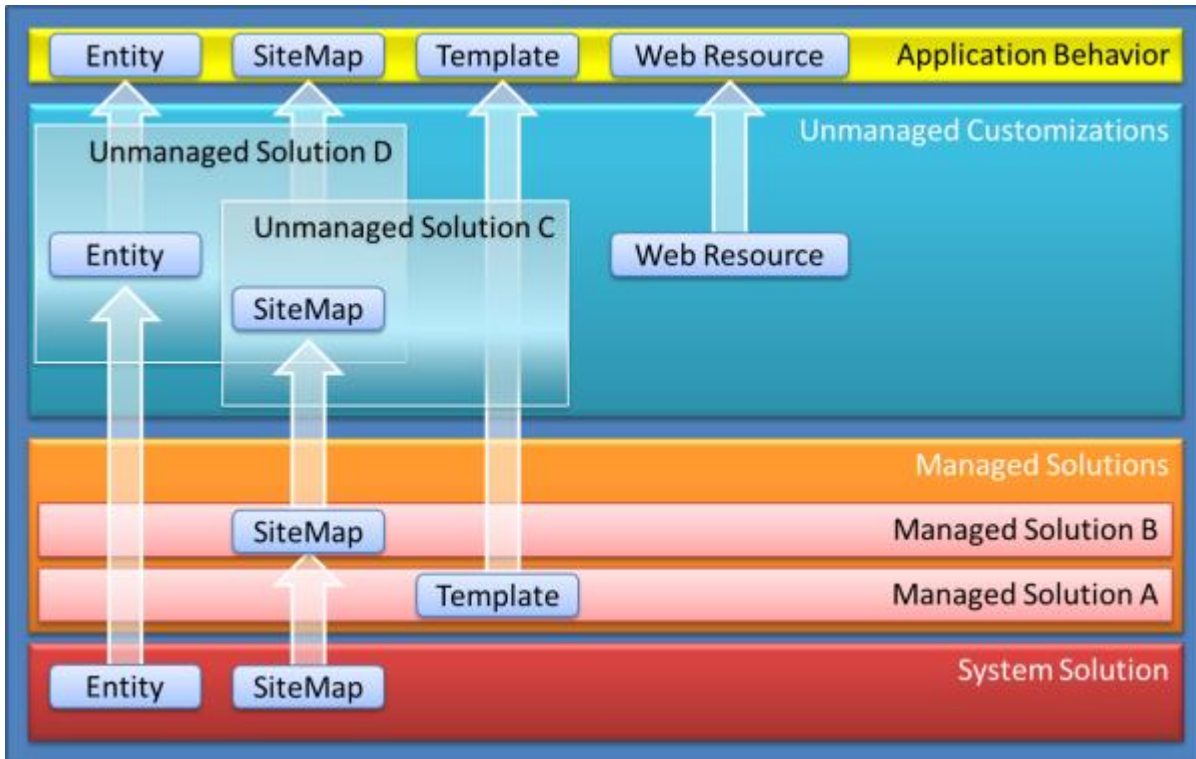
Starting from the bottom and working up to top:

System Solution

    The system solution is like a managed solution that every organization has. The system solution is the definition of all the out-of-the box components in the system.

Managed Solutions

    Managed solutions can modify the system solution components and add new components. If multiple managed solutions are installed, the first one installed is below the managed solution installed later. This means that the second solution installed can customize the one installed before it. When two managed solutions have conflicting definitions, the general rule is "Last one wins". If you uninstall a managed solution, the managed solution below it takes effect. If you uninstall all managed solution, the default behavior defined within the system solution is applied.

Unmanaged Customizations

Unmanaged customizations are any change you have made to your organization through an unmanaged solution. The system solution defines what you can or cannot customize by using Managed properties. Publishers of managed solutions have the same ability to limit your ability to customize solution components that they add in their solution. You can customize any of the solution components that do not have managed properties that prevent you from customization them.

Application Behavior

This is what you actually see in your organization. The default system solution plus any managed solutions, plus any unmanaged customizations you have applied.

Managed properties

Some parts of Microsoft Dynamics CRM can't be customized. These items in the system solution have metadata that prevents you from customizing them. These are called **managed properties**. The publisher of a managed solution can also set the managed properties to prevent you from customizing their solution in ways they don't want you to.

Solution dependencies

Because of the way that managed solutions are layered some managed solutions can be dependent on solution components in other managed solutions. Some solution publishers will take advantage of this to build solutions that modular. You may need to install a "base" managed solution first and then you can install a second managed that will further customize the components in the base managed solution. The second managed solution depends on solution components that are part of the first solution.

CRM tracks these dependencies between solutions. If you try to install a solution that requires a base solution that isn't installed, you won't be able to install the solution. You will get a message saying that the solution requires another solution to be installed first. Similarly, because of the dependencies, you can't uninstall the base solution while a solution that depends on it is still installed. You have to uninstall the dependent solution before you can uninstall the base solution.

Solution publisher

Every solution has a publisher. The default solution has a publisher named "Default Publisher for <your organization name>".

The publisher record contains a **Prefix** value. The default value of this prefix is "new". When you create new solution components, this prefix will be appended to the name. This is a quick way that allows people to understand what solution the components are part of.

Before you start customizing the system we recommend that you change the prefix value for the default publisher to something that identifies your company.

To change the Solution Publisher Prefix for the default publisher

1. Go to **Settings** > **Customizations**.

2. Select **Publishers**.

3. If there is more than one publisher, open the one with the **Display Name** that starts with **Default Publisher for** *<your organization name>*.

4. At the bottom of the form, update the **Prefix** field to change the default value of "new" to something that identifies your organization.

5. When you change the value, make sure to tab to the next field. The **Option Value Prefix** will automatically generate a number based on the customization prefix. This number is used when you add options to option sets and provides an indicator of which solution was used to add the option.

Publishing customizations

Certain customizations that make changes to the user interface require that they be published before people can use them in the application. Publishing provides a way for you to save your work before you have finished and then come back and finish at a later time. Publishing is only required when you change a solution component. When you create or delete a solution component, publishing occurs automatically. Before you export a solution, you'll be prompted to publish customizations. This is because any unpublished customizations won't be included in the solution.

When you perform customizations that will appear in Microsoft Dynamics CRM for tablets you should always explicitly publish your customizations to make sure that every item is synchronized with the CRM for tablets application.

 Note

Publishing customizations can interfere with normal system operation. In a production environment we recommend that you schedule publishing customizations when it's least disruptive to users.

The following solution components require publishing when they are updated:

- Application Ribbon

- Entity

- Entity Relationship

- Field

- Form

- Message

- Option Set

- Site Map

- Web Resource
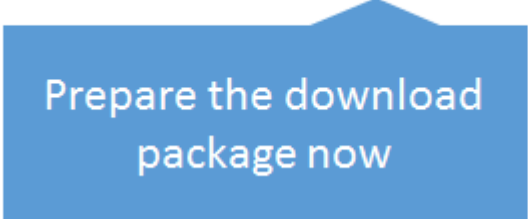
 Note

When using Dynamics CRM App for Outlook it can take at least an hour for customization changes to take effect. You can make the changes appear immediately in Internet Explorer by clearing the cache. To do this, go to **Tools** > **Internet Options** and under **Browsing history** select the **Delete** button. Uncheck all browsing history items except "Temporary Internet files and website files" and "Cookies and website data" and then select **Delete**.

Prepare client customizations to improve performance for mobile and interactive service hub

Once you publish customizations, the first user to start one of the CRM mobile apps or the interactive service hub can experience performance issues, because their sign in prompts CRM to prepare the metadata package for download. That means the first user has to wait for both the metadata package preparation and the download (subsequent users only have to wait for the download).

With Dynamics CRM 2016 Update 0.1 or later, you can improve performance for that first user by clicking the **Prepare Client Customizations** button after publishing your customizations. This prompts CRM to prepare the metadata package right then instead of waiting for the first user to start a mobile app or the interactive service hub.

Microsoft Dynamics CRM 2016 Update 1.1 brings further improvements to metadata generation times for mobile users after you customize your CRM system. The metadata package that's generated after you make customizations contains only the items that have changed, instead of the complete set of metadata. Also, instead of starting over if there's a problem downloading the metadata package to a mobile device, the download starts from where it left off the next time a user starts the app.

Changes that affect Dynamics CRM organization performance

Importing solutions and applying customizations that change metadata can affect Microsoft Dynamics CRM organization performance. Actions that can interfere with normal system operation include:

- Add, remove, or change entities, alternate keys, attributes, or relationships.

  More information: Create and edit entities; Referenced topic 'fb4a93d6-590b-4913-96f7-25d351dc52ab' is not in the TOC.; Referenced topic 'ff791d05-326a-42be-a9fb-912a8bb497d0' is not in the TOC.; Create and edit entity relationships

- Import solutions

- Publishing customizations

If you're applying these changes to a production system, we recommend that you schedule these operations when it is least disruptive to users.

Combine customization capabilities

Each of the topics in the "Customize your CRM system" section describe individual customization capabilities in considerable depth. But it's important to keep in mind that the solutions to meeting your

business requirements will frequently use one of the capabilities together with one or more other capabilities.

Choose the right customization capability for the job

The law of instrument states "If all you have is a hammer, everything looks like a nail." With all the different customization capabilities available in Microsoft Dynamics CRM it's easy to become familiar with one of them and seek to use it to solve every problem. As you evaluate the business problems you want to solve, think about the end result you want to achieve and then work backwards to how you can get there.

Additional capabilities not included in this guide

In addition to the capabilities described in "Customize your CRM system," you should be familiar with additional capabilities not described in detail here. This section introduces some of the capabilities and include links to other resources where you can find more information.

Document management

Document management allows for integration between Microsoft Dynamics CRM and SharePoint. For information about how to enable and configure document management, see Manage your documents using SharePoint or Help & Training: Manage SharePoint documents from within Microsoft Dynamics CRM. Developers should look at the Microsoft Dynamics CRM SDK topic: MSDN: Integrate SharePoint with Microsoft Dynamics CRM. For information about installation requirements for Dynamics CRM on-premises deployments, see SharePoint Document Management software requirements for Microsoft Dynamics CRM.

Field security profiles

You can set an extra level of security for a custom field you have added to a form by using field security profiles. To enable field-level security, you must set the **Field Security** property for the custom field and then specify the permissions you will allow for this field to any field security profiles you have created. More information: Help & Training: Create a field security profile and Add teams or users to a field security profile

Localization

If your organization has people who use a language other than the base language you chose when you deployed Dynamics CRM, you can add more languages.

For CRM Online, you'll find all the languages are already installed; you just need to enable them.

For Microsoft Dynamics CRM 2016, you can install additional language packs to add more languages. After you install the language pack you must enable the language to make it available for people to choose in their personal preferences. More information: Referenced topic '25af20e4-2eac-4bed-888e-be35015b59fb' is not in the TOC.

 Note

Enabling a language can take several minutes. During this time, people might not be able to use Microsoft Dynamics CRM.

Enable additional languages

1. Go to **Settings** > **Administration**.

2. Choose **Languages**.

3. In the **Language Settings** dialog box, choose any available languages and choose **Apply** to enable them.

While you can enable additional languages, the localized text is only available for text that's included in CRM before it is customized. You can only customize CRM using the base language. Users of other languages will see the text in the base language unless you export translations and add localized text for any user interface items that you have added or changed. More information: Help & Training: Export customized entity and field text for translation

 Note

Because customization is supported only in the base language, as the System Customizer you may be working with the base language set as your language preference. To verify that the translated text is appearing, you must change your language preference for the Microsoft Dynamics CRM user interface. To perform additional customization work, you must change back to the base language.

Security roles

A discussion of implementing security for your organization is beyond the scope of this guide. More information: Security roles and privileges

See Also

Getting started with customization
Privileges required for customization
Use solutions for your customizations

Use solutions for your customizations

Applies To: CRM 2016 on-prem, CRM Online

All customizations performed in Microsoft Dynamics CRM are done in the context of a solution. If you aren't sure about what a solution is, please see What you need to know about solutions.

In This Topic

The default solution
Navigate to a specific solution

The default solution

When you customize Microsoft Dynamics CRM, you'll typically work with the default solution. To open the default solution, navigate to **Settings** > **Customizations** and select **Customize the System**.

💡 **Tip**

After you have the default solution open, use **Ctrl+D** to create a favorite or bookmark in your browser. This will help you open it faster even if you don't already have the web application open.

Every organization has a default solution and it has some unique properties. The default solution contains all the solution components available in your organization. Other solutions may include a subset of the solution components visible in the default solution, but the default solution contains all of them.

💡 **Tip**

Before you start creating new customizations, remember to change the solution publisher customization prefix. More information: [Solution publisher](#)

Navigate to a specific solution

If your organization already has a specific solution you should work in, this is how you can find it. To create a new solution, see [Create your own solution](#).

Open an unmanaged solution

1. Go to **Settings** > **Customizations**.

2. Choose **Solutions**.

3. Double-click the unmanaged solution that you want to work in to open it.

When you're in the solution, you'll see solution components. More information: [Add solution components](#)

Use the solution explorer

Within the solution explorer you can navigate through a hierarchy of nodes using the navigation pane on the left side as shown in the following screenshot:
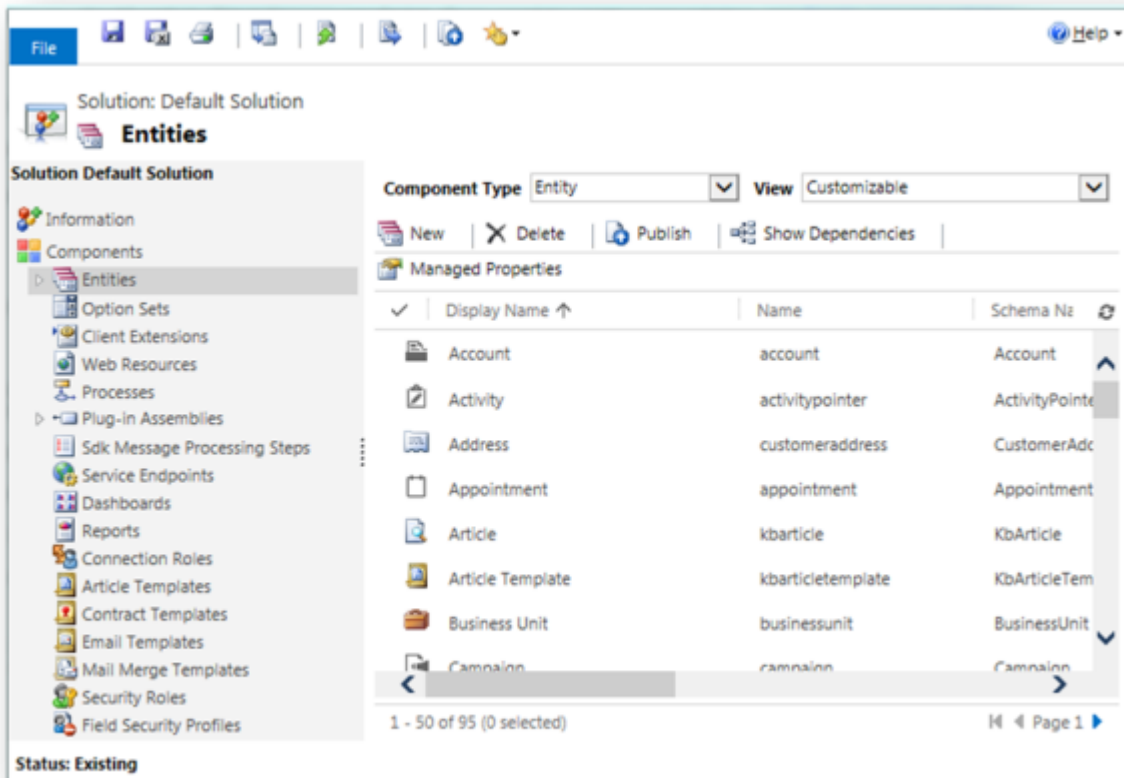
📝 **Note**

Use your mouse and keyboard when working with customization tools in the solution explorer. This part of the application isn't optimized for touch.

As you select each node, you can see a list of the solution components. The actions available in the command bar will change depending on the context of the node you have selected and if the solution is the default solution or a managed solution. With unmanaged solutions that are not the default solution, you can use the **Add Existing** command to bring in solution components that aren't already in the solution.

With managed solutions there will be no commands available and you'll see the message:

You can't directly edit the components within a managed solution. If the managed properties for solution components are set to allow customizations, you can edit them in the Customizations area or from another unmanaged solution.

You'll need to locate the solution component in the default solution and try to edit it there or add it to another unmanaged solution that you've created. The solution component might not be customizable. More information: <u>Managed properties</u>

Many of the customizations you'll want to do will involve entities. You can expand the **Entities** node to show a list of all the entities in the system that can be customized in some way. You can further expand each entity to see the solutions components that are part of the entity as shown with the account entity in the following screenshot:

169
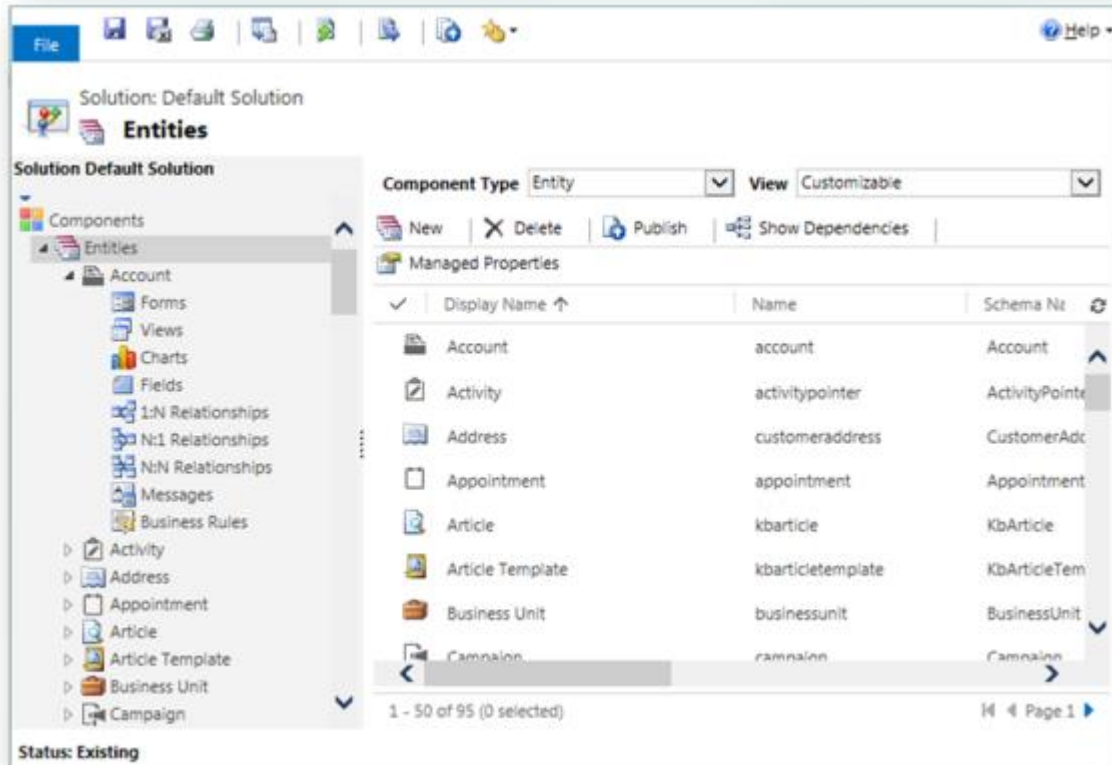
For details about customizing the individual solution components found in the solution explorer, see the following topics:

- For entity, entity relationships, field and message customizations, see Create and edit metadata.

- For entity forms see Create and design forms.

- For processes, see Create and edit processes.

- For business rules, see Create and edit business rules.

Create your own solution

Because the default solution contains all the solutions components, it may be easier for you to locate just the solution components that you've customized if you create a separate solution and do all your customization there. This also makes it easy to export a backup of your solution as a smaller file. If you choose to do this, you must always remember to add any of the solution components you edit to this solution. When you create new solution components, you should always create them in the context of this solution. This way the solution publisher customization prefix will be applied consistently. After you have created solution components in your solution, or added existing solution components to that solution, you can also edit them in the default solution if you wish.

1. Navigate to **Settings** > **Solutions**.
2. Choose **New** and complete the required fields for the solution

Field	Description
Display Name	The name shown in the list of solutions. You can change this later.
Name	The unique name of the solution. This is generated using the value you enter in the Display Name field. You can edit this before you save the solution, but after you save the solution, you can't change it.
Publisher	You can select the default publisher or create a new publisher. Unless you plan to distribute your solution, you should just use the default publisher for your organization.
Version	Enter a number for the version of your solution. This is only important if you export your solution. The version number will be included in the file name when you export the solution.

3. Choose **Save**.

Add solution components

After you've created your solution, it won't contain any solution components. You can create new solution components or use the **Add Existing** button in the list menu to add any solution components from the default solution.

When you do this you may see a **Missing Required Components** dialog.
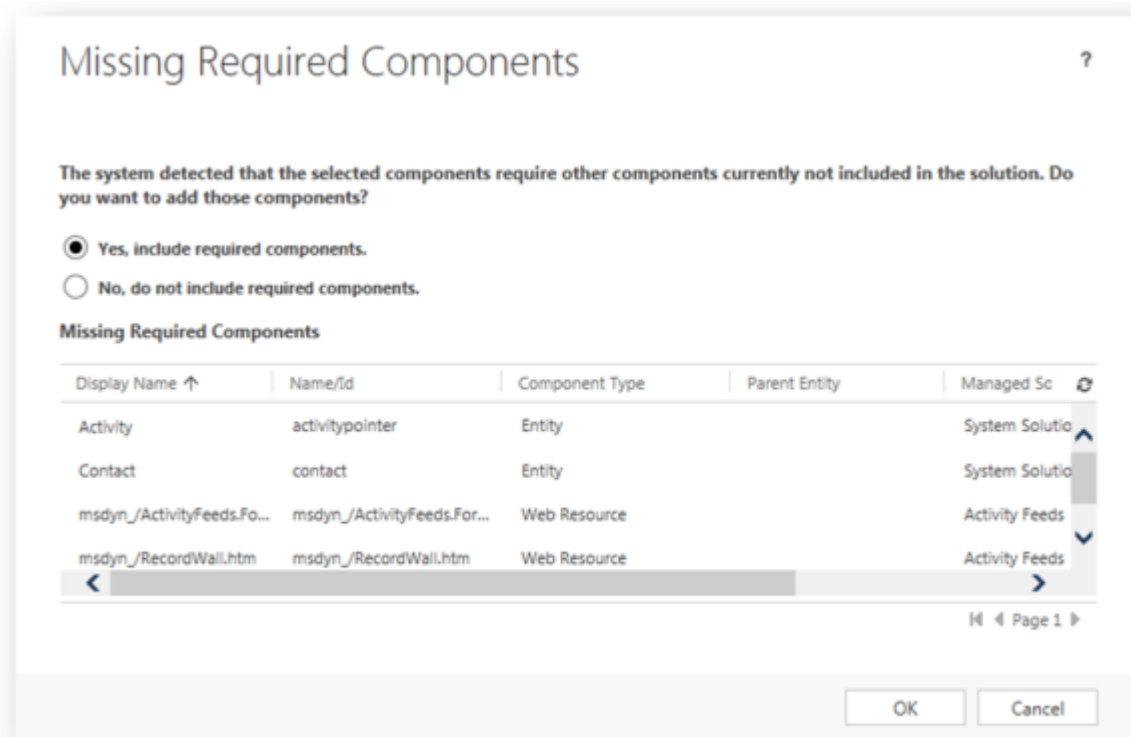
This dialog alerts you that the solution component has dependencies on other solution components. If you select **No, do not include required components**, the solution may fail if you import it into another organization where all those required components do not exist. If the solution import succeeds, the behavior in the other solution may not be identical as the original organization because the components are configured differently than those in the source solution.

Generally, it's safer to include the required components if you intend to export the solution into another organization. If you don't add these components when you add an individual solution component, you can come back later, select the solution component you added, and choose **Add Required Components** from the menu.

If you don't intend to export the solution, or if you only intend to export it as an unmanaged solution and import it back into the same organization, it isn't necessary to include required components. If you ever export the solution you'll see another warning indicating that some required components are missing. If you are only going to import this solution back into the same organization, it is OK to disregard this warning. The steps to edit application navigation or the ribbon without using a third-party editing tool expect that you'll export the solution back into the same organization.

Import, update, and export solutions

How often you import, update, or export solutions may depend on the size of your organization, your internal development practices, and whether you are developing a solution that is to be distributed as a managed solution.

- If you have a small organization with few customizations, and you're the only customizer, you may never export or import solutions except to periodically export the default solution to create a backup or if you choose to use or buy a managed solution provided by someone else.

- Some organizations will have an outside company create customizations for them. In this case, they'll export any customizations that they currently have and send them to the outside company. That company will develop and test customizations and send them back to the organization to be imported.

- Large organizations may have several teams of people customizing the system. They may have a separate organization just for development and customizations. These organizations frequently also have a separate test organizations and a UAT (User Acceptance Testing) organizations in addition to a production organization which everyone in the organization actually uses. These organizations depend on exporting and importing customizations from one organization to the next in the process of creating, testing, and verifying the solutions.

The strategy you choose should depend on your needs. Some important things to keep in mind:

- You can't export your default solution as a managed solution.

- We don't support importing a default solution taken from an on-premise deployment into a CRM Online organization or a default solution taken from a CRM Online organization into an on-premises deployment. We do support importing custom solutions between these deployment types, but not default solutions.

- When you export a managed solution, you can't import it back into the organization it was imported from.

- Only export a solution as a managed solution when you intend to distribute it.

- Never import an unmanaged solution unless you are sure you want to accept all the customizations in it and allow any of those customizations to overwrite any customizations you previously created.

- Solutions can't delete anything. Importing an unmanaged solution might overwrite existing customizations, but it can't entirely remove them. For example, if you create a custom field for an entity, and then import a solution containing the definition of that entity that doesn't have the custom field, the custom field you created will still be there. Also, any changes defined within the solution you imported will be there.

- You can't import a custom entity with the same name as an existing entity. Microsoft Dynamics CRM allows duplicate display names, though.

- You can import only items that you have organization-level access to create, read, and update.

- You must have the System Administrator security role to import security roles, organization settings, sdk message processing steps, and plug-in assemblies.

- If you import customizations that include a language that is not installed on your system, any labels defined in the customizations will default to the base language of the Microsoft Dynamics CRM system the customizations were imported from.

- All imported security roles will be attached to the root business unit.

- If an imported security role originated from the same CRM system, any changes applied to the security role will be merged. All privileges on system entities for the security role will be replaced by privileges defined by the security role that is being imported.

Import solutions

You can import solutions manually using the steps below. Only import solutions that you've obtained from a trusted source. Customizations might include code that can send data to external sources.

1. Go to **Settings** > **Solutions**.
2. In the solutions list menu choose **Import**.
3. In the **Import Solution** dialog, **Select Solution Package** step browse to the compressed (.zip or .cab) file that contains the solution you want to import.
4. Choose **Next**
5. You can view information about the solution before you choose **Import**.
6. You may need to wait a few moments while the solution import completes. If it is successful, you can view the results and choose **Close**.

Update solutions

There are times when you may wish to install an update to an existing managed solution. The procedure is similar to installing a new managed solution, except you will get some different options. If you are updating a solution you got from someone else, you should get guidance from the solution publisher about which options you should choose.

1. Go to **Settings** > **Solutions**.
2. In the solutions list menu choose **Import**.
3. In the **Import Solution** dialog, **Select Solution Package** step browse to the compressed (.zip or .cab) file that contains the solution you want to update.
4. Choose **Next**
5. You can view information about the solution before you choose **Next**. This page will display a yellow bar saying **This solution package contains an update for a solution that is already installed**.
6. You will have the following options:
   - **Maintain customizations (recommended)**
     Selecting this option will maintain any unmanaged customizations performed on components but also implies that some fo the updates included in this solution will not take effect.

- **Overwrite Customizations**

  Selecting this option overwrites any unmanaged customizations previously performed on components included in this solution. All updates included in this solution will take effect.

  Choose the appropriate option and then choose **Next**.

7. You may need to wait a few moments while the solution import completes. If it is successful, you can view the results and choose **Close**.

Export solutions

We recommend that you export your unmanaged customizations periodically so that you have a backup in case anything happens. You cannot export managed solutions.

1. Go to **Settings** > **Solutions**.
2. In the list select the solution you want to export and choose **Export**.
3. In the **Publish Customizations** step you will be reminded that only published customizations are exported and you will have the option to **Publish All Customizations** before you choose **Next**.
4. If your solution contains any missing required components you will see the **Missing Required Components** step. You can disregard this warning only if you intend to import this as an unmanaged solution back into the original organization. Otherwise, follow the instructions in the dialog to cancel the export and add the required components.
5. In the **Export System Settings (Advanced)** step you can choose certain system settings to include in your solution. If your solution depends on any of the groups of system settings, select them and choose **Next**.

   See Settings options for solution export for details about the settings that will be included with each option.
6. In the **Package Type** step, you must choose whether to export the solution as an **Unmanaged** or **Managed** solution.
7. The next step allows you to choose a target solution for a specific CRM version. This option is typically used by ISVs who may want to export a solution that is compliant with a previous version. Unless you intend to import this solution into an organization that is not upgraded to the same version as the organization version you are using, accept the default.

   For more information see the SDK topic MSDN: Export a solution for a specific CRM version.
8. Choose **Export** to download the solution file.

Settings options for solution export

The following table shows the options available when you export a solution:

Group	Setting	Description
Auto-numbering	Campaign Prefix	Prefix used for campaign

Group	Setting	Description
		numbering.
Case Prefix	Prefix to use for all cases throughout Microsoft Dynamics CRM.	
Contract Prefix	Prefix to use for all contracts throughout CRM.	
Invoice Prefix	Prefix to use for all invoice numbers throughout CRM.	
Article Prefix	Prefix to use for all articles in CRM.	
Order Prefix	Prefix to use for all orders throughout CRM.	
Unique String Length	Number of characters appended to invoice, quote, and order numbers.	
Calendar	Calendar Type	Calendar type for the system. Set to Gregorian US by default
Date Format Code	Information about how the date is displayed throughout Microsoft CRM.	
Date Separator	Character used to separate the month, the day, and the year in dates throughout CRM.	
Max Appointment Duration	Maximum number of days an appointment can last.	
Show Week Number	Information that specifies whether to display the week number in calendar displays throughout CRM.	
Time Format Code	Information that specifies how the time is displayed throughout CRM.	
Week Start Day Code	Designated first day of the week throughout CRM.	
Customization	Is Application Mode Enabled	Indicates whether loading of CRM in a browser window that does not have address, tool, and menu bars is enabled.
Email-tracking	Allow Unresolved Address Email Send	Indicates whether users are allowed to send email to

Group	Setting	Description
		unresolved parties (parties must still have an email address).
Ignore Internal Email	Indicates whether incoming email sent by internal CRM users or queues should be tracked.	
Max Tracking Number	Maximum tracking number before recycling takes place.	
Render Secure Frame For Email	Flag to render the body of email in the webform in an IFRAME with the security='restricted' attribute set. This is additional security but can cause a credentials prompt.	
Tracking Prefix	History list of tracking token prefixes.	
Tracking Token Base	Base number used to provide separate tracking token identifiers to users belonging to different deployments.	
Tracking Token Digits	Number of digits used to represent a tracking token identifier.	
General	Block Attachments	Prevent upload or download of certain attachment types that are considered dangerous.
Currency Format Code	Information about how currency symbols are placed throughout CRM.	
Currency Symbol	Currency Symbol	
Full Name Display Order	Order in which names are to be displayed throughout CRM.	
Presence Enabled	Information on whether IM presence is enabled.	
Negative Format	Information that specifies how negative numbers are displayed throughout CRM.	
Number Format	Specification of how numbers are displayed throughout CRM.	
Pricing Decimal Precision	Number of decimal places that	

Group	Setting	Description
	can be used for prices.	
Share To Previous Owner On Assign	Information that specifies whether to share to previous owner on assign.	
Marketing	Allow Automatic Response Creation	Indicates whether automatic response creation is allowed
Allow Automatic Unsubscribe	Indicates whether automatic unsubscribe is allowed.	
Allow Automatic Unsubscribe Acknowledgement	Indicates whether automatic unsubscribe acknowledgement email is allowed to send.	
Allow Marketing Email Execution	Indicates whether marketing emails execution is allowed.	
Outlook Synchronization	Allow Address Book Synchronization	Indicates whether background address book synchronization in Microsoft Office Outlook is allowed.
Allow Offline Scheduled Synchronization	Indicates whether background offline synchronization in Microsoft Office Outlook is allowed.	
Allow Scheduled Synchronization	Indicates whether scheduled synchronizations to Outlook are allowed.	
Email Send Polling Frequency	Normal polling frequency used for sending email in Outlook.	
Min Address Synchronization Frequency	Normal polling frequency used for address book synchronization in Outlook.	
Min Offline Synchronization Frequency	Normal polling frequency used for background offline synchronization in Outlook.	
Min Synchronization Frequency	Minimum allowed time between scheduled Outlook synchronizations.	
Auto-Tag Max Cycles	Maximum number of aggressive polling cycles executed for email auto-tagging when a new email is received.	
Auto-Tag Interval	Normal polling frequency used for email auto-tagging in Outlook.	

Group	Setting	Description
ISV Config	Service Calendar Appearance Configuration	You can define visual styles for service calendars. More information: [MSDN: Service Calendar Appearance Configuration](#)

Privacy notices

By enabling a solution, you consent to share your data with an external system. Data that is imported from external systems into Microsoft Dynamics CRM Online is subject to our privacy statement, which you can access [here](#).

You can import and export solutions to and from Microsoft Dynamics CRM Online. When you do so, the solutions, which may contain personal information, are transferred over a secure connection between your computer and Microsoft servers. In turn, third-party code imported to CRM Online could eventually transmit Customer Data to an external system (i.e. InsideView) or configure/expand entities that get synchronized (i.e. exported) to other external systems that are controlled by a party other than Microsoft.
If a solution to be imported is meant to transmit Customer Data outside of the security boundaries of CRM Online, Administrators are invited to verify the types of Customer Data that will be called by the service/software/application prior to uploading third-party code to their CRM Online instance.
 Extraction of Customer Data by third party services/software/applications or solutions is controlled by the customer, not Microsoft. The final destiny and privacy policies applicable to the data points extracted by these external solutions are controlled by the Administrator; adequate review of the policies applicable by the third parties operating these services/software/apps is recommended.

See Also

[Getting started with customization](#)
[Use segmented solutions and patches to simplify solution updates](#)
[Privileges required for customization](#)
[Customization concepts](#)
[Referenced topic '6f0b8ac1-f70a-452e-b71a-2a8438f7d3ce' is not in the TOC.](#)
[Whitepaper: Patterns and Principles for CRM Online Solution Builders](#)

Use segmented solutions and patches to simplify solution updates

Applies To: Dynamics CRM 2016, Dynamics CRM Online

To gain tighter control over what you distribute in solutions and solution patches, use solution segmentation. With Microsoft Dynamics CRM solution segmentation, you can export solutions with selected entity assets, such as entity fields, forms, and views, rather than entire entities with all the assets. To create the segmented solutions and patches, you can use the CRM user interface, without writing code.

◆ **Important**

This feature was introduced in CRM Online 2016 Update and CRM 2016 (on-premises).

Interested in getting this feature? [Find your CRM administrator or support person.](#)

In addition to having more control over what's in a solution, you'll be able to control what goes into a patch. You can create a patch for a parent solution and export it as a minor update to the base solution. When you clone a solution, the system rolls up all related patches into the base solution and creates a new version.

When you're working with patches and cloned solutions, keep the following information in mind:

- A patch represents an incremental minor update to the parent solution. A patch can add or update components and assets in the parent solution when installed on the target system, but it can't delete any components or assets from the parent solution.

- A patch can have only one parent solution, but a parent solution can have one or more patches.

- A patch is created for unmanaged solution. You can't create a patch for a managed solution.

- When you export a patch to a target system, you should export it as a managed patch. Don't use unmanaged patches in production environments.

- The parent solution must be present in the target system to install a patch.

- You can delete or update a patch.

- If you delete a parent solution, all child patches are also deleted. The system gives you a warning message that you can't undo the delete operation. The deletion is performed in a single transaction. If one of the patches or the parent solution fails to delete, the entire transaction is rolled back.

- After you have created the first patch for a parent solution, the solution becomes locked, and you can't make any changes in this solution or export it. However, if you delete all of its child patches, the parent solution becomes unlocked.

- When you clone a base solution, all child patches are rolled up into the base solution and it becomes a new version. You can add, edit, or delete components and assets in the cloned solution.

- A cloned solution represents a replacement of the base solution when it's installed on the target system as a managed solution. Typically, you use a cloned solution to ship a major update to the preceding solution.

Understanding version numbers for cloned solutions and patches

A solution's version has the following format: major.minor.build.revision. A patch must have a higher build or revision number than the parent solution. It can't have a higher major or minor version. For example, for a base solution version 3.1.5.7, a patch could be a version 3.1.5.8 or version 3.1.7.0, but not version 3.2.0.0. A cloned solution must have the version number greater than or equal to the version number of the base solution. For example, for a base solution version 3.1.5.7, a cloned solution could be a version 3.2.0.0, or version 3.1.5.7. In the UI, you can only set the major and minor version values for a cloned solution, and the build or revision values for a patch.

Create a segmented solution with the entity assets you want

To create a segmented solution, start with creating an unmanaged solution and adding the existing resources. You can add multiple system or custom entities, and for each entity, choose the assets you want to include in the solution. The wizard-like setup takes you step-by-step through the process of adding entity assets.

1. Go to **Settings** > **Solutions**.

2. Click **New** and create a solution. Enter information in the required fields. Click **Save & Close**.

3. Open the solution you just created. In the **Add Existing** drop-down list, select **Entity**.

4. In the **Select solution components** dialog box, select one or more entities you want to add to the solution. Click **OK**.

5. The wizard opens. Follow the wizard to add assets for each selected entity to the solution.

6. Click **Publish** for changes to take effect.

The following illustrations provide an example of creating a segmented solution by choosing entity assets from the **Account**, **Case**, and **Contact** entities.

Start by choosing the **Entity** component.

Then, select the solution components.

Follow the wizard. In Step 1, starting in alphabetical order, select the assets for the first entity, the **Account** entity, as shown here.

Select Entity Assets to Include in the solution

☑ Include entity metadata ☐ Add All Assets

| Forms | Views | Charts | Fields | Keys | 1:N | N:1 | N:N | Messages | Business Rules | Hierarchy Settings |

System Forms **Active Forms** ⌄

✓	Name	Form State	Form Type ↑	State	Customizable	Version	⟳
	Account Card form	Active	Card	Managed	True	8.0.0.0	
	Account	Active	Main	Managed	True	5.0.0.0	
	Account MainInteractionCentric	Active	Main Interaction...	Managed	True	8.0.0.0	
	Information	Active	Mobile - Express	Managed	True	5.0.0.0	
	Account Quick Create	Active	Quick Create	Managed	True	6.0.0.0	
	Account Hierarchy Tile Form	Active	Quick View Form	Managed	True	7.0.0.0	
	Social Profiles	Active	Quick View Form	Managed	True	6.1.0.0	
	Account Reference Panel	Active	Quick View Form	Managed	True	8.0.0.0	
	Recent Cases and Entitlements	Active	Quick View Form	Managed	True	8.0.0.0	

1 - 10 of 10 (0 selected)

Next   Cancel

Open the **Fields** tab and select the **Account Number** field.

Select Entity Assets to Include in the solution

☑ Include entity metadata ☐ Add All Assets

| Forms | Views | Charts | Fields | Keys | 1:N | N:1 | N:N | Messages | Business Rules | Hierarchy Settings |

View: All

✓	Name	Schema Name ↑	Display Name	Type	Field Type	State
	accountcategorycode	AccountCategoryCode	Category	Option Set	Simple	Managed
	accountclassificationcode	AccountClassificationCode	Classification	Option Set	Simple	Managed
	accountid	AccountId	Account	Primary Key	Simple	Managed
✓	accountnumber	AccountNumber	Account Number	Single Line of Text	Simple	Managed
	accountratingcode	AccountRatingCode	Account Rating	Option Set	Simple	Managed
	address1_addressid	Address1_AddressId	Address 1: ID	Primary Key	Simple	Managed
	address1_addresstypecode	Address1_AddressTypeCode	Address 1: Addr...	Option Set	Simple	Managed
	address1_city	Address1_City	Address 1: City	Single Line of Text	Simple	Managed
	address1_composite	Address1_Composite	Address 1	Multiple Lines of...	Simple	Managed

1 - 143 of 143 (1 selected)

Next   Cancel

In Step 2, for the **Case** entity, add all assets.

Select Entity Assets to Include in the solution

☑ Include entity metadata ☑ Add All Assets

| Forms | Views | Charts | Fields | Keys | 1:N | N:1 | N:N | Messages | Business Rules | Hierarchy Settings |

System Forms **Active Forms** ∨

✓	Name	Form State	Form Type ↑	State	Customizable	Version	↻
	Case Card	Active	Card	Managed	True	8.0.0.0	Def
	Case	Active	Main	Managed	True	5.0.0.0	Upc
	Case MainInteractionCentric	Active	Main Interaction...	Managed	True	8.0.0.0	Def
	Information	Active	Mobile - Express	Managed	True	5.0.0.0	This
	Case Quick Create	Active	Quick Create	Managed	True	6.0.0.0	Def
	Case Reference Panel	Active	Quick View Form	Managed	True	8.0.0.0	A fc

< ——————————————————————————— >

1 - 6 of 6 (0 selected)

Back   Next   Cancel

In Step 3, add the **Anniversary** field for the **Contact** entity.
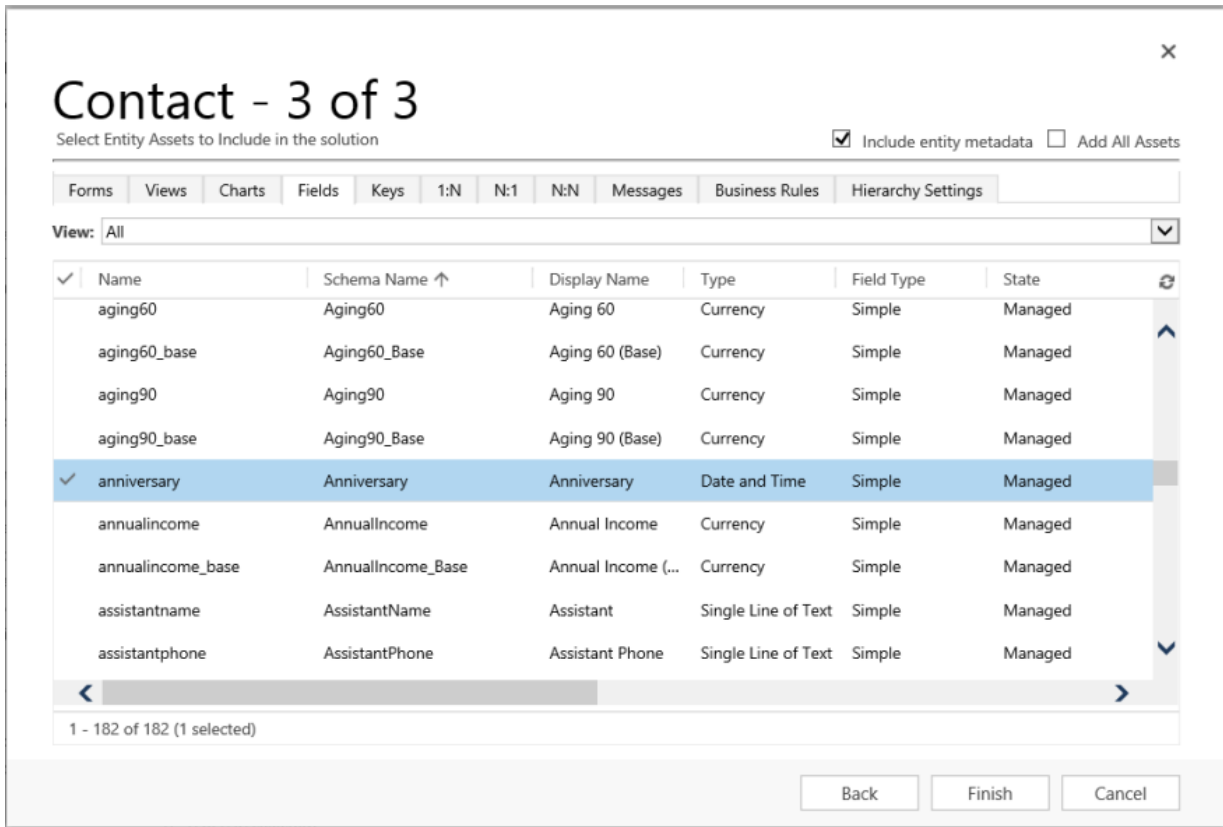
As a result, the segmented solution that's created contains three entities, **Account**, **Case**, and **Contact**. Each entity contains only the assets that were chosen.
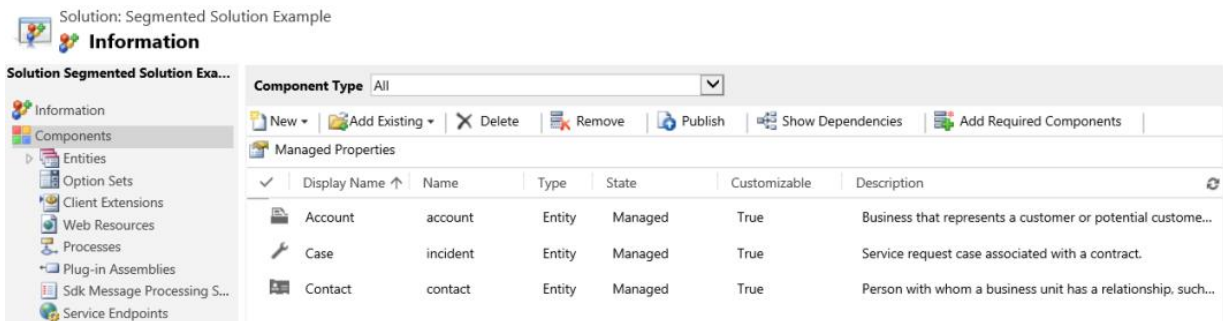
Create a solution patch

A patch contains changes to the parent solution, such as adding or editing components and assets. You don't have to include the parent's components unless you plan to edit them.

The following procedure describes how to create a patch for an unmanaged solution.

1. Go to **Settings** > **Solutions**.

2. In the grid, select an unmanaged solution to create a patch for. Click **Clone a Patch**. The dialog box that opens contains the base solution's name and the patch version number. Click **Save**.

3. In the grid, find and open the newly created patch. Just like with the base solution, follow the wizard to add the components and assets you want.

4. Click **Publish** for your changes to take effect.

The following illustrations provide an example of creating a patch for an existing solution. Start by clicking **Clone a Patch** (in the compressed view, the **Clone a Patch** icon is depicted as two small squares, as shown below).
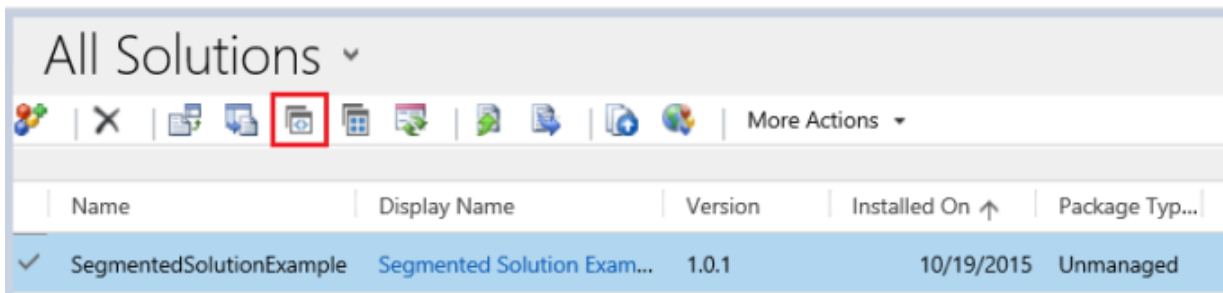
In the **Clone To Patch** dialog box you see that the version number for the patch is based on the parent solution version number, but the build number is incremented by one. Each subsequent patch has a higher build or revision number than the preceding patch.

The following screenshot shows the base solution **SegmentedSolutionExample**, version **1.0.1.0** and the patch **SegmentedSolutionExample_Patch**, version **1.0.2.0**.

In the patch we added a new custom entity called **Book**, and included all assets of the **Book** entity in the patch.
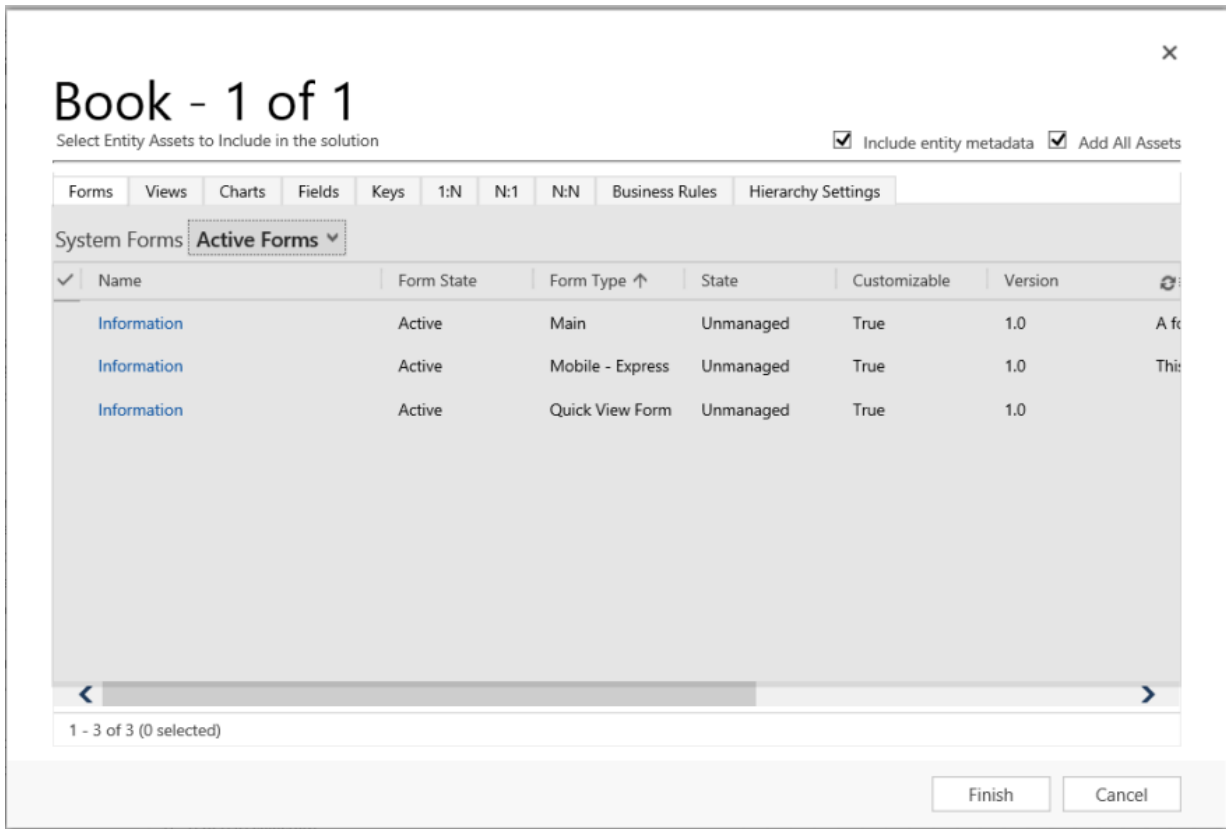
Clone a solution

When you clone an unmanaged solution, all patches related to this solution are rolled up into the newly-created version of the original solution.

1. Go to **Settings** > **Solutions**.
2. From the list, select an unmanaged solution you want to clone. Click **Clone Solution**. The dialog box that opens contains the base solution's name and the new version number. Click **Save**.
3. Click **Publish** for your changes to take effect.

Continuing on with the example, you see the **Clone to Solution** dialog box that shows the new solution version number.

Clone To Solution

Create a solution version for the selected unmanaged solution. Any patches that have been created will be rolled up into the newly created solution.

Base Solution Name   SegmentedSolutionExample

Display Name   Segmented Solution Example

Version Number   1 . 1 .0.0

Save   Cancel
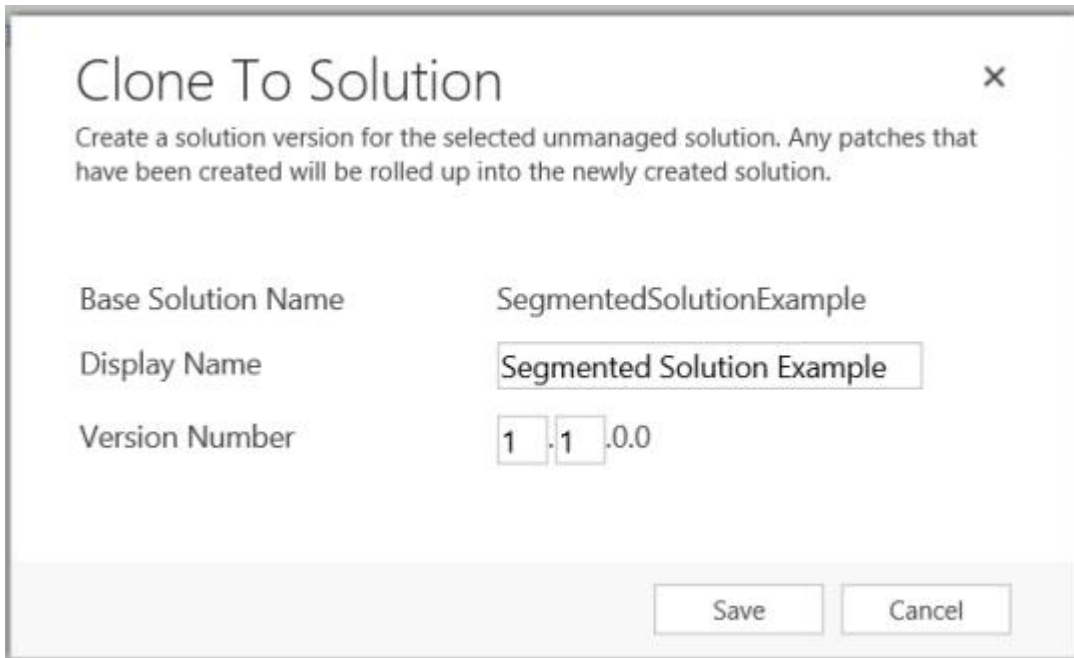
After cloning, the new solution version contains three original entities (**Account**, **Case**, and **Contact**), and the custom entity called **Book** that was added in the patch. Each entity contains only the assets that were added in the example.
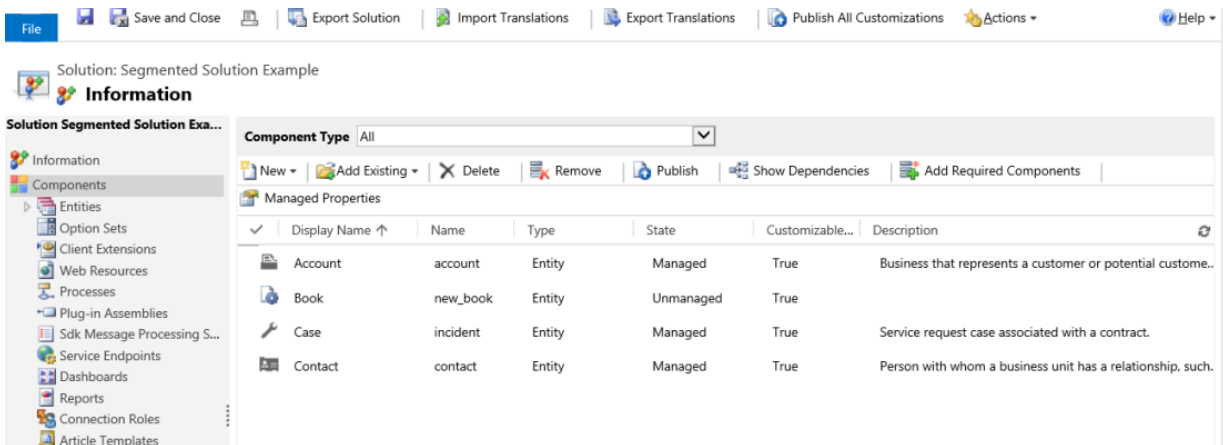
See Also

Use solutions for your customizations
Create patches to simplify solution updates

Change the color scheme or add a logo to match your organization's brand

Applies To: CRM Online

You can create a custom look and feel (a theme), for your Microsoft Dynamics CRM web application by making changes to the default colors and visual elements provided in the uncustomized CRM system. For example, you can create your personal product branding by adding a company logo and providing entity-specific coloring. A theme is created by using the customization tools in the user interface, without requiring a developer to write code. You can create, change or delete themes that are used in your organization. The theme customization is supported in the Web forms in Dynamics CRM for Outlook. You can define multiple themes, but only one can be set and published as the default theme.

In This Topic

Use themes to enhance the user interface and create your product branding
Solution awareness
Copy and alter the existing theme
Preview and publish a theme
Best practices
Custom theme considerations

Use themes to enhance the user interface and create your product branding

Theming is used to enhance the CRM User Interface, not drastically alter it. The theme colors are applied globally throughout the application. For example, you can enhance the following visual elements in the UI:

- Change product logos and navigation colors to create product branding

- Adjust accent colors, such as hover or selection colors

- Provide entity-specific coloring

What can you change or adjust?

- Logo

- Logo tooltip

- Navigation bar color

- Navigation bar shelf color

- Header color

- Global link color

- Selected link effect

- Hover link effect

- Process control color

- Default entity color

- Default custom entity color

- Control shade

- Control border

Solution awareness

The theme is not solution aware. The changes made for an organization's theme aren't included in solutions exported from the organization. The data is stored in the theme entity that can be exported and re-imported in other environment. The imported theme must be published to take an effect.

Copy and alter the existing theme

The easiest and quickest way to create a new them is to clone and alter an existing theme, then save it, preview and publish. Go to Go to **Settings** > **Customizations**. Choose **Themes** and then choose **CRM Default Theme**. The following screenshot shows the default theme setup.

Microsoft Dynamics CRM ≡ Settings ∨ Cust
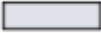
＋ NEW   🔍 PREVIEW   📑 PUBLISH THEME   🔗 CLONE   🔗 EMAIL A LINK

THEME
CRM Default Theme ≔

Theme Name

Theme Name *	CRM Default Theme

Navigation Bar

Logo	--	
Logo Tooltip	Microsoft Dynamics CRM	
Navigation Bar Color	#002050	
Navigation Bar Shelf Color	#DFE2E8	
Header Color	#1160B7	

UI Elements

Global Link Color	#1160B7	
Selected Link Effect	#B1D6F0	
Hover Link Effect	#D7EBF9	
Process Control Color	#0755BE	
Default Entity Color	#001CA5	
Default Custom Entity Color	#006551	
Control Shade	#F3F1F1	
Control Border	#CCCCCC	

We cloned the default theme and changed the colors. The following screenshots show the new colors for navigation and highlighting. You can also choose a new logo for product.

The following screenshot shows the new navigation color.

You need to assign security roles to new users   Click to see a list of users who nee

+ NEW   **🗑** DELETE   **📄** PREVIEW   **📊** PUBLISH THEME   **⊡⊡** CLONE   **↩**

THEME

Gentle Green Theme ⁏≡

Theme Name

Theme Name *   Gentle Green Theme

Navigation Bar

Logo   --

Logo Tooltip   MS Green

Navigation Bar Color   #415C55

Navigation Bar Shelf Color   #79AB9E

Header Color   #415C55

UI Elements

Global Link Color   #415C55

Selected Link Effect   #65825C

Hover Link Effect   #A4D194

Process Control Color   #79AB9E

Default Entity Color   #111111

Default Custom Entity Color   #111111

Control Shade   #79AB9E

Control Border   #415C55

The following screenshot shows the account entity grid with the new highlight color.
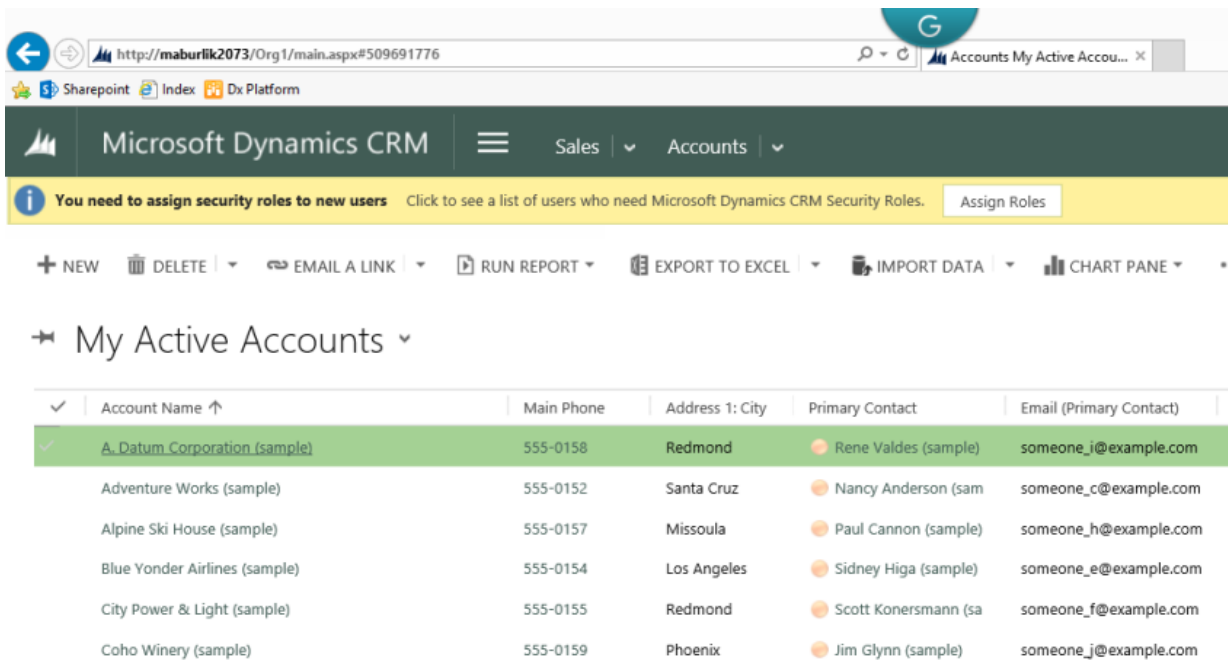
Preview and publish a theme

To preview and publish a theme, do the following steps:

- Create a new theme from scratch or clone an existing one.
- Preview the new theme by choosing **PREVIEW** on the command bar. To exit the Preview mode, choose **EXIT PREVIEW** on the command bar, next to the **PREVIEW** button.
- Publish a theme. Choose **PUBLISH THEME** on the command bar.

The following screenshot shows the buttons on the command bar for preview and publishing.
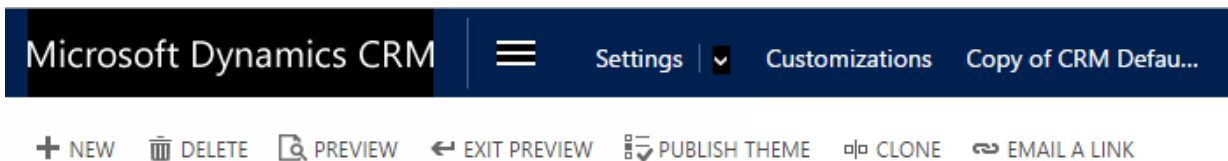
Best practices

Following are the recommendations for designing theme contrasts and choosing colors.

Theme contrast

We recommend the following approach to providing contrast colors:

- Carefully choose the contrasting colors. CRM out-of-the-box default theme has the correct contrast ratios to ensure optimal usability. Use similar rations for your new themes.

- For high contrast mode, use the default color settings.

Theme colors

We recommend that you don't use a large number of different colors. Although you can set a different color for every entity, we recommend one of two patterns:

- Make all entities in neutral colors and highlight the key entities.

- Use the same color for similar entities or related entities, such as queue and queue item, or product catalog entities. Keep the total number of groups low.

Custom theme considerations

You should consider the following when planning on using custom themes:

- Most updated user interface (UI) areas will be displayed in the custom theme colors.

- Even though the theme colors are applied globally throughout the application, some legacy UI areas, such as gradient buttons, will retain the default colors.

- Certain areas must use dark or light colors to contrast with the default icon colors. The icon color isn't customizable.

- An entity can't be displayed in different colors under different Sitemap nodes.

- The Sitemap nodes colors aren't customizable.

See Also

Customize your CRM system
Help & Training: Change the color scheme or add a log to match your organization's brand
Changes to forms and views in Microsoft Dynamics CRM 2015
Video: Theming In Microsoft Dynamics CRM

Changes to forms and views in Microsoft Dynamics CRM 2015

Applies To: Dynamics CRM 2016, Dynamics CRM Online

Changes to forms and views for Accounts, the Product Catalog, and User management make it easier to find related information with product and account families and hierarchical charts. These changes, introduced with Microsoft Dynamics CRM 2015, apply to forms for system entities such as Account, Case, and User, but do not appear in custom forms.

In Service management, changes to service configuration settings improve Service Level Agreement (SLA) tracking.

If you have not yet installed the Microsoft Dynamics CRM Online Spring '14 update or Microsoft Dynamics CRM 2013 Service Pack 1 (SP1), and the associated product updates, you'll also want to read about the changes included with those releases.

In This Topic

Hierarchies
Product Catalog
Enhanced SLAs
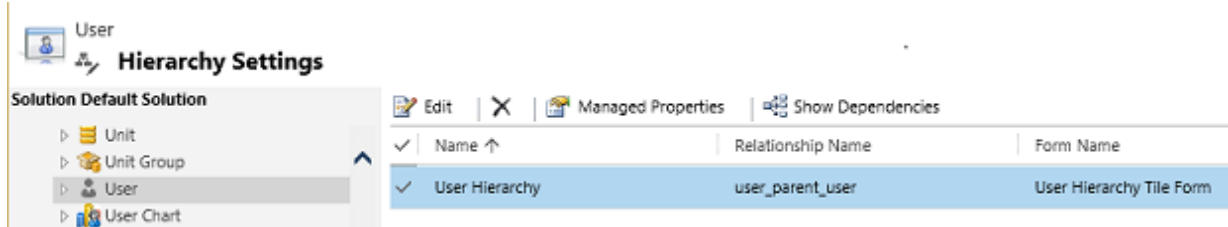
Hierarchies

With the new hierarchy functionality, it is now easier to view, explore, and query hierarchical relationships and see KPIs (key performance indicators) in the contextual view of a hierarchy. Hierarchy visualizations are enabled out-of-the-box for some entities, such as Account and User. You can also enable hierarchical relationships for other entities, including custom entities, and create visualizations for them.
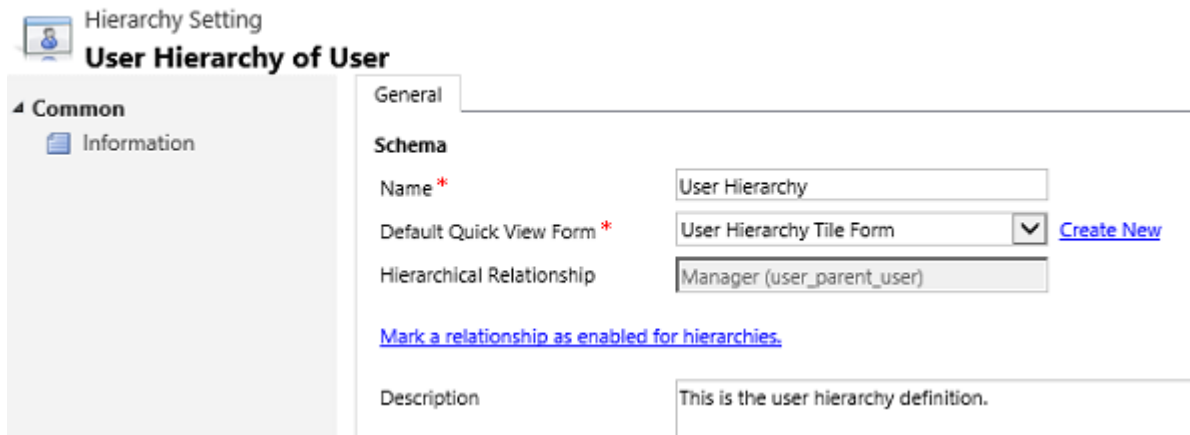
Hierarchy settings

There are new setting areas for defining how hierarchy visualizations work. For example, when you select **Hierarchy Settings** for a User entity (**Settings** > **Customize** > **Customize the System** > **Entities** > **User** > **Hierarchy Settings**) you can create a new hierarchy setting or edit an existing one.

Account and user entity forms

There are new Default Quick View forms for the Account and User entities.

A **Child Accounts** subgrid has been added to the Account form.

And a **Direct Reports** subgrid has been added to the User form.

In Microsoft Dynamics CRM for tablets, hierarchical relationships appear as follows:
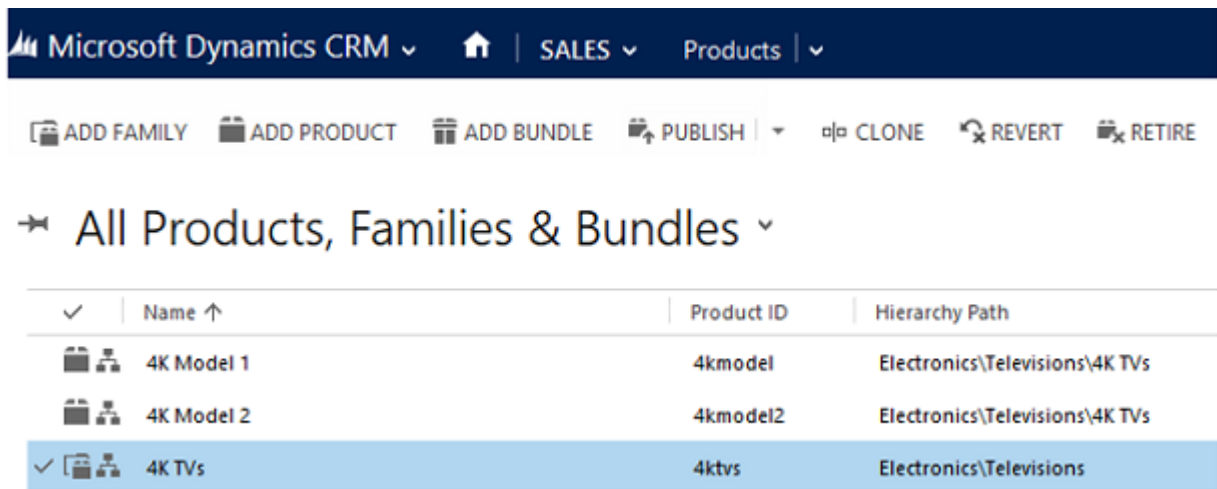
For information about viewing hierarchies in Dynamics CRM for Outlook and the Web client, see Query and visualize hierarchical data.

Product Catalog

You can make it easier for sales agents to find and sell products in a product catalog by using product families and product properties. A product family lets you group and categorize products, which makes it easier for you to manage them.

Product Families

Select a product to create a family, or a product family to create a child product family under an existing family.

Use **Product Properties** to describe a product family. These properties will also appear in the child product view.

🔧 PUBLISH | ▾   ◁|ᴾ CLONE   🔧ₓ RETIRE   🗑 DELETE   ⟲ REVERT   📛 VIEW PUBLISHED PRODUCT   🔀 VIEW HIERARCHY   •••

PRODUCT
Product Family: 4K TVs

SUMMARY

Name *	**4K TVs**		Unit Group	--
Product ID *	**4ktvs**		Default Unit	🔒 --
Family Hierarchy	🔒 Electronics > Televisions		Default Price List	--
Valid From	--		Decimals Supported	--
Valid To	--		Subject	--
Description	--			

PRODUCT PROPERTIES

Name ↑	Base Property	Data Type	Read-Only	Required	Hidden	Default Value	
⌗ Color		Option Set	No	Yes	No		
⌗ Technology	Technology	Option Set	Yes	Yes	No	4K	

🔧 PUBLISH | ▾   📄 PREVIEW   ◁|ᴾ CLONE   🔧ₓ RETIRE   🗑 DELETE   ⟲ REVERT   📛 VIEW PUBLISHED PRODUCT   •••

PRODUCT
Product: 4K Model 1

SUMMARY

Name *	**4K Model 1**		Unit Group *	🔒 Default Unit
Product ID *	**4kmodel**		Default Unit *	Primary Unit
Family Hierarchy	🔒 Electronics > Televisions > 4K TVs		Default Price List *	USA Price List
Valid From	--		Decimals Supported *	0
Valid To	--		Subject	--
Description	--			

PRODUCT PROPERTIES

Name ↑	Base Property	Data Type	Read-Only	Required	Hidden	Default Value
⌗ Color		Option Set	No	Yes	No	
⌗ Technology	Technology	Option Set	Yes	Yes	No	4K

More information:
[Manage product catalog configuration](#)
[Help & Training: Create a product family](#)

Price Lists

You can associate a product with a price list by selecting the plus sign (**+**) on the **Price List Items** subgrid to open a new price list item form.

If a price list does not currently exists, you can create one by navigating to **Settings** > **Product Catalog** > **Price List**, or directly from the price list item form by selecting **Look Up Record** > **New**.

More information: Help & Training: Create price lists and price list items.

Products

Product views shown on forms such as Opportunity, Quote, Order, and Invoice, have additional columns: Properties, Unit, and Suggestions. These fields cannot be customized.

Enhanced SLAs

With Enhanced SLAs, you can pause SLA tracking while it is on hold waiting for a response from the customer. In the new **Service** tab in System Settings (**Settings** > **Service Management** > **Service Configuration Settings**), System administrators can select the case status fields for which the SLA should be paused. In addition, **Disable SLAs** was moved from the **General** tab to the **Service** tab.

The new **Enhanced SLA Details** tab in the Case form shows detailed First Response and Case Resolution SLA KPI information for Enhanced SLAs. The First Response By and Resolve By columns have been removed from the Case and Queue entity views.
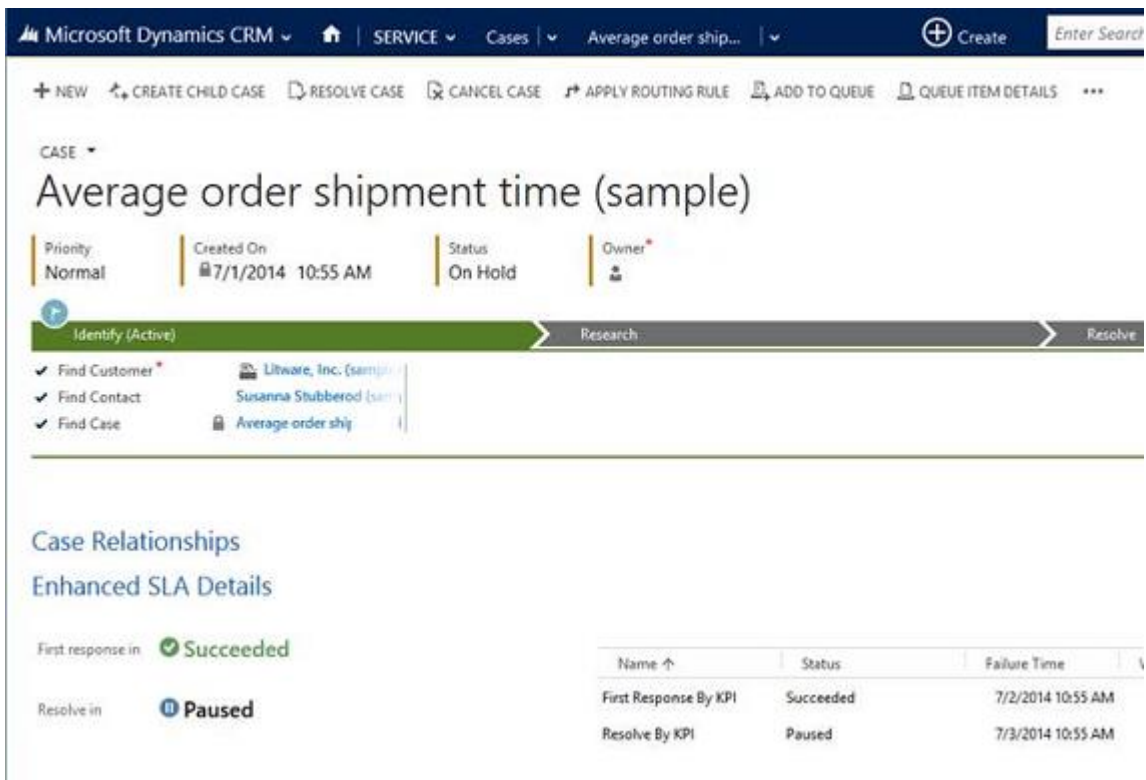
Also note that for Standard SLAs the **Applicable SLA** section in the Summary tab of the case form shows First Response and Resolve By information.

Solution: Default Solution

Form: Case

Case

- Summary
- Case Relationships
- Enhanced SLA Details
- Additional Details
- Social Details
- Articles and Contract I

Common

- Activities
- Closed Activities
- Connections
- Audit History

Sales

Service

Marketing

Process Sessions

- Background Processes
- Process Sessions

🔒 Entitlement | Entitlement

🔒 Product | Product

DESCRIPTION

Description

APPLICABLE SLA

🔒 First Response By | First Response By

🔒 Resolve By | Resolve By

CASE

Average order shipment time

✓ Identify

Similar Cases   *Find*
✓ Assign to Others *   👤 First name Last name

Summary

CASE DETAILS

Case Title *	Average order shipment time (sample)
ID	🔒 CAS-00010-Y8T7F6
Subject	Information
Customer *	🏢 Litware, Inc. (sample)
Origin	**Web**
Contact	Susanna Stubberod (sample)
Entitlement	--
Product	--

DESCRIPTION

--

APPLICABLE SLA

First Response By	🔒	--
Resolve By	🔒	--

More information: Enhanced service level agreements

See Also

Hierarchy security
Video: SLA Enhancements in Microsoft Dynamics CRM 2015
Help & Training: Define service level agreements (SLAs)
What's new for administrators and customizers in Microsoft Dynamics CRM 2016 and CRM Online

Create and edit metadata

Applies To: CRM 2016 on-prem, CRM Online

This topic looks at metadata and how you can use it to customize your Microsoft Dynamics CRM deployment.

In This Topic

[Metadata used with customization](#)
[Create new metadata or use existing metadata](#)
[Limitations on creating metadata items](#)

Metadata used with customization

Metadata means data about data. Microsoft Dynamics CRM provides a flexible platform for your CRM deployment because it is relatively easy to edit the definitions of the data that the deployment will use. In Microsoft Dynamics CRM the metadata is a collection of entities. Entities describe the kinds of data which is stored in the database. Each entity corresponds to a database table and each field (also known as attribute) within an entity represents a column in that table. Entity metadata is what controls the kinds of records you can create and what kind of actions can be performed on them. Using only the entity metadata and the Microsoft Dynamics CRM web services a developer can write code to perform actions with data on your CRM organization. You have the ability to edit this metadata with the customization tools to create or edit entities, fields, and entity relationships.

The web application or different clients people use to interact with the data in your CRM organization depend on the entity metadata and adapt as the entity metadata changes. But these clients also depend on other data to control what visual elements to display, any custom logic to apply, and how to apply security. This system data is also stored within entities but the entities themselves are not available for customization.

Use the metadata browser

The solution explorer provides access to all the entities that you can customize, but this is just a fraction of all the entities that define the metadata used for Microsoft Dynamics CRM. For most basic customization tasks the information presented within the solution explorer is going to be all you need. Developers frequently need more information and an easy way to see the metadata. If you need to have in-depth discussions with developers about metadata or if you just want to have a deeper understanding of the metadata, try installing the Metadata Browser solution that is included in the Microsoft Dynamics CRM SDK. The Metadata browser is a managed solution containing only HTML web resources that you can install that will let you view all the metadata and filter entities and fields to gain a better understanding of what the metadata contains.

Download and install the metadata browser

1. [Download the Microsoft Dynamics CRM SDK package.](#)

2. Run the MicrosoftDynamicsCRM2016SDK.exe to extract the contents to a folder of your choice on your computer.

3. In the folder containing the extracted SDK files, navigate to the `sdk\tools\metadatabrowser` folder.

4. In that folder you will find a managed solution file (MetadataBrowser_2_0_0_3_managed.zip) and a readme.docx file containing information about the solution.

5. Install the managed solution. See Import solutions for more information.

6. After you install the solution you will see it in the list of solutions. Click the solution to open it.

7. On the **Configuration** tab you will find instructions about how to use the metadata browser and buttons to open the pages it contains.

Create new metadata or use existing metadata

Microsoft Dynamics CRM comes with a number of system entities that support core CRM capabilities. For example, data about your customers or potential customers is intended to be stored using the account or contact entities. The lead entity is where information about prospects or potential sales opportunities should be kept. The opportunity entity is intended to be used to track potential revenue generating events.

Each of these entities also contain a number of fields that represent common data that CRM systems may need to store for the respective entity.

For most organizations it is to your advantage to use the system entities and attributes for the purposes they were provided. Even though you can create new custom entities, system entities may have special capabilities that you will not be able to easily replicate without writing code.

For example,

- Lead entity records can be qualified. This qualification action will deactivate the lead and create a new opportunity and account or contact record to allow moving forward in your business process.

- Case entity records have a special connection with contract entities to help define entitlements for customer services.

If you want to install a solution you can expect that the solution developer has leveraged the system entities and attributes. Creating a new custom entity that replaces a system entity or attribute will mean that any solutions available may not work for your organization.

For these reasons, we recommend that you use the provided system entities and fields when they make sense for your organization. If they don't make sense and can't be edited to match your need, you should evaluate if creating a new entity is required. Remember that you can change the display name of an entity so that it matches the nomenclature your organization uses. For example, it is very common for people to change the display name of the account entity to "Company" or the name of the contact entity to "Individual". This can be done to entities or attributes without changing the behavior of the entity. For more information about renaming entities, see Change the name of an entity.

You can't delete system entities or fields. They are considered part of the system solution and every organization is expected to have them. If you want to hide a system entity, change the security role privileges for your organization to remove the read privilege for that entity. This will remove the entity from most parts of the application. If there is a system field that you don't need, remove it from the form and any views that use it. Change the **Searchable** value in the field definition so that it does not appear in advanced find. More information: Create and edit fields

Limitations on creating metadata items

With Microsoft Dynamics CRM Online there is a limit to the number of entities you can create. You can find information about the maximum number in the **Resources In Use** page for your deployment. If you need more custom entities, contact Microsoft Dynamics CRM technical support. This upper limit can be adjusted. With Microsoft Dynamics CRM on-premises, there is practically no limit to the number of custom entities you can create other than the maximum capacity for your version of Microsoft SQL Server. See Maximum Capacity Specifications for SQL Server.

Within each entity there is an upper limit on the number of fields you can create. This limit is based on the technical limitations on the amount of data that can be stored in a row of a database table. It is difficult to provide a specific number because each type of field can use a different amount of space. The upper limit depends on the total space used by all the fields for the entity.

Most people do not create enough custom fields to reach the limit, but if you find yourself planning to add hundreds of custom fields to an entity, you should consider if this is the best design. Do all the fields you plan to add describe properties for a record for that entity? Do you really expect that people using your organization will be able to manage in a form that includes such a high number of fields? The number of fields you add to a form increase the amount of data that has to be transferred each time a record is edited and will affect the performance of the system. Take these factors into consideration when you are adding custom fields to an entity.

Option set fields provide a set of options that will be displayed in a drop-down control on a form or in picklist control when using advanced find. Dynamics CRM can support thousands of options within an Option set, but you shouldn't consider this as the upper limit. Usability studies have shown that people have trouble using a system where a drop-down control provides large numbers of options. Use option set field to define categories for data. Don't use option set fields to select categories that actually represent separate items of data. For example, rather than maintain an option set field that stores each of hundreds of possible manufacturers of a type of equipment, consider creating an entity that stores references to each manufacturer and use a lookup field instead of an option set.

See Also

Create and edit entities
Create and edit fields
Create and edit entity relationships
Create and edit global option sets
Customize your CRM system
Referenced topic '6f0b8ac1-f70a-452e-b71a-2a8438f7d3ce' is not in the TOC.
Create and design forms

Create and edit entities

Applies To: CRM 2016 on-prem, CRM Online

Entities define the types of records people can use in a Microsoft Dynamics CRM organization. In the CRM application, you can edit customizable system entities and create, edit, and delete custom entities.

In this topic

Types of entities

Before creating or editing entities you should understand that there are different types of entities. Once a custom entity is created, these types cannot be changed. The two major divisions are based on entity ownership and whether the entities are activity entities.

Entity ownership

There are four different types of entity ownership. When you create a custom entity the only options are **user or team owned** or **organization-owned**, but you should be aware that other entities have different ownership types.

Ownership	Description
Business-owned	There are 12 business-owned system entities. These include Business Unit, Calendar, Team, Security Role, and User.
None	There are 127 system entities that don't have an owner, but most of these aren't visible in the solution explorer. These mostly consist of intersect entities created to support Many-to-Many relationships or where access to the record is controlled by a parent record. For example, Opportunity Product records must be accessed through a user or team owned Opportunity record.
Organization-owned	There are 68 organization-owned system entities. These include Article, Article Template, Competitor, Currency, and Web Resource.
User or Team Owned	There are 59 user or team owned system entities. Because these records are owned by a user or team, they're connected to a business unit and specific security roles for the business unit. Therefore, these entities participate in role-based security.

The custom entities that you create, and most customizable system entities, are either **organization-owned** or **user or team owned**.

♦ **Important**

After an entity is created, you can't change the ownership. Before you create an entity, make sure that you choose the correct type of ownership. If you later determine that your custom entity must be of a different type, you have to delete it and create a new one. More information: <u>Delete custom entities</u>

Activity entities

 An activity can be thought of as any action for which an entry can be made on a calendar. An activity has time dimensions (start time, stop time, due date, and duration) that help determine when the action occurred or will occur. Activities also contain data that helps determine what action the activity represents, for example, subject and description. An activity can be opened, canceled, or completed. The completed status of an activity will have several sub-status values associated with it to clarify the way that the activity was completed.

Activity entities can only be owned by a user or team, they can't be owned by an organization.

There are 15 system entities that represent activities as shown in the following table.

Name	Description	Display in activity menus
Appointment	Commitment representing a time interval with start/end times and duration.	Yes
Campaign Response	Response from an existing or a potential new customer for a campaign.	Yes
Email	Activity that is delivered using email protocols.	Yes
Fax	Activity that tracks call outcome and number of pages for a fax and optionally stores an electronic copy of the document.	Yes
Letter	Activity that tracks the delivery of a letter. The activity can contain the electronic copy of the letter.	Yes
Phone Call	Activity to track a telephone call.	Yes
Recurring Appointment	The master appointment of a recurring appointment series.	Yes
Service Activity	Activity offered by the organization to satisfy its customer's needs. Each service activity includes date, time, duration, and required resources.	Yes

Name	Description	Display in activity menus
Task	Generic activity representing work needed to be done.	Yes
Campaign Activity	Task performed, or to be performed, by a user for planning or running a campaign.	No
Case Resolution	Special type of activity that includes description of the resolution, billing status, and the duration of the case.	No
Opportunity Close	Activity created automatically when an opportunity is closed, containing information such as the description of the closing and actual revenue.	No
Order Close	Activity generated automatically when an order is closed.	No
Quick Campaign	System operation used to perform lengthy and asynchronous operations on large data sets, such as distributing a campaign activity or quick campaign.	No
Quote Close	Activity generated when a quote is closed.	No

You can create new custom activity entities. For example you might create a custom activity entity to record instant message communications. Creating an activity entity is different from creating a non-activity entity because you don't specify a primary field. All activity entities have a **Primary Field** set to **Subject** and other common fields that are defined by the Activity entity. This allows all types of activities to be shown in a view where just the common fields are displayed.

To create a custom activity entity, select **Define as an activity entity**. After you select this, you'll see that **Display in Activity Menus** is selected. This setting allows people to create this type of activity in the activity menus. This isn't selected for activities that are typically associated with specific events and created behind using code or by a workflow. After you save the entity, you can't change these settings.

Security considerations: Accessing activities and entities

In CRM, a user with a specific security role has the same set of privileges to all system and custom activities. You can't add or remove privileges for individual activities. For example, you can't give a user the Delete privilege to the system activity, such as Task, and not give the Delete privilege to the custom activities. However, you can give a user different privileges to individual system or custom entities.
More information: Community blog: Custom Entity or Custom Activity in CRM

Create entities

Before you create a custom entity, evaluate whether using an existing entity will meet your requirements. More information: Create new metadata or use existing metadata

Part of the name of any custom entity you create is the customization prefix. This is set based on the solution publisher for the solution you're working in. If you care about the customization prefix, make sure that you are working in an unmanaged solution or the default solution where the customization prefix is the one you want for this entity. For information about how to change the customization prefix, see Solution publisher.

For step-by-step instructions to create an entity, see Help & Training: Create a new entity.

 Note

If you are using Safari as your browser, you may receive a timeout error when trying to save or publish a new custom entity. If this occurs we recommend you use a different browser to create entities.

The minimum required fields to create a custom entity are:

Field	Description
Display Name	This is the singular name for the entity that will be shown in CRM.
Plural Name	This is the plural name for the entity that will be shown in CRM.
Name	This field is pre-populated based on the display name you enter. It includes the solution publisher customization prefix.
Ownership	You can choose either user or team-owned or organization owned. More information: Entity ownership.

To create an activity entity, select **Define as an activity entity** before you save the entity. More information: Activity entities

Under **Areas that display this entity**, select which of the areas available in the navigation bar you want this entity to be available from. This isn't required, but if you need people to be able to discover the entity easily, choose one of these. Making changes here updates the data that defines the navigation pane. You can't change the settings for system entities. However, you can edit this data to modify where each entity is displayed and how it is displayed by editing the sitemap.

There are a number of options that are set by default. If you're not sure you want these for your custom entity, disable them before you save. You can always choose to enable them later, but certain options can't be disabled after they are enabled. **Notes**, **Activities**, and **Connections** are enabled by default and can't be disabled later. For more information about available options, see Edit entities.

Each custom entity has a primary field. This is defined in the **Primary Field** tab. This field is used when records for the entity are displayed in a list. The primary field is typically a link that opens the record. This field must be a **Single Line of Text** field with the format of **Text**. When creating the entity the only value that can't be changed later is the **Name**. By default the **Display Name** is "Name" and the **Name** is your solution publisher customizations prefix, an underscore, and "name". If this isn't what you want,

change this before you create the entity. After you save the entity, you can't edit the primary field values from the Primary Field tab for the entity. You must locate this field in the entity fields. You'll be able to edit it there like any other single line of text field.

People with the system administrator or system customizer security roles can see all new custom entities. This allows you to test your custom entities before showing them to people who will use the system. Before people with other security roles can see these entities, you need to edit the security roles and grant access to other users so that they can see them. When the custom entity is created it will be included on the Custom Entities tab for each security role. You must provide at least user-level read access to the custom entity before people will be able to see it in the application.

When a new entity is created, a number of metadata and supporting system records are created for it. You continue editing the entity by working with these.

Edit entities

You can edit any custom entities that you create. System entities or managed custom entities may have limitations about changes you can make.

System entities are any entities that are included with Microsoft Dynamics CRM. Managed custom entities are entities that have been added to the system by importing a managed solution. The degree to which you can edit these entities is determined by the managed properties set for each entity. Any properties that can't be edited will be disabled. To view the Managed properties for an entity selected in the solution explorer, click the **Managed Properties** button in the menu bar.

 Note

You must publish customizations after you save changes to an existing entity. More information: Publishing customizations

When you edit entities you can make the following metadata changes:

- **Edit the entity fields** More information: Create and edit fields

- **Edit the entity relationships** More information: Create and edit entity relationships

You can also make changes to records that support the entity:

- **Forms** More information: Create and design forms

- **Business Rules** More information: Create and edit business rules

For your custom entities you can change the **Areas that display this entity**, but for system entities or managed custom entities you will find that the options are disabled.

Change the name of an entity

Use the **Display Name** and **Plural Name** properties to change the name of the entity in the application. However, the name of many system entities may also be used in other text in the application. To locate and change text where this name was used, see Edit system entity messages.

Change the icons used for custom entities

By default, all custom entities in the web application have the same icons. You can create image web resources for the icons you want for your custom entities and set them using the **Update Icons** button on the toolbar. There are two sizes of icons:

- **Icon in Web Application** This icon should be 16x16 pixels.

- **Icon for Entity Forms** This icon should be 32x32 pixels.

Both icons should be no larger than 10 KB. PNG format files with transparent backgrounds are recommended. More information: Help & Training: Change entity icons

Note

Microsoft Dynamics CRM for tablets and Microsoft Dynamics CRM for phones don't display custom icons for custom entities.

Entity options that can only be enabled

The following table lists the options that you can enable for an entity, but after these items are enabled, they can't be disabled:

Option	Description
Business process flows	Create business process flows for this entity. More information: Business process flows
Notes	Append notes to records for this entity. Notes include the ability to add attachments.
Activities	Associate activities to records for this entity.
Connections	Use the connections feature to show how records for this entity have connections to records of other entities that also have connections enabled.
Sending e-mail (if an e-mail field does not exist, one will be created)	Send emails using an email address stored in one of the fields for this entity. If a **Single Line of Text** field with format set to **email** doesn't already exist for this entity, a new one will be created when you enable sending email.
Queues	Use the entity with queues. Queues improve routing and sharing of work by making records for this entity available in a central place that everyone can access.

Enable or disable entity options

The following table lists the entity options that you can enable or disable at any time.

Option	Description
Primary Image	System entities that support images will already have an **Image** field. You can choose whether to display data in this field as the image for the record by setting this field to **[None]** or **Default Image**.
	For custom entities you must first create an image field. Each entity can have only one image field. After you create one, you can change this setting to set the primary image. More information: [Image fields](#)
Mail Merge	People can use this entity with mail merge.
Document Management	After other tasks have been performed to enable document management for your organization, enabling this feature allows for this entity to participate in integration with Microsoft SharePoint. More information: [Help & Training: Manage SharePoint documents from within Microsoft Dynamics CRM](#)
Duplicate Detection	If duplicate detection is enabled for your organization, enabling this allows you to create duplicate detection rules for this entity. For information about enabling duplicate detection, see [Help & Training: Turn duplicate detection on or off](#).
Allow Quick Create	After you have created and published a **Quick Create Form** for this entity, people will have the option to create a new record using the **Create** button in the navigation pane. More information: [Create and design forms](#)
	When this is enabled for a custom activity entity, the custom activity will be visible in the group of activity entities when people use the **Create** button in the navigation pane. However, because activities don't support quick create forms, the main form will be used when the custom entity icon is clicked.
Auditing	When auditing is enabled for your organization, this allows for changes to entity records to be captured over time. When you enable auditing for an entity, auditing is also enabled on all its fields. You can select or clear fields that you want to enable auditing on.
Access Teams	Create team templates for this entity. More information: [Help & Training: About team templates](#)

Option	Description
Enable for phone express	Make this entity available to the Microsoft Dynamics CRM for phones express app.
Enable for mobile	Make this entity available to the CRM for phones and tablets apps. You also have the option to make this entity **Read-only in mobile**. If the forms for an entity require an extension not supported in CRM for phones and tablets, such as iFrame or web resource controls, use this setting to ensure that mobile app users can't edit the data for these entities.
Offline capability for CRM for Outlook	People using Microsoft Dynamics CRM for Outlook can choose to include data from this entity with the data they take offline. ⚠ **Warning** Each entity that you enable for offline capability directly affects the time required for people to synchronize data when they come back online. This is especially true for people with less powerful computers. Carefully consider if an entity must be available for people while working offline.
Reading pane in CRM for Outlook	Records for this entity can display in a read-only view in Dynamics CRM for Outlook. More information: CRM for Outlook reading pane

Edit system entity messages

The default display name of some system entities are used in user interface text and error messages in CRM. If you change the display name, you should also update any messages that use the default display name. For example, if you change the display name from "Account" to "Company," you could still see an error message using the old name.

In the solution explorer, below the entity, if you see a **Messages** node you can edit certain text that includes references to the original entity display name. Editing this text is straightforward. Open the message to see a form with three fields:

Field	Description
Default Display String	Shows the original text.
Custom Display String	Edit this text to change the display string.
Comment	Optional. Include a comment about what you changed and why.

Some of the message text may have placeholders in them. These placeholders are numbers with brackets on either side. For example: {0}. These placeholders allow for text to be inserted in the message. If you edit messages, make sure that you keep these placeholders.

Delete custom entities

As someone with the system administrator security role, you can delete custom entities that aren't part of a managed solution.

◆ Important

When you delete a custom entity, the database tables that store data for that entity are deleted and all data they contain is lost. Any associated records that have a parental relationship to the custom entity are also deleted. For more information about parental relationships, see Create and edit entity relationships.

Before you can delete a custom entity, you must remove any dependencies that exist in other solution components. For example, if another entity has a lookup field on a form that uses this custom entity, you must first remove that field from the form before you can delete the custom entity. This also applies to views defined for other entities that include a reference to this entity. If you try to delete the entity and any dependencies are discovered, the deletion won't be allowed. Click or tap **Show Dependencies** on the menu bar to help identify any dependencies that you have to remove before the entity can be deleted.

The only way to recover data from an entity that was deleted is to restore the database from a point before the entity was deleted.

Set managed properties

Managed properties only apply when you include an entity with a managed solution and import it into another organization. These settings allow a solution developer to have some control over the level of customization that they want to allow people who install their solution to have. To set managed properties for an entity, select the entity and click **Managed Properties** on the menu bar.

The **Can be customized** option controls all the other options. If this option is **False**, none of the other settings apply. When it is **True**, you can specify the other customization options.

Entities have more managed properties than any other type of solution component. If the entity is customizable, you can set the following options:

- **Display name can be modified**
- **Can Change Additional Properties**
- **New forms can be created**
- **New charts can be created**
- **New views can be created**

Except for **Can Change Additional Properties**, these options should be self-explanatory. The **Can Change Additional Properties** property simply means anything not covered by the other options. If you set all the individual options to **False**, you might as well set **Can be customized** to **False**.

See Also

Create and edit fields

Applies To: Dynamics CRM 2013, Dynamics CRM 2015, Dynamics CRM 2016, Dynamics CRM Online

In Microsoft Dynamics CRM, fields define the individual data items that can be used to store data in an entity. Fields are sometimes called attributes by developers. You can use the customization tools in the solution explorer to edit system fields that allow customization, or to create, edit, or delete custom entities.

In This Topic

Create and edit fields

Before you create a custom field, evaluate whether using an existing field meets your requirements. More information: [Create new metadata or use existing metadata](#)

Part of the name of any custom field you create is the customization prefix. This is set based on the solution publisher for the solution you're working in. If you care about the customization prefix, make sure that you are working in an unmanaged solution or the default solution where the customization prefix is the one you want for this entity. For information about how to change the customization prefix, see [Solution publisher](#).

You can access fields in the application in several ways:

- From the solution explorer you can expand the entity and choose the **Fields** node. From the list of fields, click **New** to create a new field or double-click any of the fields on the list to edit them.

- Expand the entity and choose the **Forms** node. Open a form in the form editor and below the **Field Explorer** click **New Field** to create a new field. For any field already added to the form you can double-click the field to display the **Field Properties**. On the **Details** tab, click **Edit**.

  - Another way to go to the form editor is to use the **Form** command on the command bar for any entity record.

- If you use the metadata browser tool, use the **Entity Metadata Browser** page to view details about a specific entity, and then click the **Attributes** button. If a field is editable, you can click the **Edit Attribute** button to edit the field. More information: Use the metadata browser

All fields have the following properties:

Property	Description
Display Name	The name that appears as a label in the header for lists where this attribute is included. It is also the default label when this field is shown in a form, but the label text in each form can be edited separately.
Name	This field is pre-populated based on this **Display Name** you enter. It includes the solution publisher customization prefix. You can change the **Display Name** later, but the **Name** can't be changed after the field is saved.

Field Requirement	There are three options:
	
	- **Optional**
	  This field doesn't require data to save the record.
	
	- **Business Recommended**
	  This field doesn't require data to save the record. However a blue asterisk appears near the field to indicate it is important.
	
	- **Business Required**
	  The record can't be saved without data in this field.
	  Be careful when you make fields business required. People will resist using the application if they can't save records because they lack the correct information to enter into a required field. People may enter incorrect data simply to save the record and get on with their work.
	  You can use business rules or form scripts to change the requirement level as the data in the record changes as people work on it. More information: Create and edit business rules

Searchable	When a field is searchable it appears in Advanced Find and is available when customizing views. Use this when there are fields for the entity that you don't use. Setting this to **No** will reduce the number of options shown to people using advanced find.

Property	Description
Field Security	For custom fields, enable this to allow this field to participate in field level security.
Auditing	Disable this so that data in this field won't be included with auditing data.
Description	Set text that will appear as a tooltip when the field is displayed in a form. More information:Video: Microsoft Dynamics CRM Customizable Tool Tips
Type	Select the type of record. Depending on the type you select, you'll have different options. More information: Types of fields

Any of the fields that provide direct text input have an **IME Mode**. The input method editor (IME) is used for East Asian languages like Japanese. IMEs allow the user to enter the thousands of different characters used in East Asian written languages using a standard 101-key keyboard.

Create or edit entity fields

Create new fields to capture data when existing system entities don't have fields that meet your requirements. After you create new fields, be sure to include them on the forms and views for the entity so that they are available from the relevant Microsoft Dynamics CRM user interface. You can also add the new fields to reports with the following restrictions:

- Some system entities or custom entities that are included in a managed solution may not allow you to add new fields.

- Some system fields or custom fields that are included in a managed solution may not allow you to edit them.

- The default solution is a special unmanaged solution which shows you all solution components from any managed or unmanaged solutions. You can't edit ANYTHING in the context of a managed solution. But all the things you find there are in your default solution anyway, so you don't need to.

1. Make sure you have the System Administrator security role or equivalent permissions in Microsoft Dynamics CRM.

2. Go to **Settings** > **Customizations**.

3. Click **Customize the System**.

4. Under **Components**, expand **Entities**, and then expand the entity you want.

5. Select **Fields**.

   - To add a new field, on the Actions toolbar, select **New**, and enter a **Display Name** to generate the **Name**.
     - OR -

- To edit one or more fields, select the field or fields (using the Shift key) you want to modify and then on the Actions toolbar, select **Edit**. You can make changes to the following fields:
  - For **Field Requirement**, select whether it's optional, recommended, or required.
  - In **Searchable**, select whether to include this field in the list of fields shown in Advanced Find for this entity and also in the field available for customizing the find columns in the Quick Find view and the Lookup view.
  - For **Field Security**, enable or disable the feature for this field.
  - For **Auditing**, enable or disable the feature for this field.

Note

When you select multiple fields to edit, the **Edit Multiple Fields** dialog appears. You can edit **Field Requirement**, **Searchable**, and **Auditing**.

6. For new fields, under **Type**, enter the required information for the specified type. For existing fields, you cannot modify the type, but you can modify the settings for the Types of fields.
7. Select the **Field type**, **Format**, and **Maximum length** of the field.
8. Select the **IME mode** for this attribute.

Note

This specifies whether the active state of an input method editor (IME) is enabled. An IME lets you enter and edit Chinese, Japanese, and Korean characters. IMEs can be in an active or inactive state. The active state accepts Chinese, Japanese, or Korean characters. The inactive state behaves like a regular keyboard and uses a limited set of characters.

9. For a new field, be sure to add a **Description** of the field – this provides instructions to your users on how to use the new field.
10. Click **Save and Close**.
11. Publish your customization.
    - To publish your changes for one entity, under **Components**, select **Entities**, and then the entity that you made changes to. On the Actions toolbar, select **Publish**.
    - To publish all changes you have made to multiple entities or components, on the Actions toolbar, select **Publish All Customizations**.

Note

Installing a solution or publishing customizations can interfere with normal system operation. We recommend that you schedule a solution publish when it's least disruptive to users.

Types of fields

The following table contains information about the field types available in Microsoft Dynamics CRM.

Field type	Description	Available field data type
Simple field	Contains data that is not based on a formula.	**Single Line of Text**, **Option Set**, **Two Options**, **Image**, **Whole Number**, **Floating Point Number**, **Decimal Number**, **Currency**, **Multiple Lines of Text**, **Date and Time**, **Lookup**
Calculated field	Contains calculations that use fields from the current entity or related parent entities.	**Single Line of Text**, **Option Set**, **Two Options**, **Whole Number**, **Decimal Number**, **Currency**, **Date and Time**
Rollup field	Contains an aggregate value computed from the records related to a record, or a value computed over a hierarchy.	**Whole Number**, **Decimal Number**, **Currency**, **Date and Time**

The following table contains information about the field data types.

Field data type	Description
Single Line of Text	Up to 4000 characters of text can be in this field. You can set a maximum length to less than this. This field has several format options that will change the presentation of the text. These options are **Email**, **Text**, **Text Area**, **URL** and **Ticker Symbol** and **Phone**. More information: [Single line of text format options](#)
Multiple Lines of Text	Up to 1,048,576 characters of text can be in this field. You can set a maximum length to less than this. When you add this field to the form you can specify the size of the field.
Option Set	This field provides a set of options. Each option has a number value and label. When added to a form this field uses a select control and only one option can be selected. When displayed in **Advanced Find**, you can use a picklist control to select multiple options to include in your search criteria. You may define a single global option set and configure multiple option set fields to use that single set of options. More information: [Create and edit global option sets](#)
Two Options	This field provides two options. Each option has a number value of 0 or 1 corresponding to a false or

Field data type	Description
	true value. Each option also has a label so that true or false values can be represented as "Yes" and "No", "Hot" and "Cold", "On" and "Off" or any pair of labels you want to display.
	Two option fields don't provide format options at the field level. But when you add one to the form you can choose to display them as radio buttons, a check box, or a select list.
Status	A system field that has options that generally correspond to active and inactive status. Some system attributes have additional options, but all custom attributes have only **Active** and **Inactive** status options. More information: Default status and status reason values
	You can also include custom state transitions to control which status options are available for certain entities. More information: Define status reason transitions
Status Reason	A system field that has options that provide additional detail about the Status field. Each option is associated with one of the available Status options. You can add and edit the options. More information: Default status and status reason values
Whole Number	Integers with a value between -2,147,483,648 and 2,147,483,647 can be in this field. You can restrict the maximum or minimum values in this range. This field has format options **None**, **Duration**, **Time Zone**, and **Language** that change depending on how the field is presented. More information: Whole number format options
Floating Point Number	Up to 5 decimal points of precision can be used for values between -100,000,000,000 and -100,000,000,000 can be in this field. You can specify the level of precision and the maximum and minimum values. More information: Using the right type of number
Decimal Number	Up to 10 decimal points of precision can be used for values between -100,000,000,000 and -100,000,000,000 can be in this field. You can specify the level of precision and the maximum and minimum values. More information: Using the right type of number
Currency	Monetary values between -922,337,203,685,477 and 922,337,203,685,477 can be in this field. You

Field data type	Description
	can set a level of precision or choose to base the precision on a specific currency or a single standard precision used by the organization. More information: Using currency fields
Date and Time	This field has format options to display **Date Only** or **Date and Time**.
Image	Each entity that supports images can have one image field. When an entity has an image field, it can be configured to display the image for the record in the application. More information: Image fields, Video: Microsoft Dynamics CRM Image Data Type
Lookup	A field that allows setting a reference to a single record of a specific type of entity. Some system lookup fields behave differently. More information: Different types of lookups
Owner	A system lookup field that references the user or team that is assigned a user or team owned entity record.
Unique Identifier	A system field stores a globally unique identifier (GUID) value for each record.
Customer	A lookup field that you can use to specify a customer, which can be an account or contact.

Customer field

 Note

This feature was introduced in Microsoft Dynamics CRM 2016 Service Pack 1 and Microsoft Dynamics CRM Online 2016 Update 1.

Previously, several out-of-the-box entities in Dynamics CRM, such as the Case, Lead, and Opportunity entities, contained a special kind of lookup field that represented a customer. Using this lookup field you could choose between two entities: Account or Contact. With this new capability, you can add the Customer field to any system or custom entity. The users will be able to use the Customer field in additional entities to track the customers information in the same way they've used the Customer field in the Case, Lead and Opportunity entities.

Let's look at the following business scenario. Your company is an insurance provider. You are using Dynamics CRM to manage your customer interactions and standardize business processes. It's important for you to know if the recipient of the policies or claims is an individual or a company. To address this specific business requirement, you can create two custom entities: Policies and Claims. To get and track the customer information you want, add the Customer lookup field to the Policies entity and the Claims entity, by using the new Customer field capability.

Single line of text format options

The following table provides information about the format options for single line of text fields.

Format Option	Description
Email	The text provides a mailto link to open the user's email application.
Text	This option simply displays text.
Text Area	This format option can be used to display multiple lines of text. But with a limit of 4000 characters, the Multiple Lines of Text field is a better choice if large amounts of text are expected.
URL	The text provides a hyperlink to open the page specified. Any text that does not begin with a valid protocol will have "http://" prepended to it. Only HTTP, HTTPS, FTP , FTPS, ONENOTE and TEL protocols are allowed in this field.
Ticker Symbol	For most languages, the text will be enabled as a link to open the [MSN Money](#) website to show details about the stock price represented by the ticker symbol. For certain East Asian languages the window will open Bing search results for the ticker symbol.
Phone	In the web application, fields will be click-enabled to initiate calls using either Skype or Lync if a client for either is installed on your computer. The telephony provider choice is at the bottom of the **General** tab of **System Settings**. For Microsoft Dynamics CRM for tablets, Skype is the only available telephony provider. More information: [Video: Microsoft Dynamics CRM - Phone Number Format](#) ◆ **Important** Lync has been rebranded as Skype for Business. Currently, you'll still see references to "Lync" in Microsoft Dynamics CRM, but CRM will work with Skype for Business.

Whole number format options

The following table provides information about the format options for whole number fields.

Format Option	Description
None	This option simply displays a number.
Duration	This format option can be used to display a list of duration options. But the data stored in the database is always a number of minutes. The field looks like a drop-down list and provides suggested options like **1 minute**, **15 minutes**, **30 minutes** all the way up to **3 days**. People can choose these options. However, people can also just type in a number of minutes and it resolves to that period of time. For example, type in 60 and it resolves to 1 hour. Or they can enter "1 hour" or "2 days" and it will resolve to display that time. The duration must be entered in the following format: "x minutes", "x hours" or "x days". Hours and days can also be entered using decimals, for example, "x.x hours" or "x.x days".
Time Zone	This option displays a select list of time zones such as **(GMT-12:00) International Date Line West** and **(GMT-08:00) Pacific Time (US & Canada)**. Each of these zones is stored as a number. For example, for the time zone **(GMT-08:00) Pacific Time (US & Canada)**, the TimeZoneCode is 4. More information: MSDN: TimeZoneCode Class (Sdk Assembly)
Language	This option displays a list of the languages provisioned for your organization. The values are displayed as a drop-down list of language names, but the data is stored as a number using LCID codes. Language codes are four-digit or five-digit locale IDs. Valid locale ID values can be found at Locale ID (LCID) Chart).

Using the right type of number

When choosing the correct type of number field to use, the choice to use a **Whole Number** or **Currency** type should be pretty straightforward. The choice between using **Floating Point** or **Decimal** numbers requires more thought.

Decimal numbers are stored in the database exactly as specified. Floating point numbers store an extremely close approximation of the value. Why choose extremely close approximation when you can have the exact value? The answer is that you get different system performance.

Use decimals when you need to provide reports that require very accurate calculations, or if you typically use queries that look for values that are equal or not equal to another value.

Use floating point numbers when you store data that represents fractions or values that you will typically query comparing to another value using greater than or less than operators. In most cases, the

difference between decimal and float isn't noticeable. Unless you require the most accurate possible calculations, floating point numbers should work for you.

Using currency fields

Currency fields allow for an organization to configure multiple currencies that can be used for records in the organization. When organizations have multiple currencies, they typically want to be able to perform calculations to provide values using their base currency. When you add a currency field to an entity that has no other currency fields, two additional fields are added:

- A lookup field called **Currency** that you can set to any active currency configured for your organization. You can configure multiple active currencies for your organization in **Settings** > **Business Management** > **Currencies**. There you can specify the currency and an exchange rate with the base currency set for your organization. If you have multiple active currencies, you can add the currency field to the form and allow people to specify which currency should be applied to money values for this record. This will change the currency symbol that is shown for the currency fields in the form.

  Individuals can also change their personal options to select a default currency for the records they create.

- A decimal field called **Exchange Rate** that provides the exchange rate for a selected currency associated with the entity with respect to the base currency. If this field is added to the form, people can see the value, but they can't edit it. The exchange rate is stored with the currency.

For each currency field you add, another currency field is added with the prefix "_Base" on the name. This field stores the calculation of the value of the currency field you added and the base currency. Again, if this field is added to the form, it can't be edited.

When you configure a currency field you can choose the precision value. There are essentially three options as shown in the following table.

Option	Description
Pricing Decimal Precision	This is a single organization precision to be used for prices found in **Settings** > **Administration** > **System Settings** > **General Tab**.
Currency Precision	This option applies the precision defined for the currency in the record.
Specific precision values 0 – 4	These settings allow for defining a specific set precision.

Different types of lookups

When you create a new lookup field you are creating a new Many-to-One (N:1) entity relationship between the entity you're working with and the **Target Record Type** defined for the lookup. There are additional configuration options for this relationship that are described in Create and edit entity relationships. But all custom lookups can only allow for a reference to a single record for a single target record type.

However, you should be aware that not every lookup behaves this way. There are several different types of system lookups as shown here.

Lookup type	Description
Simple	Allows for a single reference to a specific entity. All custom lookups are this type.
Customer	Allows for a single reference to either an account or a contact record. These lookups are available for the Opportunity, Case, Quote, Order, and Invoice entities. These entities also have separate Account and Contact lookups that you can use if your customers are always one type. Or you can include both instead of using the Customer lookup.
Owner	Allows for a single reference to either a team or a user record. All team or user-owned entities have one of these.
PartyList	Allows for multiple references to multiple entities. These lookups are found on the Email entity **To** and **Cc** fields. They're also used in the Phone and Appointment entities.
Regarding	Allows for a single reference to multiple entities. These lookups are found in the regarding field used in activities.

Image fields

Use image fields to display a single image per record in the application. Each entity can have one image field. You can add an image field to custom entities but not to system entities. The following system entities have an image field. Those marked with an asterisk are enabled by default.

Account *	Article	Campaign
Case	Competitor *	Connection
Contact *	Contract	Currency
Email Server Profile	Goal	Invoice
Lead *	Mailbox	Opportunity Product
Order	Organization	Product *
Publisher *	Queue	Resource *
Sales Literature	Territory	User*

Even though an entity has an image field, displaying that image in the application requires an additional step. In the entity definition the **Primary Image** field values are either **[None]** or **Entity Image**. Click **Entity Image** to display the image in the application. More information: [Create and edit entities](#)

When image display is enabled for an entity, any records that don't have an image will display a placeholder image. For example, the Lead entity:
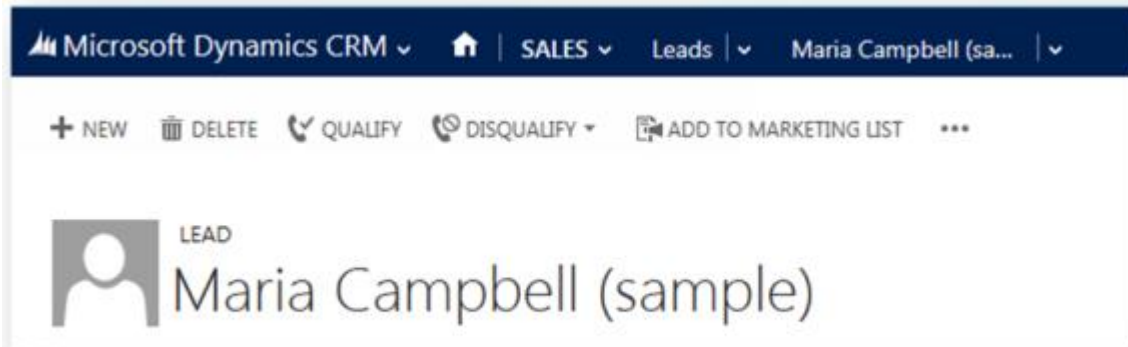
People can choose the default image to upload a picture from their computer. Images must be less than 5120 KB and must one of the following formats:

- jpg
- jpeg
- gif
- tif
- tiff
- bmp
- png

When the image is uploaded, it will be converted to a .jpg format and all downloaded images will also use this format. If an animated .gif is uploaded, only the first frame is saved.

When an image is uploaded, it will be resized to a maximum size of 144 pixels by 144 pixels. People should resize or crop the images before they upload them so that they will display well using this size. All images are cropped to be square. If both sides of an image are smaller than 144 pixels, the image will be cropped to be a square with the dimensions of the smaller side.

Delete fields

As someone with the system administrator security role, you can delete any custom fields that aren't part of a managed solution. When you delete fields, any data stored in the fields is lost. The only way to recover data from a field that was deleted is to restore the database from a point before the field was deleted.

Before you can delete a custom entity, you must remove any dependencies that may exist in other solution components. Open the field and use the **Show Dependencies** button in the menu bar to view any **Dependent Components**. For example, if the field is used in a form or view, you must first, remove references to the field in those solution components.

If you delete a lookup field, the 1:N entity relationship for it will automatically be deleted.

Set managed properties for fields

Managed properties only apply when you include fields in a managed solution and import the solution into another organization. These settings allow a solution developer to have some control over the level of customization that people who install their managed solution can have when they customize this field. To set managed properties for a field, click **Managed Properties** on the menu bar.

The **Can be customized** option controls all the other options. If this option is **False**, none of the other settings apply. When it is **True**, you can specify the other customization options.

If the field is customizable, you set the following options to **True** or **False**.

- **Display name can be modified**

- **Can change requirement level**

- **Can change Additional Properties**

These options are self-explanatory. If you set all the individual options to **False**, you might as well set **Can be customized** to **False**.

See Also

Create and edit metadata
Create and edit entities
Create and edit entity relationships
Create and edit global option sets
Default status and status reason values
Edit status reason transitions
Set custom icon for custom case origin
Define rollup fields
Define calculated fields
Behavior and format of the date and time field
Blog: Microsoft Dynamics CRM Online Blog

Default status and status reason values

Applies To: CRM 2016 on-prem, CRM Online

This topic lists the default **State** and **Status Reason** values for system entities that do not use the default values shown in the following table.

State	Status Reason
0 : Active	1 : Active
1 : Inactive	2 : Inactive

In This Topic

Activity entity

State	Status Reason
0 : Open	1 : Open
1 : Completed	2 : Completed
2 : Canceled	3 : Canceled
3 : Scheduled	4 : Scheduled

Appointment entity

State	Status Reason
0 : Open	1 : Free
2 : Tentative	
1 : Completed	3 : Completed
2 : Canceled	4 : Canceled
3 : Scheduled	5 : Busy
6 : Out of Office	

Article entity

State	Status Reason
1 : Draft	1 : Draft
2 : Unapproved	2 : Unapproved
3 : Published	3 : Published

Authorization Server entity

State	Status Reason
0 : Active	1 : Enabled
1 : Inactive	2 : Disabled

Bulk Delete Operation entity

State	Status Reason
0 : Ready	0 : Waiting For Resources
1 : Suspended	10 : Waiting
11 : Retrying	
12 : Paused	
2 : Locked	20 : In Progress
21 : Pausing	
22 : Canceling	
3 : Completed	30 : Succeeded
31 : Failed	
32 : Canceled	

Campaign entity

State	Status Reason
0 : Active	0 : Proposed
1 : Ready To Launch	
2 : Launched	

State	Status Reason
3 : Completed	
4 : Canceled	
5 : Suspended	
1 : Inactive	6 : Inactive

Campaign Activity entity

State	Status Reason
0 : Open	1 : Proposed
0 : In Progress	
4 : Pending	
5 : System Aborted	
6 : Completed	
1 : Closed	2 : Closed
2 : Canceled	3 : Canceled

Campaign Response entity

State	Status Reason
0 : Open	1 : Open
1 : Closed	2 : Closed
2 : Canceled	3 : Canceled

Case entity

State	Status Reason
0 : Active	1 : In Progress
2 : On Hold	
3 : Waiting for Details	
4 : Researching	
1 : Resolved	5 : Problem Solved

State	Status Reason
1000 : Information Provided	
2 : Canceled	6 : Canceled
2000 : Merged	

Case Resolution entity

State	Status Reason
0 : Open	1 : Open
1 : Completed	2 : Closed
2 : Canceled	3 : Canceled

Column Mapping entity

State	Status Reason
0 : Active	1 : Active

Contract entity

State	Status Reason
0 : Draft	1 : Draft
1 : Invoiced	2 : Invoiced
2 : Active	3 : Active
3 : On Hold	4 : On Hold
4 : Canceled	5 : Canceled
5 : Expired	6 : Expired

Contract Line entity

State	Status Reason
0 : Existing	1 : New
1 : Renewed	2 : Renewed
2 : Canceled	3 : Canceled

State	Status Reason
3 : Expired	4 : Expired

Data Import entity

State	Status Reason
0 : Active	0 : Submitted
1 : Parsing	
2 : Transforming	
3 : Importing	
4 : Completed	
5 : Failed	

Discount List entity

State	Status Reason
0 : Active	100001 : Active
1 : Inactive	100002 : Inactive

Duplicate Detection Rule entity

State	Status Reason
0 : Inactive	0 : Unpublished
1 : Publishing	
1 : Active	2 : Published

Email entity

State	Status Reason
0 : Open	1 : Draft
8 : Failed	
1 : Completed	2 : Completed
3 : Sent	

State	Status Reason
4 : Received	
6 : Pending Send	
7 : Sending	
2 : Canceled	5 : Canceled

Fax entity

State	Status Reason
0 : Open	1 : Open
1 : Completed	2 : Completed
3 : Sent	
4 : Received	
2 : Canceled	5 : Canceled

Goal entity

State	Status Reason
0 : Active	0 : Open
1 : Inactive	1 : Closed
2 : Discarded	

Goal Metric entity

State	Status Reason
0 : Active	0 : Open
1 : Inactive	1 : Closed

Import Data entity

State	Status Reason
0 : Active	0 : Active

Import Entity Mapping entity

State	Status Reason
0 : Active	1 : Active

Import Log entity

State	Status Reason
0 : Active	0 : Active

Import Source File entity

State	Status Reason
0 : Active	0 : Submitted
1 : Parsing	
2 : Transforming	
3 : Importing	
4 : Completed	
5 : Failed	

Invoice entity

State	Status Reason
0 : Active	1 : New
2 : Partially Shipped	
4 : Billed	
5 : Booked (applies to services)	
6 : Installed (applies to services)	
1 : Closed (deprecated)	3 : Canceled (deprecated)
7 : Paid in Full (deprecated)	
2 : Paid	100001 : Complete
100002 : Partial	
3 : Canceled	100003 : Canceled

Lead entity

State	Status Reason
0 : Open	1 : New
2 : Contacted	
1 : Qualified	3 : Qualified
2 : Disqualified	4 : Lost
5 : Cannot Contact	
6 : No Longer Interested	
7 : Canceled	

Letter entity

State	Status Reason
0 : Open	1 : Open
2 : Draft	
1 : Completed	3 : Received
4 : Sent	
2 : Canceled	5 : Canceled

List Value Mapping entity

State	Status Reason
0 : Active	0 : Active

Lookup Mapping entity

State	Status Reason
0 : Active	0 : Active

Marketing List entity

State	Status Reason
0 : Active	0 : Active
1 : Inactive	1 : Inactive

Opportunity entity

State	Status Reason
0 : Open	1 : In Progress
2 : On Hold	
1 : Won	3 : Won
2 : Lost	4 : Canceled
5 : Out-Sold	

Opportunity Close entity

State	Status Reason
0 : Open	1 : Open
1 : Completed	2 : Completed
2 : Canceled	3 : Canceled

Order entity

State	Status Reason
0 : Active	1 : New
2 : Pending	
1 : Submitted	3 : In Progress
2 : Canceled	4 : No Money
3 : Fulfilled	100001 : Complete
100002 : Partial	
4 : Invoiced	100003 : Invoiced

Order Close entity

State	Status Reason
0 : Open	1 : Open
1 : Completed	2 : Completed
2 : Canceled	3 : Canceled

Owner Mapping entity

State	Status Reason
0 : Active	0 : Active

Partner Application entity

State	Status Reason
0 : Active	1 : Enabled
1 : Inactive	2 : Disabled

Phone Call entity

State	Status Reason
0 : Open	1 : Open
1 : Completed	2 : Made
4 : Received	
2 : Canceled	3 : Canceled

Price List entity

State	Status Reason
0 : Active	100001 : Active
1 : Inactive	100002 : Inactive

Process entity

State	Status Reason
0 : Draft	1 : Draft
1 : Activated	2 : Activated

Process Session entity

State	Status Reason
0 : Incomplete	1 : Not Started
2 : In Progress	
3 : Paused	
1 : Complete	4 : Completed
5 : Canceled	
6 : Failed	

Queue entity

State	Status Reason
0 : Active	1 : Active
1 : Inactive	2 : Inactive

Queue Item entity

State	Status Reason
0 : Active	1 : Active
1 : Inactive	2 : Inactive

Quick Campaign entity

State	Status Reason
0 : Open	1 : Pending
2 : In Progress	

State	Status Reason
1 : Closed	3 : Aborted
4 : Completed	
2 : Canceled	5 : Canceled

Quote entity

State	Status Reason
0 : Draft	1 : In Progress
1 : Active	2 : In Progress
3 : Open	
2 : Won	4 : Won
3 : Closed	5 : Lost
6 : Canceled	
7 : Revised	

Quote Close entity

State	Status Reason
0 : Open	1 : Open
1 : Completed	2 : Completed
2 : Canceled	3 : Canceled

Recurring Appointment entity

State	Status Reason
0 : Open	1 : Free
2 : Tentative	
1 : Completed	3 : Completed
2 : Canceled	4 : Canceled
3 : Scheduled	5 : Busy
6 : Out of Office	

Rollup Query entity

State	Status Reason
0 : Active	0 : Open
1 : Inactive	1 : Closed

Saved View entity

State	Status Reason
0 : Active	1 : Active
3 : All	
1 : Inactive	2 : Inactive

Sdk Message Processing Step entity

State	Status Reason
0 : Enabled	1 : Enabled
1 : Disabled	2 : Disabled

Service Activity entity

State	Status Reason
0 : Open	1 : Requested
2 : Tentative	
1 : Closed	8 : Completed
2 : Canceled	9 : Canceled
10 : No Show	
3 : Scheduled	3 : Pending
4 : Reserved	
6 : In Progress	
7 : Arrived	

System Job entity

State	Status Reason
0 : Ready	0 : Waiting For Resources
1 : Suspended	10 : Waiting
2 : Locked	20 : In Progress
21 : Pausing	
22 : Canceling	
3 : Completed	30 : Succeeded
31 : Failed	
32 : Canceled	

Task entity

State	Status Reason
0 : Open	2 : Not Started
3 : In Progress	
4 : Waiting on someone else	
7 : Deferred	
1 : Completed	5 : Completed
2 : Canceled	6 : Canceled

Transformation Mapping entity

State	Status Reason
0 : Active	0 : Active

See Also

[Create and edit fields](#)

Define status reason transitions

Applies To: CRM 2016 on-prem, CRM Online

In Microsoft Dynamics CRM you can specify status reason transitions for the **Incident** (**Case**) entity or custom entities.

Status reason transitions are an optional additional level of filtering to define what the status reason value can be changed to for each status reason. Defining a limited list of valid options can make it easier for people to choose the correct next status reason for a record when you have a large number of combinations for valid status reason values.

What is the connection between Status and Status Reason fields?

Entities that can have different status values have two fields that capture this data:

Display Name	Description
Status	Represents the state of the record. Typically **Active** or **Inactive**. You cannot add new status options.
Status Reason	Represents a reason that is linked to a specific status. Each status must have at least one possible status reason. You can add additional status reason options.

The metadata for the field defines what status values are valid for a given state. For example, for the **Incident** (**Case**) entity, the default status and status reason options are:

Status	Status Reason
Active	**In Progress**
On Hold	
Waiting for Details	
Researching	
Resolved	**Problem Solved**
Information Provided	
Canceled	**Canceled**
Merged	

See Default status and status reason values for a list of all the default status and status reason values.

Edit status reason transitions

You can modify the status reason field options for the Case entity and custom entities to define which other status reason options people can choose. The only restriction is that each status reason option for an active status must allow at least one path to an inactive status. Otherwise you could create a condition where it would not be possible to resolve or cancel the case.

See Create and edit fields for information about how to edit fields. When you edit a status reason field the **Edit Status Reason Transitions** button is in the menu. When you click this button the Status Reason Transitions dialog provides the option to choose **Enable Status Reason Transitions**. When this option is selected you must define which status reason values are allowed for each status reason. To remove the filtering applied, remove the **Enable Status Reason Transitions** selection. The transitions you have defined will be kept but not applied.

The screenshot below provides an example that meets the following requirements:

- A case can be merged at any time. You will not be able to merge cases if a status reason transition does not allow for it.

- An active case can be canceled at any time.

- A resolved or canceled case cannot be reactivated.

- All cases must pass through the following stages: **In Progress** > **On Hold** > **Waiting for Details** > **Researching** before they can be resolved. With this configuration, a case could not be set to an earlier status.

Note

This is not a good example for real work, but it demonstrates how stages of status can be enforced through status reason transitions.
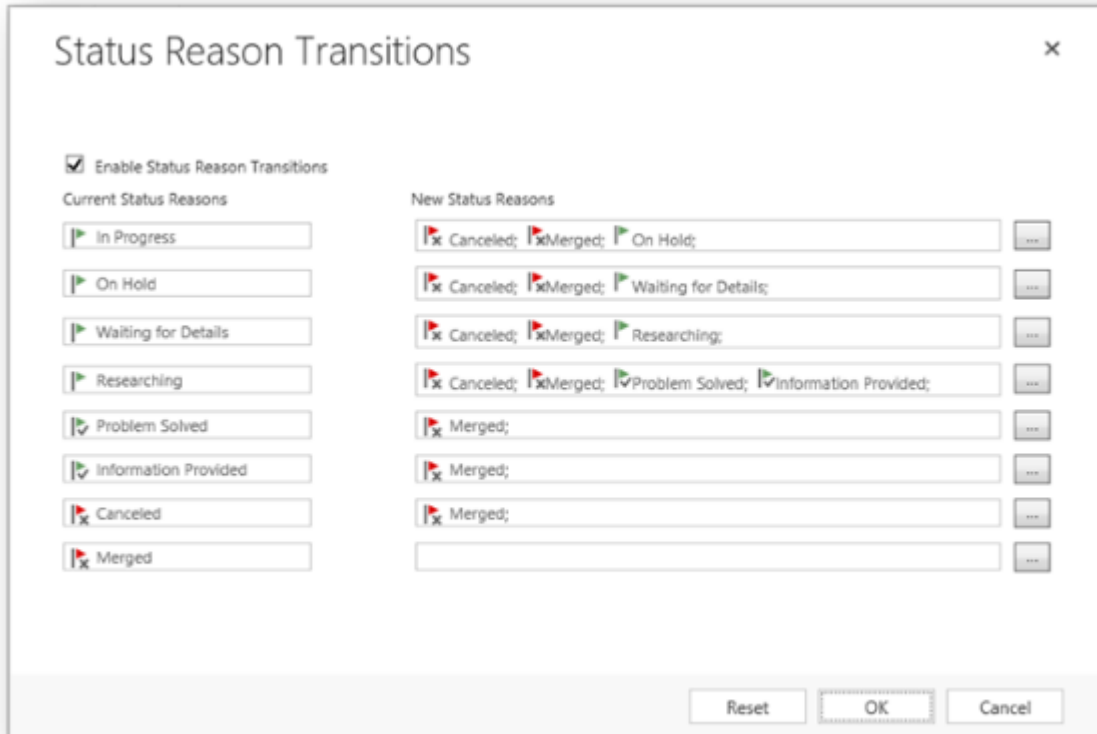
See Also

[Create and edit fields](#)
[Default status and status reason values](#)

Set custom icon for custom case origin

Applies To: CRM 2016 on-prem, CRM Online

In Microsoft Dynamics CRM you can set a custom icon to display in views where the Case Origin field is visible.

Case origin field icons

The case origin field has the following options and a corresponding icon is displayed in views within the application:

Label	Value	Icon
Phone	1	
Email	2	
Web	3	
Facebook	2483	
Twitter	3986	

You can edit the case origin field to add additional options. The options used by this field are defined within the **Case Origin** global option set. More information: Create and edit global option sets

When you add a custom option, by default this icon will be displayed: . You can specify a different icon by creating an image web resource using the steps below:

Set a custom icon for a custom case origin

1. If the customization prefix for the solution publisher associated with the unmanaged solution you are working in is not 'new' you must change the solution publisher customization prefix to 'new' temporarily while you create this image web resource. After you create this web resource, set it back to whatever value you want to use. More information: Solution publisher.

2. Create a 16x16 pixel icon to represent your custom case origin. A PNG file with a transparent background is recommended.

3. Identify the value for the custom option for the **Case Origin** global option set. By default, the first custom option value will be set to 100,000,000 and will increment for each additional option.

4. Create a PNG format image web resource using the following naming convention: 'new_Incident_origincode_icon#.png' where # represents the value for the custom option.

   More information: Create and edit web resources

   For example, for a custom option with a value of 100,000,000 create a web resource with the name new_Incident_origincode_icon100000000.png.

◆ **Important**

Do not include commas in the name of the web resource.
   The solution publisher customization prefix is prepended to the name of the web resource and this value must be 'new'.

   Use the **Upload File** button in the web resource form to upload the icon file you created.

5. Save and publish your web resource.

6. To verify, create a case record using the custom case origin and verify that a view that displays the case origin icon shows your custom icon.

    There may be a several minutes delay after you publish your custom web resource. You may need to press F5 to refresh the page in your browser.

See Also
Create and edit global option sets
Create and edit web resources

Behavior and format of the date and time field

Applies To: CRM 2016 on-prem, CRM Online

In Microsoft Dynamics CRM, the *Date and Time* data type is used in many system entity fields. For example, you can show when an account was last used in a marketing campaign or the date and time when a case was escalated. You can also create custom entities that include the date and time fields. Depending on what the field represents, you can choose several different field behaviors: **User Local**, **Date Only** or **Time-Zone Independent**.

In This Topic
Date and time field behavior and format
Set managed property to change date and time behavior
Date Only example: birthdays and anniversaries
Time-Zone Independent example: hotel check-in
Special considerations for date and time fields

Date and time field behavior and format
The following table contains information about the date and time field behavior and format.

Behavior	Format	Changing field's behavior
User Local ✎ **Note** This is the behavior of all date and time fields in the previous releases. • The field values are	**Date Only** - or - **Date and Time**	In the user interface (UI), you can change certain out-of-the-box entity field's behavior from the **User Local** to **Date Only**. For a list of entities and fields, see Changing the field behavior to Date Only on update. You can change the custom entity field's behavior from the **User Local** to **Date Only** or to **Time-Zone Independent**. Changing the field behavior affects the

Behavior	Format	Changing field's behavior
displayed in the current user's local time. • In Web services (SDK), these values are returned using a common UTC time zone format.		field values that are added or modified after the field behavior was changed. The existing field values remain in the database in the UTC time zone format. To change the behavior of the existing field values from UTC to Date Only, you may need a help of a developer to do it programmatically. More information: [MSDN: Convert existing date and time values in the database](#). ⚠ **Warning** Before changing the behavior of a date and time field, you should review all the dependencies of the field, such as business rules, workflows, calculated fields, or rollup fields, to ensure that there are no issues as a result of changing the behavior. After changing the behavior of a date and time field, you should open each business rule, workflow, calculated field, and rollup field dependent on the field that you changed, review the information, and save it, to ensure that the latest date and time field's behavior and value are used. You can restrict modifying the field's behavior, by setting the **CanChangeDateTimeBehavior** managed property to **False**. More information: [Set managed property to change date and time behavior](#)
Date Only • The concept of a time zone isn't applicable to this behavior. The field values are displayed without the time zone conversion. • The time portion of the value is always 12:00AM. • The date portion of the value is stored and	**Date Only**	The **Date Only** behavior can't be changed to other behavior types, once it's set.

Behavior	Format	Changing field's behavior
retrieved as specified in the UI and Web services (SDK).		
Time-Zone Independent • The concept of a time zone isn't applicable to this behavior. The field values are displayed without the time zone conversion. • The date and time values are stored and retrieved as specified in the UI and Web services (SDK).	**Date Only** - or - **Date and Time**	The **Time-Zone Independent** behavior can't be changed to other behavior types, once it's set.

📝 **Note**

To create a field of type **DateTime** and specify a particular behavior, go to **Settings** > **Customization** > **Customize the System** > **Components** > **Entities**. Choose the entity you want and choose **Fields**. In the field's definition, choose **Date and Time** in the **Type** drop-down list.

Set managed property to change date and time behavior

You can control whether or not date and time field behavior can be changed by using the **Can change date and time behavior** managed property. If you want to allow the field behavior change, you set the property to **True**, otherwise, set it t **False**.

📝 **Note**

By default, for the out-of-the-box system entity date and time fields, the **Can change date and time behavior** managed property is set to **False**. For the custom date and time fields, by default, the property is set to **True**.

To set the managed property, do the following:

• Go to **Settings** > **Customizations**.

• Choose **Customize the System** > **Components** > **Entities** and then choose a particular entity and then choose **Fields**. Choose a field. On the command bar, choose **More Actions** and in the drop-down list, choose **Managed Properties**.

- In the **Set Managed Properties** dialog box, choose the **Can change date and time behavior** property and choose **True** or **False**. Choose **Set** to save the settings.

The following screenshot shows the date and time manager property.
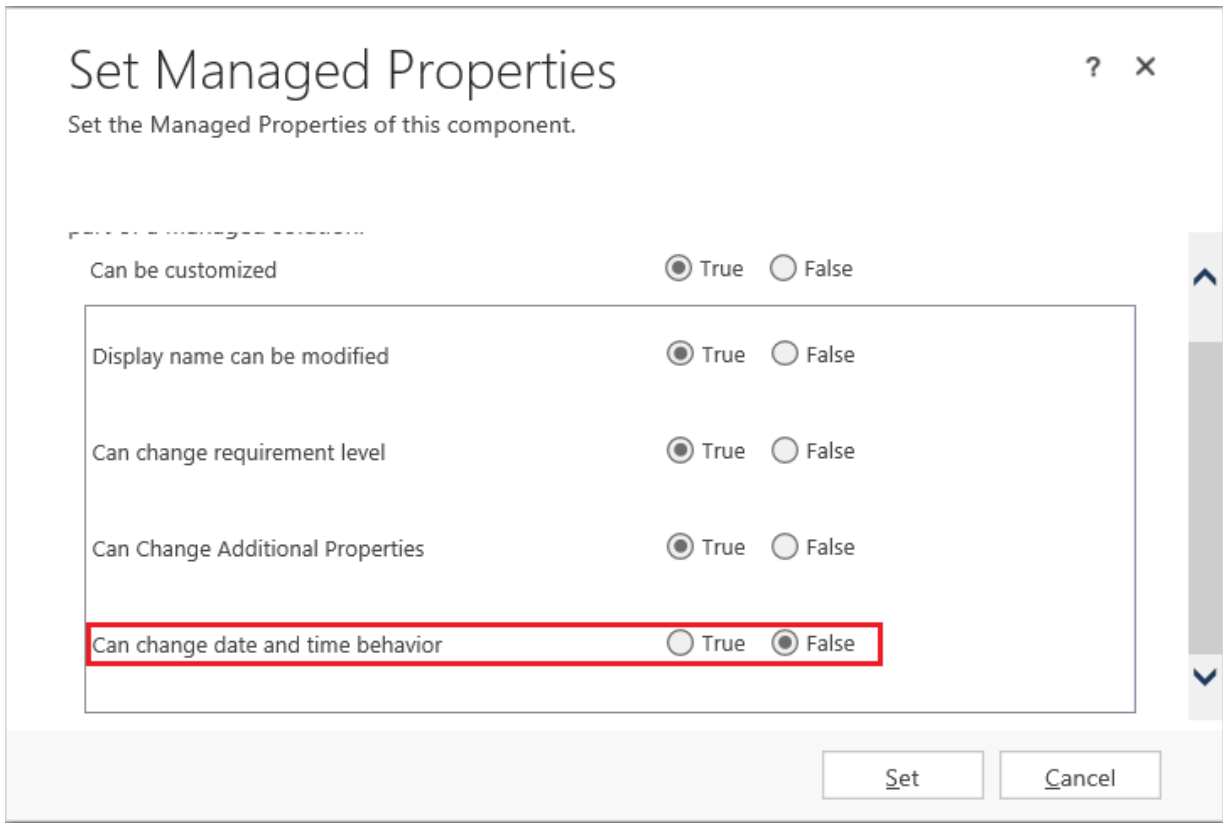
Date Only example: birthdays and anniversaries

The Date Only behavior is good for cases when information about the time of the day and the time zone isn't required, such as birthdays or anniversaries. With this selection, all CRM users around the world see the exact same date value.

For example, Kevin and Nancy work in the Contoso Corp sales department. Dynamics CRM stores their customer and sales data. Kevin, based in New York (GMT-5), creates the contact record with the birthdate 4/1/1970, and assigns the record to Nancy. Nancy, based in Seattle (GMT-8), opens the record on March 31st and, because there is no time zone conversion to her local time zone, sees the contact's correct birthdate as 4/1/1970. All other users of the system, regardless of location, see the birthdate as 4/1/1970 when they open the contact's record

Time-Zone Independent example: hotel check-in

You can use this behavior when time zone information isn't required, such as the hotel check-in time. With this selection, all CRM users around the world see the same date and time value.

For example, Lisa and Rebecca work for a hotel chain that uses Dynamics CRM to track reservations. Lisa is based in Seattle (GMT-8). Rebecca is based in New York (GMT-5). A customer calls Lisa to book a room in one of the company's hotels in New York City. Lisa creates a new reservation record, sets the expected check-in time to 12/10/2014 at 11:00 AM, and saves the record. The customer arrives at the hotel in New York City at the expected time. Rebecca, at the local hotel's front desk, views the reservation record and sees the expected check-in time as 12/10/2014 at 11:00 AM. She welcomes the customer to the hotel.

Special considerations for date and time fields

All system out-of-the-box and custom date and time fields support values earlier than 1900 by default

The date and time fields support values as early as 1/1/1753 12:00 AM.

Ensuring calculated and rollup fields are valid after changing the field's behavior

After changing the behavior of a calculated field or a rollup field, save the field definition to ensure the field is still valid. To save, use the field editor. Choose **Settings** > **Customization** > **Customize the System** > **Components** > **Entities** > **Entity X** > **Fields**. On the field's form, choose the **Edit** button next to the **Field Type** drop-down list. More information: Define calculated fields and Define rollup fields.

Changing the field behavior to Date Only on update

By default, the **Created On** and **Modified On** date and time fields for the out-of-box system entities and custom entities are set to the **User Local** behavior. The **CanChangeDateTimeBehavior** managed property for these fields is set to **False**. You can't change the behavior for these fields.

By default, the following out-of-box date and time fields in are set to **Date Only** behavior, and the **CanChangeDateTimeBehavior** managed property is set to **False**.

Field name	Entity name
Anniversary	Contact
Birthdate	Contact
Due Date	Invoice
Est. Close Date	Lead
Actual Close Date	Opportunity
Est. Close Date	Opportunity
Final Decision Date	Opportunity
Valid From	Product

Field name	Entity name
Valid To	Product
Closed On	Quote
Due By	Quote

Date and time query operators not supported for Date Only behavior

The following date and time related query operators are invalid for the **Date Only** behavior. The time zone conversion doesn't occur and the time is always set at 12:00 AM. An invalid operator exception error is thrown when one of these operators is used in the query.

- Older Than X Minutes
- Older Than X Hours
- Last X Hours
- Next X Hours

This applies to the follow locations in the UI:

- Advanced Find
- Saved View Editor
- Query CRM Step on a Dialog
- Outlook Client Offline Filters Editor
- Report Wizard
- Custom Filters on a column in Advanced Find

The date and time field behavior changes during a solution import

During a solution import, you can only change a date and time field's behavior from **User Local** to **Date Only** or **Time Zone Independent** if you're importing an unmanaged solution or a managed solution that owns the field.

See Also

Create and edit fields
Define calculated fields
MSDN: Behavior and format of the date and time attribute

Define rollup fields

Applies To: CRM 2016 on-prem, CRM Online

In Microsoft Dynamics CRM, *rollup* fields are designed to help users obtain insights into data by monitoring key business metrics. A rollup field contains an aggregate value computed over the records related to a specified record, such as open opportunities of an account. Also, you'll be able to aggregate data from the activities directly related to a record, such as emails and appointments, and activities indirectly related to a record via the Activity Party entity. In more complex scenarios, you can aggregate data over the hierarchy of records. As an administrator or customizer, you can define rollup fields by using the customization tools in the CRM Web application, without needing a developer to write code.

In This Topic

Rollup fields benefits and capabilities
Rollup calculations
Rollup field business scenarios
Rollup field considerations

Rollup fields benefits and capabilities

The benefits and capabilities of rollup fields include the following:

- Visual editing is easy. You can create rollup fields by using the Field Editor, just like you do when you create a regular field.

- Wide selection of aggregate functions. You can aggregate data by using the following functions: **SUM**, **COUNT**, **MIN**, **MAX** and **AVG**.

- Full filter support for aggregation. You can set various filters for the source entity or related entity while setting multiple conditions.

- Seamless integration with the user interface. You can include the rollup fields in forms, views, charts and reports.

- Rollup fields are solution components. You can easily transport the rollup fields as components between organizations and distribute them in solutions.

- Rollup fields and the calculated fields are complementary to each other. You can use a rollup field as a part of the calculated field, and vice versa.

Some examples of rollup fields include:

- Total estimated revenue of open opportunities of an account

- Total estimated revenue of open opportunities across all accounts in a hierarchy

- Total estimated revenue of an opportunity including child opportunities

- Total estimated value of qualified leads generated by a campaign

- Number of high priority open cases across all accounts in a hierarchy

- Earliest created time of all high priority open cases for an account

Each Rollup field creates two accessory fields with <fieldname>_date and <fieldname>_state suffix pattern. The _date field is of the Datetime data type and _state field is of the integer data type. The _state field has the following values:

0 => NotCalculated	The field value is yet to be calculated.
1 => Calculated	The field value has been calculated per the last update time in _date field.
2 => OverflowError	The field value calculation resulted in overflow error.
3 => OtherError	The field value calculation failed due to an internal error. The following run of the calculation job will likely fix it.
4 => RetryLimitExceeded	The field value calculation failed because the maximum number of retry attempts to calculate the value was exceeded due to high number of concurrency and locking conflicts.
5 => HierarchicalRecursionLimitReached	The field value calculation failed because the maximum hierarchy depth limit for the calculation was reached.
6 => LoopDetected	The field value calculation failed because a recursive loop was detected in the hierarchy of the record.

Rollup calculations

The rollups are calculated by scheduled system jobs that run asynchronously in the background. You have to be an administrator to view and manage the rollup jobs. To view the rollup jobs go to **Settings** > **System Jobs** > **View** > **Recurring System Jobs**. To quickly find a relevant job, you can filter by the System Job type: Mass Calculate Rollup Field or Calculate Rollup Field.

- Mass Calculate Rollup Field is a recurring job, created per a rollup field. It runs once, after you created or updated a rollup field. The job recalculates the specified rollup field value in all existing records that contain this field. By default, the job will run 12 hours after you created or updated a field. After the job completes, it is automatically scheduled to run in the distant future, approximately, in 10 years. If the field is modified, the job resets to run again in 12 hours after the the update. The 12 hour delay is needed to assure that the Mass Calculate Rollup Field runs during the non-operational hours of the organization. It is recommended that an administrator adjusts the start time of a Mass Calculate Rollup Field job after the rollup field is created or modified, in such a way that it runs during non-operational hours. For example, midnight would be a good time to run the job to assure efficient processing of the rollup fields.

- Calculate Rollup Field is a recurring job that does incremental calculations of all rollup fields in the existing records for a specified entity. There is only one Calculate Rollup Field job per entity. The incremental calculations mean that the Calculate Rollup Field job processes the records that were created, updated or deleted after the last Mass Calculate Rollup Field job finished execution. The default maximum recurrence setting is one hour. The job is automatically created when the first rollup field on an entity is created and deleted when the last rollup field is deleted.

- Online recalculation option. If you hover over the rollup field on the form, you can see the time of the last rollup and you can refresh the rollup value by choosing the Refresh icon next to the field, as shown below:
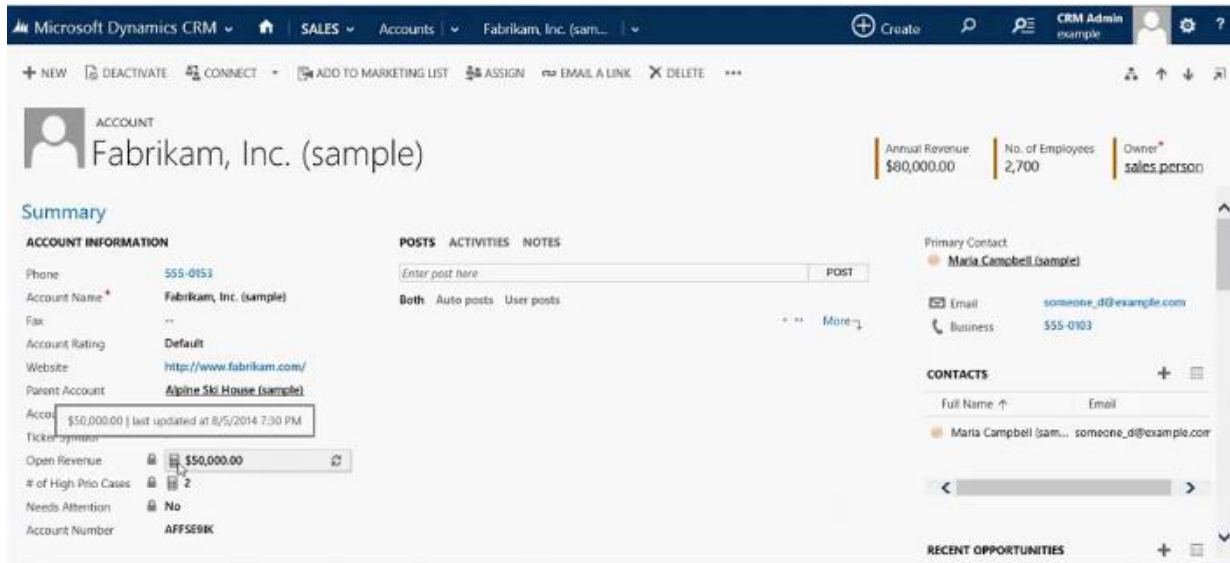
There are a few considerations you should keep in mind when using the online recalculation option (manual refresh on the form):

- You have to have Write privileges on the entity and Write access rights on the source record on which you are requesting the Refresh. For example, if you are calculating the estimated revenue from the open opportunities of an account, you don't have to have Write privileges on the opportunity entity, only on the account entity.

- This option is only available in the online mode. You can't use it while working offline.

- The maximum number of records during the rollup refresh is limited to 50,000 records. In case of the hierarchical rollup, this applies to the related records across the hierarchy. If the limit is exceeded, you see an error message: "Calculations can't be performed online because the calculation limit of 50,000 related records has been reached." This limit does not apply when the rollup is automatically recalculated by the system jobs.

- The maximum hierarchy depth is limited to 10 for the source record. If the limit is exceeded, you see an error message: "Calculations can't be performed online because the hierarchy depth limit of 10 for the source record has been reached." This limit does not apply when the rollup is automatically recalculated by the system jobs.

As a system administrator, you can modify the rollup job recurrence pattern, postpone, pause or resume the rollup job. However, you can't cancel or delete a rollup job. To pause, postpone, resume or modify the recurrence pattern, go to **Settings** > **System Jobs**. In **View**, select Recurring System Jobs. On the nav bar, choose **Actions** and select the action you want. For the Mass Calculate Rollup Field job, the available selections are: Resume, Postpone, and Pause. For the Calculate Rollup Field job, the available selections are: Modify Recurrence, Resume, Postpone, and Pause.

Rollup field business scenarios

Let's take a look at several rollup field scenarios. We'll aggregate data for a record from the related records with and without using a hierarchy. We'll also aggregate data for a record from related activities and activities indirectly related to a record via the Activitiy Party entity. In each example, we define the rollup field by using the Field Editor. To open the Field Editor, go to **Settings** > **Customizations** > **Customize the System** > **Components** > **Entities**. Select the entity you want and choose **Fields**. Choose **New**. In the editor, provide the required information for the field, including the **Field Type** and **Data Type**. In the **Field Type**, select **Rollup**, after you have selected the data type. The data types include decimal or whole numbers, currency, and date/time. Choose the **Edit** button next to the **Field Type**. This takes you to the rollup field definition editor. The rollup field definition consists of three sections: **Source entity**, **Related entity** and **Aggregation**.

- In the **Source entity** section, you specify the entity for which the rollup field is defined and whether or not you aggregate over a hierarchy. You can add filters with multiple conditions to specify the records in the hierarchy you want to use for rollup.

- In the **Related entity** section, you specify the entity over which you aggregate. This section is optional when you choose to rollup over the hierarchy on the source entity. You can add filters with multiple conditions to specify which related records to use in the calculation. For example, you include the revenue from the open opportunities with an annual revenue greater than $1000.

- In the **Aggregate** section, you specify the metric you want to compute. You can choose available aggregate functions, such as SUM, COUNT, MIN, MAX or AVG.

Aggregate data for a record from related records

In this example, a hierarchy is not used. The total estimated revenue is calculated for an account, from the related open opportunities.

ROLLUP FIELD

Open Revenue

◢ **SOURCE ENTITY**

Source: **Account**

Use Hierarchy: **NO**

◢ **RELATED ENTITY**

Related: **Opportunities (Account)**

◢ FILTERS (OPTIONAL)

If **Status** equals **"Open"**

✛ Add condition

◢ **AGGREGATION**

SUM of **Est. Revenue**

Aggregate data for a record from the child records, over the hierarchy

In this example, we calculate the total estimated revenue of an opportunity including the child opportunities, over the hierarchy.

Total Est. Revenue

SOURCE ENTITY

Source: **Opportunity**

Use Hierarchy: **YES**   Relationship: **new_opportunity_childopportunities**

FILTERS (OPTIONAL)

+ Add condition

RELATED ENTITY (OPTIONAL)

+ Add related entity

AGGREGATION

SUM of **Est. Revenue**

Aggregate data for a record from the related records, over the hierarchy

In this example, we calculate the total estimated revenue of open opportunities across all accounts, over the hierarchy.

ROLLUP FIELD

Total Open Revenue

▲ **SOURCE ENTITY**

Source: **Account**

Use Hierarchy: **YES**   Relationship: **account_parent_account**

▲ FILTERS (OPTIONAL)

╋   Add condition

▲ **RELATED ENTITY (OPTIONAL)**

Related: **Opportunities (Account)**

▲ FILTERS (OPTIONAL)

If **Status** equals **"Open"**

╋   Add condition

▲ **AGGREGATION**

SUM of **Est. Revenue**

Aggregate data for a record from all related activities

In this example, we calculate the total time spent and billed from all activities related to an account. This may include time spent on the phone, at appointments, or on custom activities.

In earlier releases, you could define a rollup field for an individual activity, such as a phone call, fax, or appointment. But, to achieve the result of the example shown below, you had to total the data by using the calculated fields. Now, you can do it all in one step by defining one rollup field for the Activity entity.

Total Billed Time

⁴ **SOURCE ENTITY**

Source: **Account**

Use Hierarchy: **NO**

⁴ **RELATED ENTITY**

Related: **Activities (Regarding)**

⁴ FILTERS (OPTIONAL)

✚ Add condition

⁴ **INCLUDE INDIRECTLY RELATED ACTIVITIES**

✚ Add related entity

⁴ **AGGREGATION**

SUM of **Actual Duration**

Aggregate data for a record from all related activities and activities indirectly related via the Activity Party entity

In this example, we count the total number of emails sent to an account, where the account is listed on the email's "To Recipient" line or "Cc Recipient line. This is done by specifying the **Participation Type** in **FILTERS** for the Activity Party entity in the rollup field definition. If you don't use filtering, then all available participation types for an activity are used in the calculation. For more information about the Activity Party entity and participation types available for a particular activity, see MSDN: ActivityParty entity.

Number of Emails Received Directly

⊿ **SOURCE ENTITY**

Source: **Account**

Use Hierarchy: **NO**

⊿ **RELATED ENTITY**

Related: **Email Messages (Regarding)**

⊿ FILTERS (OPTIONAL)

+ Add condition

⊿ **INCLUDE INDIRECTLY RELATED ACTIVITIES**

Activities Related via Entity: **Activity Parties (Activity)**

⊿ FILTERS (OPTIONAL)

If **Participation Type** equals **"To Recipient, CC Recipient"**

+ Add condition

⊿ **AGGREGATION**

COUNT of **Email**

Aggregate data for a record from related records using the AVG operator

In this example, we calculate an average estimated revenue from all opportunities related to an account.

ROLLUP FIELD

Avg Revenue

◢ **SOURCE ENTITY**

   Source: **Account**

   Use Hierarchy: **NO**

◢ **RELATED ENTITY**

   Related: **Opportunities (Account)**

   ◢ **FILTERS** (OPTIONAL)

   ✚   Add condition

◢ **AGGREGATION**

   AVG of **Est. Revenue**

The following example shows how to calculate an average estimated revenue from related opportunities over a hierarchy of accounts. An average estimated revenue can be seen at each level in the hierarchy.

ROLLUP FIELD

Avg Revenue

◢ **SOURCE ENTITY**

Source: **Account**

Use Hierarchy: **YES**   Relationship: **account_parent_account**

◢ **FILTERS** (OPTIONAL)

+ Add condition

◢ **RELATED ENTITY (OPTIONAL)**

Related: **Opportunities (Account)**

◢ **FILTERS** (OPTIONAL)

+ Add condition

◢ **AGGREGATION**

AVG of **Est. Revenue**

Rollup field considerations

You should be aware of certain conditions and restrictions when working with rollup fields:

- You can define a maximum of 100 rollup fields for the organization and up to 10 rollup fields per entity.

- A workflow can't be triggered by the rollup field updates.

- A workflow wait condition cannot use a rollup field.

- A rollup over the rollup field is not supported.

- A rollup can't reference a calculated field that uses another calculated field, even if all the fields of the other calculated field are on the current entity.

- The rollup can only apply filters to the source entity or related entities, simple fields or non-complex calculated fields.

- A rollup can be done only over related entities with the 1:N relationship. A rollup can't be done over the N:N relationships.

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- A rollup can't be done over the 1:N relationship for the Activity entity or the Activity Party entity.

- The business rules, workflows or calculated fields always use the last calculated value of the rollup field.

- A rollup field is aggregated under the system user context. All users are able to see the same rollup field value. You can control the rollup field visibility with the field level security (FLS), by restricting who can access the rollup field. More information: Field level security.

- If the precision of the aggregated field is greater than the precision of the rollup field, the aggregated field precision is rounded down to the precision of the rollup field, before the aggregation is performed. To illustrate this behavior, let's look at a specific example. Let's say that the rollup field on the account entity, for calculating the total estimated revenue of the related opportunities, has a precision of two decimal points. The Est. Revenue field on the opportunity entity is the aggregated field with the precision of four decimal points. In our example, the account has two related opportunities. The aggregated sum of the estimated revenue is calculated as follows:

  a. Est. Revenue for the first opportunity: $1000.0041

  b. Est. Revenue for the second opportunity: $2000.0044

  c. Aggregated sum of Est. Revenue: $1000.00 + $2000.00 = $3000.00
     As you can see, the precision rounding to two decimal points on the aggregated field is done before the aggregation is performed.

- Certain entity forms, such as Account or Contact, out-of-the-box, contain the associated grids. For example, an Account form includes Contacts, Cases, Opportunities and other grids. Some of the records shown in the Account form grids are directly related to the account record; others, indirectly, through the relationships with other records. In comparison, the rollup field aggregation uses only direct relationships explicitly defined in the rollup field definition. No other relationships are considered. To illustrate the difference in behavior, let's look at the following example.

  a. The account A1 has a primary contact, P1. The case C1 is associated with the account A1 (C1.Customer field = A1) and the case C2 is associated with the contact P1 (C2.Customer field = P1).

  b. The **Cases** grid on the **Account** form for the A1 record, shows two cases, C1 and C2.

  c. The rollup field on the account entity, called Total Number of Cases, is used to count the cases associated with the account.

  d. In the account rollup field definition, we specify the cases that have the Customer relationship with the account. After aggregation, the Total Number of Cases is equal to 1 (case C1). The case C2 is not included in the total, as it is directly related to the contact, not to the account, and can't be explicitly defined in the account rollup field definition. As a result, the total number of cases returned by rollup operation doesn't match the number of cases shown in the **Cases** grid.

See Also

Define calculated fields

Applies To: CRM 2016 on-prem, CRM Online

In Microsoft Dynamics CRM, *calculated* fields let you automate manual calculations used in your business processes. For example, a salesperson may want to know the weighted revenue for an opportunity which is based on the estimated revenue from an opportunity multiplied by the probability. Or, they want to automatically apply a discount, if an order is greater than $500. A calculated field can contain values resulting from simple math operations, or conditional operations, such as greater than or if-else, and many others. You can accomplish all this by using the CRM user interface, no need to write code.

The calculated field capabilities:

* The calculated fields comprise of calculations that use the fields from the current entity or related parent entities.

* The expression support is available on the current entity and the related parent entity fields in the **Condition** sections and the **Action** sections. The built-in functions include:

  ADDHOURS, **ADDDAYS**, **ADDWEEKS**, **ADDMONTHS**, **ADDYEARS**, **SUBTRACTHOURS**, **SUBTRACTDAYS**, **SUBTRACTWEEKS**, **SUBTRACTMONTHS**, **SUBTRACTYEARS**, **DIFFINDAYS**, **DIFFINHOURS**, **DIFFINMINUTES**, **DIFFINMONTHS**, **DIFFINWEEKS**, **DIFFINYEARS**, **CONCAT**, **TRIMLEFT**, and **TRIMRIGHT**.

* A rich conditional support provides branching and multiple conditions. The logical operations include **AND** and **OR** operators.

* The visual editing capabilities include modern user interface and intellisense in the **ACTION** section.

* A seamless integration of the calculated fields with the forms, views, charts, and reports is available in real time.

A few examples of the calculated fields

* Weighted Revenue: Estimated revenue multiplied by probability

* Net Worth: Assets subtracted by the liabilities for a given account

- Cost of Labor: Base rate up to 40 hours, plus additional overtime

- Contact Number: Phone number for an opportunity based on account or contact

- Lead Score: Single field that provides insights to the quality of a given lead

- Follow Up By: Follow up on an activity by a specified number of days based on priority

◆ **Important**

To create a calculated field you must have the Write privilege on the Field Security Profile entity. If the calculated field uses the secured fields in a calculation, you should consider securing the calculated field as well, to prevent users from accessing data for which they don't have sufficient permissions. The calculated field editor gives you a warning if you are creating a calculated field that uses secured fields in a calculation, suggesting you secure the calculated field. More information: Field level security.

In This Topic

Calculated fields examples
Calculated field functions syntax
Calculated fields considerations

Calculated fields examples

Let's take a look at calculated field examples in more detail. We'll define the calculated fields with the Field Editor. To open the Field Editor:

1. Go to **Settings** > **Customizations**.

2. Choose **Customize the System** > **Components** > **Entities**.

3. Select the entity you want and choose **Fields**. Choose **New**.

In the editor, provide the required information for the field, including the **Field Type** and **Data Type**. The **Field Type** is **Calculated**. The available data types for the calculated field:

- Single line of text

- Option Set

- Two Options

- Whole Number

- Decimal Number

- Currency

- Date and Time

The **Edit** button next to the **Field Type** takes you to the calculated field definition editor, where the new calculated field has been created, but no formula has been set. The calculated field definition consists of two sections: **CONDITION** and **ACTION**.

- In the **Condition** section, you can specify an entity, field, operator, type, and value. In the dropdown box for the **Entity**, you can choose a current entity or a related entity. In the **Field**

dropdown box, you have a selection of all available fields for the entity. Depending on the operator you choose, you may need to provide type and value. You can specify multiple conditions using the **AND** or **OR** operators.

- In the **Action** section, you provide the formula for the calculated field.

📝 **Note**

You can use data from Lookup records within your Action. You first have to select the Lookup field and then type a period. After that, you can select one of the fields available on the related entity. For example, in the case of <LookupFieldName>.<RelatedFieldName>, you can select: ParentAccountId.AccountNumber.

Note that field level security will be ignored on the related entity, so if there is sensitive data in the accessed field we suggest securing your calculated field as well.

Weighted revenue of opportunity

In this example, we are using the fields of the opportunity entity to calculate the weighted revenue based on the opportunity's probability. In the field editor for an opportunity entity, we create a field called "Weighted Revenue" and specify the field type as **Calculated** and the data type is **Currency**. In the calculated field definition editor, in the **Condition** section, we specify the opportunity with the Status = Open. In the **ACTION**, the formula calculates the weighted revenue based on the opportunity estimated revenue multiplied by the probability of the opportunity. The following screenshots show step-by-step how to define the Weighted Revenue calculated field.

Create the calculated field called "Weighted Revenue":
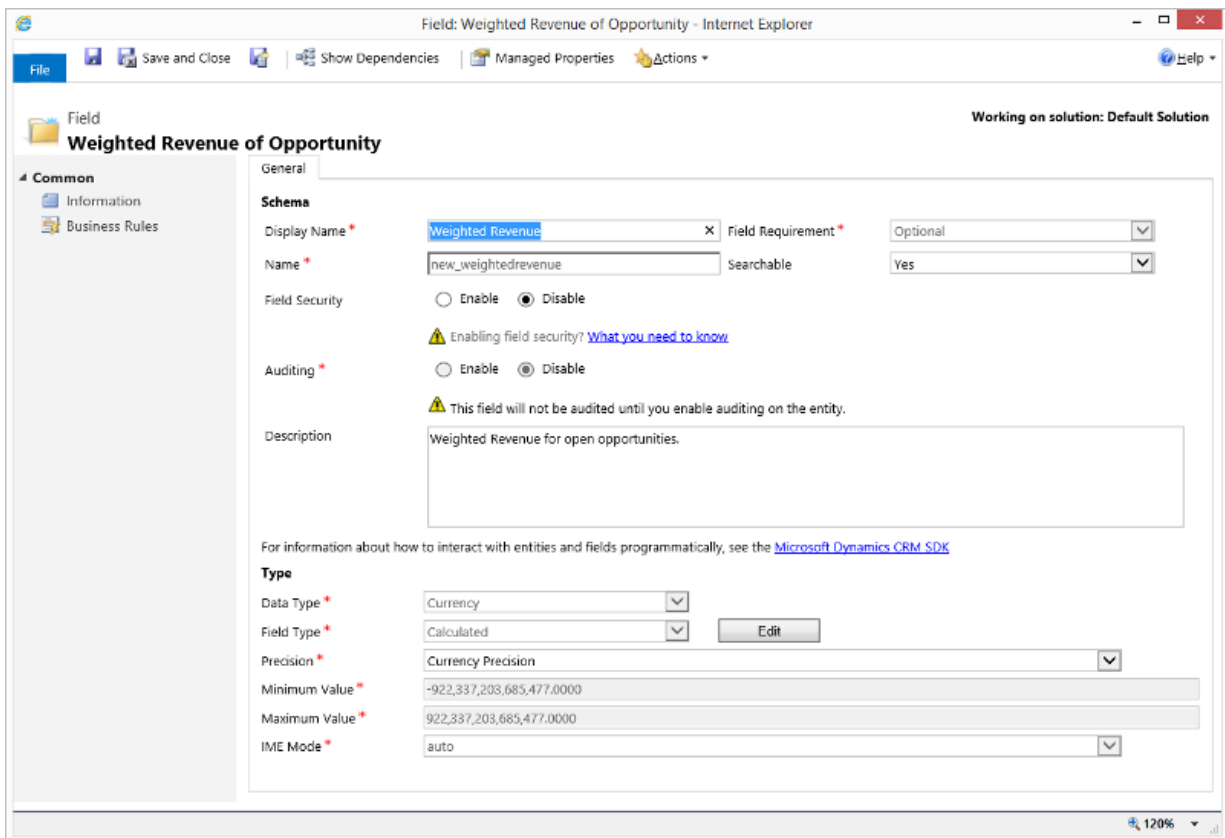
Set the condition on the opportunities:
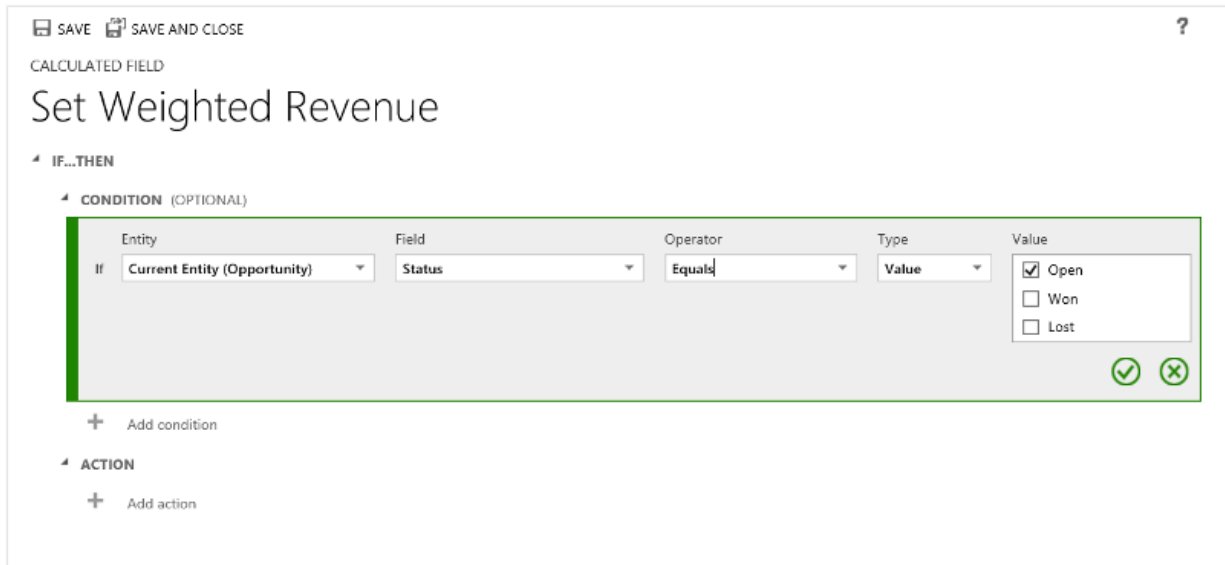
Provide the formula for the weighted revenue:

Altogether:

Follow-up date of opportunity

In this example, we are using the fields of the originated lead of an opportunity, to calculate the appropriate date when to follow up on the opportunity. In the field editor for an opportunity entity, we

create a field called "Follow-up date" and specify the type as **Calculated** and the data type is **Date and Time**. In the calculated field definition editor, in the **Condition** section, we specify two conditions: the purchase time frame and the estimated value of the lead. In the **ACTION**, we provide two formulas, one, to follow up in one week on the immediate opportunity, another one, to follow up in one month, if the opportunity is not likely to happen right away. The following screenshots show step-by-step how to define the "Follow-up date" calculated field.

Create the calculated field called "Follow-up Date":

Set the two conditions on the originating lead:

CALCULATED FIELD

Set Follow-up Date

⊿ IF...THEN

    ⊿ **CONDITION** (OPTIONAL)

	Entity	Field	Operator	Type	Value
If	Originating Lead (Lead) ▾	Purchase Timeframe ▾	Equals ▾	Value ▾	☑ Immediate ☐ This Quarter ☐ Next Quarter ☐ This Year ☐ Unknown

    ⚠ You can't sort calculated fields that depend on other calculated fields, logical fields, or related record fields.

          ⊘ ⊗

    ＋ Add condition

  ⊿ **ACTION**

    ＋ Add action

CALCULATED FIELD

Set Follow-up Date

⊿ IF...THEN

    ⊿ **CONDITION** (OPTIONAL)

      If (Originating Lead) Purchase Timeframe equals **"Immediate"**

And/Or	Entity	Field	Operator	Type	Value
and ▾	Originating Lead (Lead) ▾	Est. Value ▾	Is greater than ▾	Value ▾	100000|

    ⚠ You can't sort calculated fields that depend on other calculated fields, logical fields, or related record fields.

          ⊘ ⊗

    ＋ Add condition

  ⊿ **ACTION**

    ＋ Add action

＋ Add Else

Provide the formula to follow up in one week:

CALCULATED FIELD

Set Follow-up Date

IF...THEN

CONDITION (OPTIONAL)

If **(Originating Lead) Purchase Timeframe** equals **"Immediate"**

and **(Originating Lead) Est. Value** is greater than **100000**

+ Add condition

ACTION

Set Follow-up Date (date and time)   ?

= ADDDAYS(7.createdon)   ✓ ⊗

+ Add Else

Provide the formula to follow up in one month:

CALCULATED FIELD

Set Follow-up Date

IF...THEN

CONDITION (OPTIONAL)

If **(Originating Lead) Purchase Timeframe** equals **"Immediate"**

and **(Originating Lead) Est. Value** is greater than **100000**

+ Add condition

ACTION

Set **Follow-up Date** to **AddDays(7, Created On)**

ELSE

CONDITION (OPTIONAL)

+ Add condition

ACTION

Set Follow-up Date (date and time)   ?

= ADDMONTHS(1, createdon)   ✓ ⊗

Altogether:

278

CALCULATED FIELD

Set Follow-up Date

- **IF...THEN**

  - **CONDITION** (OPTIONAL)

    If **(Originating Lead) Purchase Timeframe** equals **"Immediate"**

    and **(Originating Lead) Est. Value** is greater than **100000**

    ➕ Add condition

  - **ACTION**

    Set **Follow-up Date** to **AddDays(7, Created On)**

- **ELSE**

  - **CONDITION** (OPTIONAL)

    ➕ Add condition

  - **ACTION**

    Set **Follow-up Date** to **AddMonths(1, Created On)**

Days from a record creation

In this example, we are using the **DIFFINDAYS** function, to compute the difference in days from the time when a record was created to the current date.

Create the calculated field called "Calculated difference in days":

Provide the formula for computing the difference in days

CALCULATED FIELD

Set Calculated difference in days

▲ **IF...THEN**

    ▲ **CONDITION** (OPTIONAL)

        +   Add condition

    ▲ **ACTION**

    Set Calculated difference in days (whole number)   ?

    =   DIFFINDAYS(createdon, NOW())

Altogether:

CALCULATED FIELD

Set Calculated difference in days

◢ IF...THEN

   ◢ **CONDITION** (OPTIONAL)

      +   Add condition

   ◢ **ACTION**

      Set **Calculated difference in days** to **DiffInDays(Created On, Now())**

Calculated field functions syntax

The following table contains information about the syntax for the functions provided in the **ACTION** section of the calculated field.

💡 **Tip**

The function names are specified in uppercase letters.

Function Syntax	Description	Return type
ADDDAYS (whole number, date and time)	Returns a new date and time that is equal to the given date and time, plus the specified number of days.	Date and Time
ADDHOURS (whole number, date and time)	Returns a new date and time that is equal to the given date and time, plus the specified number of hours.	Date and Time
ADDMONTHS (whole number, date and time)	Returns a new date and time that is equal to the given date and time, plus the specified number of months.	Date and Time
ADDWEEKS (whole number, date and time)	Returns a new date and time that is equal to the given date and time, plus the specified number of weeks.	Date and Time
ADDYEARS (whole number, date	Returns a new date and time	Date and Time

Function Syntax	Description	Return type
and time)	that is equal to the given date and time, plus the specified number of years.	
SUBTRACTDAYS (whole number, date and time)	Returns a new date and time that is equal to the given date and time, minus the specified number of days.	Date and Time
SUBTRACTHOURS (whole number, date and time)	Returns a new date and time that is equal to the given date and time, minus the specified number of hours.	Date and Time
SUBTRACTMONTHS (whole number, date and time)	Returns a new date and time that is equal to the given date and time, minus the specified number of months.	Date and Time
SUBTRACTWEEKS (whole number, date and time)	Returns a new date and time that is equal to the given date and time, minus the specified number of weeks.	Date and Time
SUBTRACTYEARS (whole number, date and time)	Returns a new date and time that is equal to the given date and time, minus the specified number of years.	Date and Time
DIFFINDAYS (date and time, date and time)	Returns the difference in days between two **Date and Time** fields. If both dates and times fall on the same day, the difference is zero.	Whole Number
DIFFINHOURS (date and time, date and time)	Returns the difference in hours between two **Date and Time** fields.	Whole Number
DIFFINMINUTES (date and time, date and time)	Returns the difference in minutes between two **Date and Time** fields.	Whole Number
DIFFINMONTHS (date and time, date and time)	Returns the difference in months between two **Date and Time** fields. If both dates and times fall on the same month, the difference is zero.	Whole Number
DIFFINWEEKS (date and time, date and time)	Returns the difference in weeks between two **Date and Time** fields. If both dates and times fall on the same week, the	Whole Number

Function Syntax	Description	Return type
	difference is zero.	
DIFFINYEARS (date and time, date and time)	Returns the difference in years between two **Date and Time** fields. If both dates and times fall on the same year, the difference is zero.	Whole Number
CONCAT (single line of text, single line of text, … single line of text)	Returns a string that is the result of concatenating two or more strings.	String
TRIMLEFT (single line of text, whole number)	Returns a string that contains a copy of a specified string without the first N-characters.	String
TRIMRIGHT (single line of text, whole number)	Returns a string that contains a copy of a specified string without the last N-characters.	String

 Note

All DIFF functions require that the first **Date and Time** field and the second **Date and Time** field have the same behavior: **User Local**, **Date Only** or **Time-Zone Independent**. If the behavior of the second field doesn't match the behavior of the first field, the error message is shown, indicating that the second field can't be used in the current function. More information: Behavior and format of the date and time field.

 Note

You cannot enter a date, such as 01/01/2015, as the Date value in a calculated field. Date and DateTime values can only be set or compared using other DateTime fields.

In the **CONCAT** function, you can use literal strings as single lines of text, entity fields that contain a single line of text, or a combination of both. For example: **CONCAT** (FirstName, LastName, "is a manager."). If a literal string contains quotation marks, precede each mark with the backslash (\) escape character, like this: "This string contains the \"quotation marks.\"" This ensures that the quotation marks inside the string aren't treated as special characters that separate the strings.

The following examples show how to use the **TRIMLEFT** and **TRIMRIGHT** functions. They contain the initial strings and the resulting strings, returned by the **TRIMLEFT** and **TRIMRIGHT** functions:

TRIMLEFT ("RXX10-3456789", 3), returns the string "10-3456789"
TRIMRIGHT ("20-3456789RXX", 3), returns the string "20-3456789"

Calculated fields considerations

You should be aware of certain conditions and limitations when working with calculated fields:

- Saved queries, charts, and visualizations can have a maximum of 10 unique calculated fields.

- The calculated field values are not displayed in the CRM Outlook Offline mode in the tile views or on entity main forms.

- A maximum number of chained calculated fields is 5.

- A calculated field can't refer to itself or have cyclic chains.

- If you change one of the condition operators in a multiple condition clause, all of the condition operators will update to that condition. For example, in the clause **IF (x > 50) OR (y ==10) OR (z < 5)**, if you change the **OR** operator to the **AND** operator, then all **OR** operators in the clause will become **AND** operators.

- You can access parental fields via the Lookup field to the parent entity, such as **<LookupFieldName>.<FieldName>**. This is not possible with multi-entity Lookup fields like **Customer** which can be **Account** or **Contact**. However, some entities have individual Lookup fields for a specific entity, such as **ParentAccountid.<FieldName>** or **ParentContactid.<FieldName>**.

- Sorting is disabled on:
  - A calculated field that contains a field of a parent record.
  - A calculated field that contains a logical field (for example, address field).
  - A calculated field that contains another calculated field.

- Calculated fields can span two entities only.
  - A calculated field can contain a field from another entity (spanning two entities – current entity and parent record).
  - A calculated field can't contain a calculated field from another entity that also contains another field from a different entity (spanning three entities):
  (Current Entity)Calculated Field <- (Parent Record) Calculated Field 1 <- (Parent Record) Calculated Field 2.

- You can't trigger workflows or plug-ins on calculated fields.

- You can't change an existing simple field to a calculated field. If your current application is using JavaScript or plug-ins to calculate a field, you would not be able to use the calculated fields feature without creating a new field.

- Duplicate detection rules are not triggered on calculated fields.

- A rollup can't reference a calculated field that uses another calculated field, even if all the fields of the other calculated field are on the current entity.

See Also

Create and edit fields
Define rollup fields
Video: Rollup and Calculated Fields in Microsoft Dynamics CRM 2015

Create and edit entity relationships

Applies To: CRM 2016 on-prem, CRM Online

Entity relationships define how records can be related to each other in the database. At the simplest level, adding a lookup field to an entity creates a new 1:N (one-to-many) relationship between the two entities and lets you put that lookup field in a form. With the lookup field, users can associate multiple "child" records of that entity to a single "parent" entity record.

Beyond simply defining how records can be related to other records, 1:N entity relationships also provide data to address the following questions:

- When I delete a record should any records related to that record also be deleted?

- When I assign a record, do I also need to assign all records related to that record to the new owner?

- How can I streamline the data entry process when I create a new related record in the context of an existing record?

- How should people viewing a record be able to view the associated records?

Entities can also participate in a N:N (many-to-many) relationship where any number of records for two entities can be associated with each other.

In This Topic

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[Set managed properties for relationships](#)

Decide whether to use entity relationships or connections

Entity relationships are metadata that make changes to the database. These relationships allow for queries to retrieve related data very efficiently. Use entity relationships to define formal relationships that define the entity or that most records can use. For example, an opportunity without a potential customer wouldn't be very useful. The Opportunity entity also has a N:N relationship with the Competitor entity. This allows for multiple competitors to be added to the opportunity. You may want to capture this data and create a report that shows the competitors.

There are other less formal kinds of relationships between records that are called connections. For example, it may be useful to know if two contacts are married, or perhaps they are friends outside of work, or perhaps a contact used to work for another account. Most businesses won't generate reports

using this kind of information or require that it is entered, so it's probably not worthwhile to create entity relationships.

Types of entity relationships

When you look at the solution explorer you might think that there are three types of entity relationships. Actually there are only two, as shown in the following table.

Relationship Type	Description
1:N (One-to-Many)	An entity relationship where one entity record for the **Primary Entity** can be associated to many other **Related Entity** records because of a lookup field on the related entity. When viewing a primary entity record you can see a list of the related entity records that are associated with it.
N:N (Many-to-Many)	An entity relationship that depends on a special **Relationship Entity**, sometimes called an Intersect entity, so that many records of one entity can be related to many records of another entity. When viewing records of either entity in a N:N relationship you can see a list of any records of the other entity that are related to it.

The **N:1 (many-to-one)** relationship type exists in the solution explorer user interface because the solution explorer shows you a view grouped by entities. 1:N relationships actually exist between entities and refer to each entity as either a **Primary Entity** or **Related Entity**. The related entity, sometimes called the child entity, has a lookup field that allows storing a reference to a record from the primary entity, sometimes called the parent entity. A N:1 relationship is just a 1:N relationship viewed from the related entity.

Create and edit 1:N relationships

The easiest way to create a 1:N relationship is to create a new lookup field for an entity. This allows you to set the common field values for the lookup field as well as two additional options when you set the **Type** to **Lookup**. Those additional fields are **Target Record Type** and **Relationship Name**.

Target Record Type selects the **Primary Entity** in the 1:N relationship. **Relationship Name** is auto-generated for you based on the two entities that participate in the relationship. You typically don't need to edit this, but you can if you want. The name of the entity relationship contains the customization prefix of the solution publisher for the solution you are currently working in.

✎ Note

If you care about the customization prefix, be sure you are working within the context of a solution that is linked to the solution publisher with the prefix you want.

However, when you create a 1:N relationship by creating a lookup field, certain default values are set for you. If you want to edit some of the options available in the relationship, you must locate the relationship and edit it.

Custom 1:N relationships can't be created for all entities. When this is true there is no option to create a new custom entity relationship using the solution explorer. If you use the metadata browser, you can filter the list of entities according to the **CanBePrimaryEntityInRelationship** and **CanBeRelatedEntityInRelationship** properties. See Use the metadata browser for more information.

The definition for the 1:N relationship has four parts: **Relationship Definition**, **Lookup Field**, **Navigation Pane Item for Primary Entity**, and **Relationship Behavior**.

Create or edit 1:N relationships between entities

1. Go to **Settings** > **Customizations**.

2. Click **Customize the System**.

3. Under **Components**, expand **Entities**, and then expand the entity you want to work with.

4. Click **1:N Relationships**.

5. To edit a relationship or view the details for a relationship, select the relationship, and on the Actions toolbar, click **More Actions**, and then click **Edit**.

   - OR -

   To add a new relationship, click **New 1-to-Many Relationship**.

 ◆ **Important**

If **New 1-to-Many Relationship** does not appear on the Actions toolbar, you cannot create a 1:N relationship for that entity.

6. For a new relationship, in the **Relationship Definition** section, in the **Related Entity** list, select the entity to be related.

 ☑ **Note**

Specifying the related entity sets a default value for the **Name** field. If you change the related entity before you save, the value of the **Name** changes accordingly.

7. Select whether this will be searchable to not.

8. In the **Lookup Field** section, specify a value for the **Display Name** field.

 ◆ **Important**

Specifying the **Display Name**sets a default value for the **Name** field. If you change the **Display Name**of the lookup field before you save, the value in the **Name** field will not change. As a result, be sure the **Name** is meaningful before saving.

9. In the **Field Requirement** list, choose an option to specify data requirements for the field prior to saving a record.

10. In the **Navigation Pane Item for Primary Entity** section, in the **Display Option** list, choose an option for displaying associated views or a custom label.

11. In the **Relationship Behavior** section, in the **Type of Behavior** list, choose one of the following options:

- **Parental**. In a parental relationship between two entities, any action taken on a record of the parent entity is also taken on any child entity records that are related to the primary (or parent) entity record.
- **Referential**. In a referential relationship between two entities, you can navigate to any related records, but actions taken on one will not affect the other.
- **Referential, Restrict Delete**. In a referential, restrict delete relationship between two entities, you can navigate to any related records. Actions taken on the parent record will not be applied to the child record, but the parent record cannot be deleted while the child record exists. Note that you cannot delete a record when related records exist.
- **Configurable Cascading**. In a configurable cascading relationship between two entities, you select the behavior associated with each of a set of possible actions.

◆ **Important**

If you set the behaviors for the actions so that they match the behaviors for the actions associated with another **Type of Behavior**, when you save the relationship, the **Type of Behavior** is automatically set to the matching type.

More information: [MSDN: Configure entity relationship behavior](#)

12. Click **Save and Close** to close the **Relationship** form.

13. When your customizations are complete, publish them:
- To publish customizations for only the component that you are currently editing, on the Actions toolbar, click **Publish**.
- To publish customizations for all unpublished components at one time, on the nav bar or in the Navigation Pane, click **Entities**, and then on the Actions toolbar, click **Publish All Customizations**.

📝 **Note**

- A custom entity cannot be the primary entity in a relationship with a related system entity that cascades. This means you cannot have a relationship with any action set to Cascade All, Cascade Active, or Cascade User-Owned between a primary custom entity and a related system entity.
- No new relationship can have any action set to **Cascade All**, **Cascade Active**, or **Cascade User-Owned** if the related entity in that relationship already exists as a related entity in another relationship that has any action set to **Cascade All**, **Cascade Active**, or **Cascade User-Owned**. This prevents relationships that create a multi-parent relationship.
- Any time you change user-interface elements or implement form scripts for an entity, you need to publish changes to apply them. Any customizations that change the data schema of Microsoft Dynamics CRM, such as custom entities, relationships, or fields are applied immediately.
- If a relationship is part of a managed solution, the developer of the managed solution can restrict

you from customizing the relationship.

- Installing a solution or publishing customizations can interfere with normal system operation. We recommend that you schedule a solution import when it's least disruptive to users.

Relationship definition

Depending on whether you chose to create a **New 1-to-Many Relationship** or a **New Many-to-1 Relationship** from the solution explorer, either the **Primary Entity** or **Related Entity** fields will be pre-populated. You only need to choose the other one. A default value for the **Name** field is pre-populated based on the solution publisher's customization prefix and the names of the entities you choose to participate in the relationship. You can edit this if you want. If you create more than one custom relationship between two entities and use the same customization prefix for both, the auto-generated name value will not be unique and you will not be able to save the new relationship. You must edit the name to differentiate it from any existing name before you can save it. Once saved, you cannot change it.

If you don't want to have this entity relationship visible in **Advanced Find**, set the **Searchable** value to **No**.

Lookup fields

These fields are the common properties all fields have except **Searchable**, **Field Security**, and **Auditing**. To edit these values for the lookup field that is created with the entity relationship, you must locate and edit the lookup field separately after you create the entity relationship. More information: Create and edit fields

As a general rule, the **Display Name** should correspond to the primary entity display name.

Navigation pane item for primary entity

The primary entity can reveal lists of related entities if you expand the navigation pane. The options in this group control how or whether to display this list. These navigation items can also be edited using the form editor and, by using JavaScript, a developer can apply changes to these items when the form is displayed.

Field	Description
Display Option	**Do Not Display**: Choose this if you do not want to allow people to be able to navigate to a list of related entity records. **Use Custom Label**: Choose this if you want to specify a custom label to use. **Use Plural Name**: Choose this if you want to use the plural name of the related entity as the label.
Custom Label	When you select **Use Custom Label** as the display option, enter the custom label you want to

Field	Description
	use instead of the related entity plural name.
Display Area	**Details**: Choose this to include the navigation item in the **Common** group. **Marketing**: Choose this to include the navigation item in the **Marketing** group. **Sales**: Choose this to include the navigation item in the **Sales** group. **Service**: Choose this to include the navigation item in the **Service** group.
Display Order	This number controls where the navigation item will be included within the selected display area. The range of allowed numbers begins with 10,000. Navigation pane items with a lower value appear above other relationships with a higher value.

Relationship behavior

In a 1:N relationship, you can control how the relationship behaves to support business rules for your organization. Why would you want to do this? Let's look at an example.

Let's say that you have a new salesperson and you want to assign them a number of existing opportunities currently assigned to another salesperson. Each opportunity record may have a number of task activities associated with it. You can easily locate the active opportunities you want to reassign and assign them to the new salesperson. But what should happen for any of the task activities that are associated with the opportunities? Do you want to open each task and decide whether they should also be assigned to the new salesperson? Probably not. Instead, you can let the relationship apply some standard rules for you automatically. These rules only apply to task records associated to the opportunities you are reassigning. The entity relationship is named **Opportunity_Tasks**. Your options are:

- Reassign all active tasks.
- Reassign all tasks. This is the default behavior.
- Reassign none of the tasks.
- Reassign all tasks currently assigned to the former owner of the opportunity.

The relationship can control how actions performed on a record for the primary entity record cascade down to any related entity records. The actions and possible behaviors are shown in the following table.

Action	Description	Possible behaviors
Assign	What should happen when the primary entity record changes ownership?	- Cascade Active - Cascade All - Cascade None - Cascade User Owned

Action	Description	Possible behaviors
Share	What should happen when the primary entity record is shared?	• Cascade Active • Cascade All • Cascade None • Cascade User Owned
Unshare	What should happen when sharing of the primary entity record stops?	• Cascade Active • Cascade All • Cascade None • Cascade User Owned
Reparent	What should happen when a lookup field value for a parental type relationship in the primary entity record is changed? A parental type relationship is one that uses **Cascade All** for all actions. Customizable parental entity relationships lists the customizable parental system relationships.	• Cascade Active • Cascade All • Cascade None • Cascade User Owned
Delete	What should happen when the primary entity record is deleted?	• Cascade All • Remove Link • Restrict Delete
Merge	What should happen when the primary entity record is merged with another record?	• Cascade All • Cascade None

Each of these actions can be configured to control how actions cascade down to records related to the primary entity record through the 1:N entity relationship. The behavior options are in the following table.

Behavior	Description
Cascade Active	Perform the action on all active related entity records.
Cascade All	Perform the action on all related entity records.
Cascade None	Do nothing.
Remove Link	Remove the value of the lookup field for all related entity records.
Restrict Delete	Prevent the primary entity record from being deleted when related records exist.

Behavior	Description
Cascade User Owned	Perform the action on all related entity records owned by the same user as the primary entity record.

How these actions are applied within a relationship can be categorized or applied using the **Type of Behavior** field values described in the following table.

Field value	Description
Parental	All actions use the **Cascade All** behavior. Customizable parental entity relationships lists all of the customizable system entity relationships that use the parental behavior.
Referential	**Assign**, **Share**, **Unshare**, and **Reparent** use the **Cascade None** behavior. **Delete** uses the **Remove Link** behavior. **Merge** uses the **Cascade All** behavior.
Referential, Restrict Delete	The same as **Referential**, except that **Delete** uses the **Restrict Delete** behavior.
Configurable Cascading	Individual behaviors can be assigned for each action. If the choices match any of the other **Type of Behavior** categories, the value will change to that **Type of Behavior** value.

Limitations on behaviors you can set

There are some limitations you should keep in mind when you define entity relationships.

- A custom entity can't be the primary entity in a relationship with a related system entity that cascades. This means you can't have a relationship with any action set to **Cascade All**, **Cascade Active**, or **Cascade User-Owned** between a primary custom entity and a related system entity.

- No new relationship can have any action set to **Cascade All**, **Cascade Active**, or **Cascade User-Owned** if the related entity in that relationship already exists as a related entity in another relationship that has any action set to **Cascade All**, **Cascade Active**, or **Cascade User-Owned**. This prevents relationships that create a multi-parent relationship.

Map entity fields

You can map attributes between entities that have an entity relationship. This lets you set default values for a record that is created in the context of another record. Let's say that you want to add a new contact record for a person who is an employee for a specific account. You can do this in two different ways:

You could just navigate to **Sales** > **Contacts** and create a new contact record from scratch. But then you need to set the parent account and enter several items of information (such as address and phone information) which are probably the same as the parent account. This can be time consuming and introduces opportunities for errors.

The easier way is to start with the account entity and, using the **Contacts** subgrid on the form, click **+** to add a contact. It will first guide you to look up any existing related contacts so you don't accidentally create a duplicate record. If you don't find an existing record, you can click **New** and create a new contact record. The difference is that certain items of data from the account record will be copied into the new contact form to set certain default values that you can edit before saving. This can save a lot of time when you are entering data, and help reduce errors.

Default entity and attribute mappings shows all the default mappings set for Microsoft Dynamics CRM.

Note

These mappings aren't applied to related records created using a workflow or dialog process. They aren't automatically applied to new records created using code, although developers can use a special message called MSDN: InitializeFromRequest to create a new record using available mappings.

These mappings only set default values to a record before it is saved. People can edit the values before saving. The data that is transferred is the data at that point in time. It isn't synchronized. If the information in the primary entity record changes, the related entity record data that was transferred when it was created won't change.

The default values set when you create a new record from a list aren't actually defined within the entity relationships, but they are exposed in the relationship user interface. Not every 1:N entity relationship has them. When you view a list of 1:N (or N:1) entity relationships for an entity, you can filter the relationships shown by type. You can select either **All**, **Custom**, **Customizable**, or **Mappable**. Mappable entity relationships provide access to allow mapping entity fields.

The following rules show what kinds of data can be mapped.

- Both fields must be of the same type and the same format.

- The length of the target field must be equal to or greater than the length of the source field.

- The target field can't be mapped to another field already.

- The source field must be visible on the form.

- The target field must be a field that a user can enter data into.

- If the fields are option sets, the integer values for each option should be identical.

- Address ID values can't be mapped.

Note

If you need to map option set fields, we recommend you configure both fields to use the same global option set. Otherwise, it can be difficult to keep two separate sets of options synchronized manually. If the integer values for each option aren't mapped correctly you can introduce problems in your data. More information: Create and edit global option sets

Create or edit mapping between fields

1. Go to **Settings** > **Customizations**.

2. Click **Customize the System**.

3. Under **Components**, expand **Entities**, and then expand the entity you want.

4. Click either **1:N Relationships** or **N:1 Relationships**.

5. In the main pane, in the **Type** list, select **Mappable**.

6. Select a mappable relationship. Then, on the Actions toolbar, click **Actions**, and then click **Edit**.

7. Under **Related**, click **Mappings**.

8. For each new mapping, on the **Actions** toolbar, click **New**.

9. In the **Create Field Mapping** dialog box, select the source field from **Source Entity Fields**. Select the target field from **Target Entity Fields**.

10. Click **OK**.

11. Click **Save and Close** to close the **Relationship** form.

12. When your customizations are complete, publish them

Automatically generate field mappings

You can also generate mappings automatically but you should use care when doing this with system entities. Use this when you create custom entities and want to leverage mapping. When viewing the list of mappings, in the **More Actions** menu select **Generate Mappings**. This removes any existing mappings and replaces them with suggested mappings that are based only on the fields that have similar names and data types. If you use this on a system entity, you could lose some expected mappings. For custom entities, it helps save time because you can more easily delete any mappings you don't want and add any others that the generate mappings action didn't create.

Create and edit N:N (many-to-many) relationships

1:N entity relationships establish a hierarchy between records. With N:N (many-to-many) relationships there is no explicit hierarchy. There are no lookup fields or behaviors to configure. Records created using N:N relationships can be considered peers and the relationship is reciprocal.

With N:N relationships a special entity is created called a Relationship (or Intersect) entity. This entity has a relationship with each of the related entities and only stores the necessary values to define the relationship. You can't add custom fields to a relationship entity.

The procedure to create a N:N relationship is essentially choosing the two entities that you want to participate in the relationship, and then for each entity defining how you want the respective lists to be available within the navigation pane of the form for each entity. These are the same options used for the primary entity in 1:N entity relationships. More information: [Navigation pane item for primary entity](#)

Not all entities can be used with N:N relationships. If the **New Many-to-Many Relationship** button isn't present, you can't create a new N:N relationship with this entity. If you use the metadata browser, you can filter on entities that have the **CanBeInManyToMany** value set to **true**. More information: [Use the metadata browser](#)

Create or edit N-N relationships between entities

1. Go to **Settings** > **Customizations**.

2. Click **Customize the System**.

3. Under **Components**, expand **Entities**, and then expand the entity you want to work with.

4. Click **N:N Relationships**.

5. To edit or view the details for an existing relationship, select the relationship, on the Actions toolbar, click **Actions**, and then click **Edit**.
   - OR -
   To add a new relationship, click **New Many-to-Many Relationship**.

⬥ Important

If **New Many-to-Many Relationship** does not appear on the Actions toolbar, you cannot create a N:N relationship for that entity.

6. For a new relationship, in the **Current Entity** section, in the **Display Option** list, choose one of the following options:

   - **Do Not Display**: The other entity will not display an associated view for the current entity.

   - **Use Custom Label**: This label will be used for the associated view created for the other entity. Be sure to enter a corresponding value in the **Custom Label** field.

   - **Use Plural Name**: This will use the plural name of the current entity for the associated view.

✎ Note

When the **Use Plural Name** or **Use Custom Label** options are selected, you can choose from the **Display Area** option list to specify the display area (for example Marketing or Sales) on the form where the relationship label will be displayed. You can also specify the **Display Order** to control where the label will be included within the selected display area.

⬥ Important

The navigation paradigm for the forms associated with updated entities is significantly different than that for entities that have not been updated. While the mechanics for defining the Display Area and Display Order are common, be sure you understand the various navigation paradigms as you establish entity relationships.

7. In the **Other Entity** section, select the other entity from the **Entity Name** list.

Note

When you specify the entity name, default values are set for the **Name** and **Relationship Entity Name** fields in the **Relationship Definition** section. If you change the **Entity Name** value before you save, these names will not change, so be sure these names are meaningful before saving.

8. In the **Relationship Definition** section, confirm the **Name** and the **Relationship Entity Name**.

   These values must be unique among N:N relationships.

9. Click **Save and Close** to close the N:N Relationship form.

10. When your customizations are complete, publish them:

    - To publish customizations for only the component that you're currently editing, on the **Home** tab, in the **Save** group, click **Publish**.

    - To publish customizations for all unpublished components at one time, click **Publish All Customizations**.

Note

Any time you change user-interface elements or implement form scripts for an entity, you must publish changes to apply them. Any customizations that change the data schema of Microsoft Dynamics CRM such as custom entities, relationships, or fields, are applied immediately.

Installing a solution or publishing customizations can interfere with normal system operation. We recommend that you schedule a solution import when it's least disruptive to users.

Set managed properties for relationships

Managed properties only apply when you include a field with a managed solution and import it into another organization. These settings allow a solution developer to have some control over the level of customization that they want to allow people who install their managed solution to have when they customize an entity relationship. To set managed properties for a relationship, click the **Managed Properties** button on the menu bar.

With relationships, the only managed property is **Can Be Customized**. This single setting controls all changes that can be made to the entity relationship.

See Also

Create and edit metadata
Create and edit entities
Create and edit fields
Create and edit global option sets
Customizable parental entity relationships
Default entity and attribute mappings

Customizable parental entity relationships

Applies To: CRM 2016 on-prem, CRM Online

This table shows all the One-to-Many entity relationships that use the Parental Relationship Behavior and can be customized.

Customizable one-to-many entity relationships with parental relationship behavior

Each of these relationships can be customized if you want to change the default parental behavior.

Primary Entity	Relationship Name
Account	Account_Annotation
Account	Account_Appointments
Account	Account_Emails
Account	Account_Faxes
Account	Account_Letters
Account	Account_Phonecalls
Account	Account_RecurringAppointmentMasters
Account	Account_Tasks
Account	contact_customer_accounts
Account	contract_customer_accounts
Account	incident_customer_accounts
Account	lead_customer_accounts
Account	opportunity_customer_accounts
Account	quote_customer_accounts
Article	KbArticle_Annotation
Campaign	Campaign_Appointments
Campaign	Campaign_Emails
Campaign	Campaign_Faxes
Campaign	Campaign_Phonecalls
Campaign	Campaign_RecurringAppointmentMasters
Contact	Contact_Annotation
Contact	Contact_Appointments
Contact	Contact_Emails

Primary Entity	Relationship Name
Contact	Contact_Faxes
Contact	Contact_Letters
Contact	Contact_Phonecalls
Contact	Contact_RecurringAppointmentMasters
Contact	Contact_Tasks
Contact	contract_customer_contacts
Contact	incident_customer_contacts
Contact	lead_customer_contacts
Contact	opportunity_customer_contacts
Contact	quote_customer_contacts
Lead	Lead_Annotation
Lead	Lead_Appointments
Lead	Lead_Emails
Lead	Lead_Faxes
Lead	Lead_Letters
Lead	Lead_Phonecalls
Lead	Lead_RecurringAppointmentMasters
Lead	Lead_Tasks

See Also

Create and edit entity relationships
Default entity and attribute mappings

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Default entity and attribute mappings

Applies To: CRM 2016 on-prem, CRM Online

This table shows all the default system entity and field mappings. For more information about how to use entity mappings, see Map entity fields. For sample code that will generate this information for your own organization, see MSDN: Use FetchXML to execute a query.

Default entity and field mappings

The names used in this table are lowercase versions of the entity and field Name values, not the Display Name values.

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
account	account	accountid	parentaccountid
account	account	defaultpricelevelid	defaultpricelevelid
account	account	defaultpriceleveliddsc	defaultpriceleveliddsc
account	account	defaultpricelevelidname	defaultpricelevelidname
account	account	name	parentaccountidname
account	account	transactioncurrencyid	transactioncurrencyid
account	account	transactioncurrencyiddsc	transactioncurrencyiddsc
account	account	transactioncurrencyidname	transactioncurrencyidname
account	contact	accountid	parentcustomerid
account	contact	address1_addresstypecode	address1_addresstypecode
account	contact	address1_city	address1_city
account	contact	address1_country	address1_country
account	contact	address1_county	address1_county
account	contact	address1_freighttermscode	address1_freighttermscode
account	contact	address1_line1	address1_line1
account	contact	address1_line2	address1_line2
account	contact	address1_line3	address1_line3
account	contact	address1_name	address1_name
account	contact	address1_postalcode	address1_postalcode
account	contact	address1_postofficebox	address1_postofficebox
account	contact	address1_shippingmethodcode	address1_shippingmethodcode
account	contact	address1_stateorprovince	address1_stateorprovince
account	contact	address1_telephone1	address1_telephone1
account	contact	defaultpricelevelid	defaultpricelevelid

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
account	contact	defaultpriceleveliddsc	defaultpriceleveliddsc
account	contact	defaultpricelevelidname	defaultpricelevelidname
account	contact	name	parentcustomeridname
account	contact	paymenttermscode	paymenttermscode
account	contact	telephone1	telephone1
account	contact	transactioncurrencyid	transactioncurrencyid
account	contact	transactioncurrencyiddsc	transactioncurrencyiddsc
account	contact	transactioncurrencyidname	transactioncurrencyidname
account	contract	accountid	customerid
account	contract	name	customeridname
account	contract	transactioncurrencyid	transactioncurrencyid
account	contract	transactioncurrencyiddsc	transactioncurrencyiddsc
account	contract	transactioncurrencyidname	transactioncurrencyidname
account	customeropportunityrole	accountid	customerid
account	customeropportunityrole	name	customeridname
account	customerrelationship	accountid	customerid
account	customerrelationship	name	customeridname
account	entitlement	accountid	customerid
account	entitlement	name	customeridname
account	incident	accountid	customerid
account	incident	name	customeridname
account	invoice	accountid	customerid
account	invoice	address1_shippingmethodcode	shippingmethodcode
account	invoice	defaultpricelevelid	pricelevelid
account	invoice	defaultpriceleveliddsc	priceleveliddsc
account	invoice	defaultpricelevelidname	pricelevelidname
account	invoice	name	customeridname
account	invoice	paymenttermscode	paymenttermscode

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
account	invoice	transactioncurrencyid	transactioncurrencyid
account	invoice	transactioncurrencyiddsc	transactioncurrencyiddsc
account	invoice	transactioncurrencyidname	transactioncurrencyidname
account	opportunity	accountid	parentaccountid
account	opportunity	accountid	customerid
account	opportunity	defaultpricelevelid	pricelevelid
account	opportunity	defaultpriceleveliddsc	priceleveliddsc
account	opportunity	defaultpricelevelidname	pricelevelidname
account	opportunity	name	parentaccountidname
account	opportunity	name	customeridname
account	opportunity	transactioncurrencyid	transactioncurrencyid
account	opportunity	transactioncurrencyiddsc	transactioncurrencyiddsc
account	opportunity	transactioncurrencyidname	transactioncurrencyidname
account	quote	accountid	customerid
account	quote	address1_freighttermscode	freighttermscode
account	quote	address1_shippingmethodcode	shippingmethodcode
account	quote	defaultpricelevelid	pricelevelid
account	quote	defaultpriceleveliddsc	priceleveliddsc
account	quote	defaultpricelevelidname	pricelevelidname
account	quote	name	customeridname
account	quote	paymenttermscode	paymenttermscode
account	quote	transactioncurrencyid	transactioncurrencyid
account	quote	transactioncurrencyiddsc	transactioncurrencyiddsc
account	quote	transactioncurrencyidname	transactioncurrencyidname
account	salesorder	accountid	customerid
account	salesorder	address1_freighttermsc	freighttermscode

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
		ode	
account	salesorder	address1_shippingmethodcode	shippingmethodcode
account	salesorder	defaultpricelevelid	pricelevelid
account	salesorder	defaultpriceleveliddsc	priceleveliddsc
account	salesorder	defaultpricelevelidname	pricelevelidname
account	salesorder	name	customeridname
account	salesorder	paymenttermscode	paymenttermscode
account	salesorder	transactioncurrencyid	transactioncurrencyid
account	salesorder	transactioncurrencyiddsc	transactioncurrencyiddsc
account	salesorder	transactioncurrencyidname	transactioncurrencyidname
account	socialprofile	accountid	customerid
account	socialprofile	name	customeridname
businessunit	businessunit	businessunitid	parentbusinessunitid
businessunit	businessunit	name	parentbusinessunitidname
businessunit	constraintbasedgroup	businessunitid	businessunitid
businessunit	constraintbasedgroup	name	businessunitidname
businessunit	equipment	businessunitid	businessunitid
businessunit	equipment	name	businessunitidname
businessunit	role	businessunitid	businessunitid
businessunit	role	name	businessunitidname
businessunit	systemuser	businessunitid	businessunitid
businessunit	systemuser	name	businessunitidname
businessunit	team	businessunitid	businessunitid
businessunit	team	name	businessunitidname
campaign	campaignactivity	campaignid	regardingobjectid
campaign	campaignactivity	name	regardingobjectidname
campaign	campaignactivity	transactioncurrencyid	transactioncurrencyid
campaign	campaignactivity	transactioncurrencyiddsc	transactioncurrencyiddsc

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
campaign	campaignactivity	transactioncurrencyidname	transactioncurrencyidname
campaign	campaignresponse	campaignid	regardingobjectid
campaign	campaignresponse	name	regardingobjectidname
campaign	lead	campaignid	campaignid
campaign	lead	name	campaignidname
campaign	opportunity	campaignid	campaignid
campaign	opportunity	name	campaignidname
campaign	quote	campaignid	campaignid
campaign	quote	name	campaignidname
campaign	salesorder	campaignid	campaignid
campaign	salesorder	name	campaignidname
campaignresponse	lead	emailaddress	emailaddress1
campaignresponse	lead	firstname	firstname
campaignresponse	lead	lastname	lastname
campaignresponse	lead	regardingobjectid	campaignid
campaignresponse	lead	regardingobjectiddsc	campaigniddsc
campaignresponse	lead	regardingobjectidname	campaignidname
campaignresponse	lead	telephone	telephone1
campaignresponse	lead	yomifirstname	yomifirstname
campaignresponse	lead	yomilastname	yomilastname
channelaccessprofilerule	channelaccessprofileruleitem	channelaccessprofileruleid	channelaccessprofileruleid
channelaccessprofilerule	channelaccessprofileruleitem	name	channelaccessprofileruleidname
channelpropertygroup	channelproperty	channelpropertygroupid	regardingobjectid
channelpropertygroup	channelproperty	name	regardingobjectidname
contact	contact	address1_addresstypecode	address1_addresstypecode
contact	contact	address1_city	address1_city
contact	contact	address1_country	address1_country

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
contact	contact	address1_county	address1_county
contact	contact	address1_freighttermscode	address1_freighttermscode
contact	contact	address1_line1	address1_line1
contact	contact	address1_line2	address1_line2
contact	contact	address1_line3	address1_line3
contact	contact	address1_name	address1_name
contact	contact	address1_postalcode	address1_postalcode
contact	contact	address1_postofficebox	address1_postofficebox
contact	contact	address1_shippingmethodcode	address1_shippingmethodcode
contact	contact	address1_stateorprovince	address1_stateorprovince
contact	contact	address1_telephone1	address1_telephone1
contact	contact	contactid	parentcustomerid
contact	contact	defaultpricelevelid	defaultpricelevelid
contact	contact	defaultpriceleveliddsc	defaultpriceleveliddsc
contact	contact	defaultpricelevelidname	defaultpricelevelidname
contact	contact	fax	fax
contact	contact	fullname	parentcustomeridname
contact	contact	mobilephone	mobilephone
contact	contact	telephone1	telephone1
contact	contact	telephone2	telephone2
contact	contact	transactioncurrencyid	transactioncurrencyid
contact	contact	transactioncurrencyiddsc	transactioncurrencyiddsc
contact	contact	transactioncurrencyidname	transactioncurrencyidname
contact	contract	contactid	customerid
contact	contract	fullname	customeridname
contact	contract	transactioncurrencyid	transactioncurrencyid
contact	contract	transactioncurrencyiddsc	transactioncurrencyiddsc

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
contact	contract	transactioncurrencyidname	transactioncurrencyidname
contact	customeropportunityrole	contactid	customerid
contact	customeropportunityrole	fullname	customeridname
contact	customerrelationship	contactid	customerid
contact	customerrelationship	fullname	customeridname
contact	entitlement	contactid	customerid
contact	entitlement	fullname	customeridname
contact	externalparty	emailaddress1	emailaddress
contact	externalparty	firstname	firstname
contact	externalparty	lastname	lastname
contact	incident	contactid	customerid
contact	incident	fullname	customeridname
contact	invoice	address1_shippingmethodcode	shippingmethodcode
contact	invoice	contactid	customerid
contact	invoice	defaultpricelevelid	pricelevelid
contact	invoice	defaultpriceleveliddsc	priceleveliddsc
contact	invoice	defaultpricelevelidname	pricelevelidname
contact	invoice	fullname	customeridname
contact	invoice	paymenttermscode	paymenttermscode
contact	invoice	transactioncurrencyid	transactioncurrencyid
contact	invoice	transactioncurrencyiddsc	transactioncurrencyiddsc
contact	invoice	transactioncurrencyidname	transactioncurrencyidname
contact	opportunity	accountid	accountid
contact	opportunity	accountiddsc	accountiddsc
contact	opportunity	accountidname	accountidname
contact	opportunity	contactid	customerid
contact	opportunity	contactid	parentcontactid
contact	opportunity	defaultpricelevelid	pricelevelid

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
contact	opportunity	defaultpriceleveliddsc	priceleveliddsc
contact	opportunity	defaultpricelevelidname	pricelevelidname
contact	opportunity	fullname	customeridname
contact	opportunity	fullname	parentcontactidname
contact	opportunity	parentcustomerid	parentaccountid
contact	opportunity	parentcustomeridname	parentaccountidname
contact	opportunity	transactioncurrencyid	transactioncurrencyid
contact	opportunity	transactioncurrencyiddsc	transactioncurrencyiddsc
contact	opportunity	transactioncurrencyidname	transactioncurrencyidname
contact	quote	address1_freighttermscode	freighttermscode
contact	quote	address1_shippingmethodcode	shippingmethodcode
contact	quote	contactid	customerid
contact	quote	defaultpricelevelid	pricelevelid
contact	quote	defaultpriceleveliddsc	priceleveliddsc
contact	quote	defaultpricelevelidname	pricelevelidname
contact	quote	fullname	customeridname
contact	quote	paymenttermscode	paymenttermscode
contact	quote	transactioncurrencyid	transactioncurrencyid
contact	quote	transactioncurrencyiddsc	transactioncurrencyiddsc
contact	quote	transactioncurrencyidname	transactioncurrencyidname
contact	salesorder	address1_freighttermscode	freighttermscode
contact	salesorder	address1_shippingmethodcode	shippingmethodcode
contact	salesorder	contactid	customerid
contact	salesorder	defaultpricelevelid	pricelevelid
contact	salesorder	defaultpriceleveliddsc	priceleveliddsc
contact	salesorder	defaultpricelevelidname	pricelevelidname

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
contact	salesorder	fullname	customeridname
contact	salesorder	paymenttermscode	paymenttermscode
contact	salesorder	transactioncurrencyid	transactioncurrencyid
contact	salesorder	transactioncurrencyiddsc	transactioncurrencyiddsc
contact	salesorder	transactioncurrencyidname	transactioncurrencyidname
contact	socialprofile	contactid	customerid
contact	socialprofile	fullname	customeridname
contract	contractdetail	accountid	accountid
contract	contractdetail	activeon	activeon
contract	contractdetail	contactid	contactid
contract	contractdetail	contractid	contractid
contract	contractdetail	customerid	customerid
contract	contractdetail	customeriddsc	customeriddsc
contract	contractdetail	customeridname	customeridname
contract	contractdetail	customeridtype	customeridtype
contract	contractdetail	effectivitycalendar	effectivitycalendar
contract	contractdetail	expireson	expireson
contract	contractdetail	serviceaddress	serviceaddress
contract	contractdetail	serviceaddressdsc	serviceaddressdsc
contract	contractdetail	serviceaddressname	serviceaddressname
contract	contractdetail	title	contractidname
contract	contractdetail	transactioncurrencyid	transactioncurrencyid
contract	contractdetail	transactioncurrencyiddsc	transactioncurrencyiddsc
contract	contractdetail	transactioncurrencyidname	transactioncurrencyidname
contract	incident	accountid	accountid
contract	incident	accountiddsc	accountiddsc
contract	incident	accountidname	accountidname
contract	incident	contactid	contactid

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
contract	incident	contactiddsc	contactiddsc
contract	incident	contactidname	contactidname
contract	incident	contractid	contractid
contract	incident	customerid	customerid
contract	incident	customeriddsc	customeriddsc
contract	incident	customeridname	customeridname
contract	incident	customeridtype	customeridtype
contract	incident	title	contractidname
contractdetail	incident	accountid	accountid
contractdetail	incident	contactid	contactid
contractdetail	incident	contractdetailid	contractdetailid
contractdetail	incident	contractid	contractid
contractdetail	incident	contractiddsc	contractiddsc
contractdetail	incident	contractidname	contractidname
contractdetail	incident	customerid	customerid
contractdetail	incident	customeriddsc	customeriddsc
contractdetail	incident	customeridname	customeridname
contractdetail	incident	customeridtype	customeridtype
contractdetail	incident	productid	productid
contractdetail	incident	productiddsc	productiddsc
contractdetail	incident	productidname	productidname
contractdetail	incident	productserialnumber	productserialnumber
contractdetail	incident	title	contractdetailidname
contracttemplate	contract	allotmenttypecode	allotmenttypecode
contracttemplate	contract	billingfrequencycode	billingfrequencycode
contracttemplate	contract	contractservicelevelcode	contractservicelevelcode
contracttemplate	contract	contracttemplateid	contracttemplateid
contracttemplate	contract	name	contracttemplateidname
contracttemplate	contract	usediscountaspercentage	usediscountaspercentage
convertrule	channelpropertygroup	sourcechanneltypecode	regardingtypecode

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
convertrule	convertruleitem	convertruleid	convertruleid
convertrule	convertruleitem	name	convertruleidname
convertrule	convertruleitem	queueid	queueid
convertrule	convertruleitem	queueidname	queueidname
discounttype	discount	discounttypeid	discounttypeid
discounttype	discount	name	discounttypeidname
discounttype	discount	transactioncurrencyid	transactioncurrencyid
discounttype	discount	transactioncurrencyiddsc	transactioncurrencyiddsc
discounttype	discount	transactioncurrencyidname	transactioncurrencyidname
emailserverprofile	mailbox	emailserverprofileid	emailserverprofile
emailserverprofile	mailbox	name	emailserverprofilename
entitlement	entitlementchannel	entitlementid	entitlementid
entitlement	entitlementchannel	name	entitlementidname
entitlement	incident	accountid	accountid
entitlement	incident	accountidname	accountidname
entitlement	incident	contactid	contactid
entitlement	incident	contactidname	contactidname
entitlement	incident	customerid	customerid
entitlement	incident	customeridname	customeridname
entitlement	incident	customeridtype	customeridtype
entitlement	incident	entitlementid	entitlementid
entitlement	incident	name	entitlementidname
entitlementtemplate	entitlement	allocationtypecode	allocationtypecode
entitlementtemplate	entitlement	decreaseremainingon	decreaseremainingon
entitlementtemplate	entitlement	description	description
entitlementtemplate	entitlement	enddate	enddate
entitlementtemplate	entitlement	entitlementtemplateid	entitlementtemplateid
entitlementtemplate	entitlement	name	entitlementtemplateidname
entitlementtemplate	entitlement	restrictcasecreation	restrictcasecreation

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
entitlementtemplate	entitlement	slaid	slaid
entitlementtemplate	entitlement	slaidname	slaidname
entitlementtemplate	entitlement	startdate	startdate
entitlementtemplate	entitlement	totalterms	totalterms
entitlementtemplate	entitlementtemplatechannel	entitlementtemplateid	entitlementtemplateid
entitlementtemplate	entitlementtemplatechannel	name	entitlementtemplateidname
entitlementtemplatechannel	entitlementchannel	channel	channel
entitlementtemplatechannel	entitlementchannel	totalterms	totalterms
equipment	account	equipmentid	preferredequipmentid
equipment	account	name	preferredequipmentidname
equipment	contact	equipmentid	preferredequipmentid
equipment	contact	name	preferredequipmentidname
externalparty	externalpartyitem	externalpartyid	externalpartyid
externalparty	externalpartyitem	fullname	externalpartyidname
goal	goal	fiscalperiod	fiscalperiod
goal	goal	fiscalyear	fiscalyear
goal	goal	goalenddate	goalenddate
goal	goal	goalid	parentgoalid
goal	goal	goalstartdate	goalstartdate
goal	goal	isfiscalperiodgoal	isfiscalperiodgoal
goal	goal	metricid	metricid
goal	goal	metricidname	metricidname
goal	goal	title	parentgoalidname
incident	incident	accountid	accountid
incident	incident	accountiddsc	accountiddsc
incident	incident	accountidname	accountidname
incident	incident	contactid	contactid

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
incident	incident	contactiddsc	contactiddsc
incident	incident	contactidname	contactidname
incident	incident	customerid	customerid
incident	incident	customeriddsc	customeriddsc
incident	incident	customeridname	customeridname
incident	incident	customeridtype	customeridtype
incident	incident	incidentid	masterid
incident	incident	incidentid	parentcaseid
incident	incident	title	masteridname
incident	incident	title	parentcaseidname
incident	incident	title	title
incident	lead	accountid	accountid
incident	lead	accountiddsc	accountiddsc
incident	lead	accountidname	accountidname
incident	lead	contactid	contactid
incident	lead	contactiddsc	contactiddsc
incident	lead	contactidname	contactidname
incident	lead	customerid	customerid
incident	lead	customeriddsc	customeriddsc
incident	lead	customeridname	customeridname
incident	lead	customeridtype	customeridtype
incident	lead	title	subject
invoice	invoicedetail	invoiceid	invoiceid
invoice	invoicedetail	shipto_city	shipto_city
invoice	invoicedetail	shipto_country	shipto_country
invoice	invoicedetail	shipto_fax	shipto_fax
invoice	invoicedetail	shipto_freighttermscode	shipto_freighttermscode
invoice	invoicedetail	shipto_line1	shipto_line1
invoice	invoicedetail	shipto_line2	shipto_line2
invoice	invoicedetail	shipto_line3	shipto_line3
invoice	invoicedetail	shipto_name	shipto_name

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
invoice	invoicedetail	shipto_postalcode	shipto_postalcode
invoice	invoicedetail	shipto_stateorprovince	shipto_stateorprovince
invoice	invoicedetail	shipto_telephone	shipto_telephone
invoice	invoicedetail	transactioncurrencyid	transactioncurrencyid
invoice	invoicedetail	transactioncurrencyiddsc	transactioncurrencyiddsc
invoice	invoicedetail	transactioncurrencyidname	transactioncurrencyidname
invoice	invoicedetail	willcall	willcall
knowledgesearchmodel	textanalyticsentitymapping	knowledgesearchmodelid	knowledgesearchmodelid
knowledgesearchmodel	textanalyticsentitymapping	name	knowledgesearchmodelidname
lead	account	address1_city	address1_city
lead	account	address1_country	address1_country
lead	account	address1_line1	address1_line1
lead	account	address1_line2	address1_line2
lead	account	address1_line3	address1_line3
lead	account	address1_postalcode	address1_postalcode
lead	account	address1_stateorprovince	address1_stateorprovince
lead	account	companyname	name
lead	account	description	description
lead	account	donotbulkemail	donotbulkemail
lead	account	donotemail	donotemail
lead	account	donotfax	donotfax
lead	account	donotphone	donotphone
lead	account	donotpostalmail	donotpostalmail
lead	account	donotsendmm	donotsendmm
lead	account	emailaddress1	emailaddress1
lead	account	fax	fax
lead	account	fullname	originatingleadidname
lead	account	industrycode	industrycode

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
lead	account	leadid	originatingleadid
lead	account	numberofemployees	numberofemployees
lead	account	ownerid	ownerid
lead	account	owneriddsc	owneriddsc
lead	account	owneridname	owneridname
lead	account	owneridtype	owneridtype
lead	account	preferredcontactmethod code	preferredcontactmethod code
lead	account	revenue	revenue
lead	account	sic	sic
lead	account	telephone1	telephone1
lead	account	telephone3	telephone2
lead	account	transactioncurrencyid	transactioncurrencyid
lead	account	transactioncurrencyiddsc	transactioncurrencyiddsc
lead	account	transactioncurrencyidname	transactioncurrencyidname
lead	account	websiteurl	websiteurl
lead	account	yomicompanyname	yominame
lead	contact	address1_city	address1_city
lead	contact	address1_country	address1_country
lead	contact	address1_line1	address1_line1
lead	contact	address1_line2	address1_line2
lead	contact	address1_line3	address1_line3
lead	contact	address1_name	address1_name
lead	contact	address1_postalcode	address1_postalcode
lead	contact	address1_stateorprovince	address1_stateorprovince
lead	contact	address2_country	address2_country
lead	contact	address2_county	address2_county
lead	contact	address2_fax	address2_fax
lead	contact	address2_latitude	address2_latitude

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
lead	contact	description	description
lead	contact	donotbulkemail	donotbulkemail
lead	contact	donotemail	donotemail
lead	contact	donotfax	donotfax
lead	contact	donotphone	donotphone
lead	contact	donotpostalmail	donotpostalmail
lead	contact	donotsendmm	donotsendmm
lead	contact	emailaddress1	emailaddress1
lead	contact	emailaddress2	emailaddress2
lead	contact	emailaddress3	emailaddress3
lead	contact	fax	fax
lead	contact	firstname	firstname
lead	contact	fullname	originatingleadidname
lead	contact	isprivate	isprivate
lead	contact	jobtitle	jobtitle
lead	contact	lastname	lastname
lead	contact	leadid	originatingleadid
lead	contact	leadsourcecode	leadsourcecode
lead	contact	mobilephone	mobilephone
lead	contact	ownerid	ownerid
lead	contact	owneriddsc	owneriddsc
lead	contact	owneridname	owneridname
lead	contact	owneridtype	owneridtype
lead	contact	pager	pager
lead	contact	preferredcontactmethodcode	preferredcontactmethodcode
lead	contact	salutation	salutation
lead	contact	telephone1	telephone1
lead	contact	telephone2	telephone2
lead	contact	telephone3	telephone3
lead	contact	transactioncurrencyid	transactioncurrencyid

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
lead	contact	transactioncurrencyiddsc	transactioncurrencyiddsc
lead	contact	transactioncurrencyidname	transactioncurrencyidname
lead	contact	websiteurl	websiteurl
lead	contact	yomifirstname	yomifirstname
lead	contact	yomilastname	yomilastname
lead	contact	yomimiddlename	yomimiddlename
lead	opportunity	budgetamount	budgetamount
lead	opportunity	budgetstatus	budgetstatus
lead	opportunity	campaignid	campaignid
lead	opportunity	campaigniddsc	campaigniddsc
lead	opportunity	campaignidname	campaignidname
lead	opportunity	decisionmaker	decisionmaker
lead	opportunity	description	description
lead	opportunity	fullname	originatingleadidname
lead	opportunity	initialcommunication	initialcommunication
lead	opportunity	leadid	originatingleadid
lead	opportunity	leadqualitycode	opportunityratingcode
lead	opportunity	need	need
lead	opportunity	ownerid	ownerid
lead	opportunity	owneriddsc	owneriddsc
lead	opportunity	owneridname	owneridname
lead	opportunity	owneridtype	owneridtype
lead	opportunity	parentaccountid	parentaccountid
lead	opportunity	parentaccountidname	parentaccountidname
lead	opportunity	parentcontactid	parentcontactid
lead	opportunity	parentcontactidname	parentcontactidname
lead	opportunity	prioritycode	prioritycode
lead	opportunity	purchaseprocess	purchaseprocess
lead	opportunity	purchasetimeframe	purchasetimeframe
lead	opportunity	qualificationcomments	qualificationcomments

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
lead	opportunity	subject	name
lead	opportunity	transactioncurrencyid	transactioncurrencyid
lead	opportunity	transactioncurrencyiddsc	transactioncurrencyiddsc
lead	opportunity	transactioncurrencyidname	transactioncurrencyidname
metric	rollupfield	metricid	metricid
metric	rollupfield	name	metricidname
mobileofflineprofile	mobileofflineprofileitem	mobileofflineprofileid	regardingobjectid
mobileofflineprofile	mobileofflineprofileitem	name	regardingobjectidname
mobileofflineprofile	systemuser	mobileofflineprofileid	mobileofflineprofileid
mobileofflineprofile	systemuser	name	mobileofflineprofileidname
mobileofflineprofileitem	mobileofflineprofileitemassociation	mobileofflineprofileitemid	mobileofflineprofileitemid
mobileofflineprofileitem	mobileofflineprofileitemassociation	name	mobileofflineprofileitemidname
mobileofflineprofileitem	mobileofflineprofileitemassociation	relationshipdata	relationshipdata
msdyn_postconfig	msdyn_postruleconfig	msdyn_entitydisplayname	msdyn_postconfigidname
msdyn_postconfig	msdyn_postruleconfig	msdyn_postconfigid	msdyn_postconfigid
msdyn_postconfig	msdyn_wallsavedquery	msdyn_entitydisplayname	msdyn_postconfigurationidname
msdyn_postconfig	msdyn_wallsavedquery	msdyn_postconfigid	msdyn_postconfigurationid
msdyn_wallsavedquery	msdyn_wallsavedqueryusersettings	msdyn_entityname	msdyn_wallsavedqueryidname
msdyn_wallsavedquery	msdyn_wallsavedqueryusersettings	msdyn_wallsavedqueryid	msdyn_wallsavedqueryid
opportunity	customeropportunityrole	name	opportunityidname
opportunity	customeropportunityrole	opportunityid	opportunityid
opportunity	invoice	accountid	accountid
opportunity	invoice	accountiddsc	accountiddsc
opportunity	invoice	accountidname	accountidname

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
opportunity	invoice	contactid	contactid
opportunity	invoice	contactiddsc	contactiddsc
opportunity	invoice	contactidname	contactidname
opportunity	invoice	customerid	customerid
opportunity	invoice	customeriddsc	customeriddsc
opportunity	invoice	customeridname	customeridname
opportunity	invoice	customeridtype	customeridtype
opportunity	invoice	discountamount	discountamount
opportunity	invoice	discountpercentage	discountpercentage
opportunity	invoice	freightamount	freightamount
opportunity	invoice	name	opportunityidname
opportunity	invoice	name	name
opportunity	invoice	opportunityid	opportunityid
opportunity	invoice	pricelevelid	pricelevelid
opportunity	invoice	priceleveliddsc	priceleveliddsc
opportunity	invoice	pricelevelidname	pricelevelidname
opportunity	invoice	totalamount	totalamount
opportunity	invoice	totalamountlessfreight	totalamountlessfreight
opportunity	invoice	totaldiscountamount	totaldiscountamount
opportunity	invoice	totallineitemamount	totallineitemamount
opportunity	invoice	totallineitemdiscountamount	totallineitemdiscountamount
opportunity	invoice	totaltax	totaltax
opportunity	invoice	transactioncurrencyid	transactioncurrencyid
opportunity	invoice	transactioncurrencyiddsc	transactioncurrencyiddsc
opportunity	invoice	transactioncurrencyidname	transactioncurrencyidname
opportunity	opportunityproduct	name	opportunityidname
opportunity	opportunityproduct	opportunityid	opportunityid
opportunity	opportunityproduct	transactioncurrencyid	transactioncurrencyid
opportunity	opportunityproduct	transactioncurrencyidds	transactioncurrencyiddsc

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
		c	
opportunity	opportunityproduct	transactioncurrencyidname	transactioncurrencyidname
opportunity	quote	accountid	accountid
opportunity	quote	accountiddsc	accountiddsc
opportunity	quote	accountidname	accountidname
opportunity	quote	campaignid	campaignid
opportunity	quote	campaigniddsc	campaigniddsc
opportunity	quote	campaignidname	campaignidname
opportunity	quote	contactid	contactid
opportunity	quote	contactiddsc	contactiddsc
opportunity	quote	contactidname	contactidname
opportunity	quote	customerid	customerid
opportunity	quote	customeriddsc	customeriddsc
opportunity	quote	customeridname	customeridname
opportunity	quote	customeridtype	customeridtype
opportunity	quote	discountamount	discountamount
opportunity	quote	discountpercentage	discountpercentage
opportunity	quote	freightamount	freightamount
opportunity	quote	name	name
opportunity	quote	name	opportunityidname
opportunity	quote	opportunityid	opportunityid
opportunity	quote	pricelevelid	pricelevelid
opportunity	quote	priceleveliddsc	priceleveliddsc
opportunity	quote	pricelevelidname	pricelevelidname
opportunity	quote	totalamount	totalamount
opportunity	quote	totalamountlessfreight	totalamountlessfreight
opportunity	quote	totaldiscountamount	totaldiscountamount
opportunity	quote	totallineitemamount	totallineitemamount
opportunity	quote	totallineitemdiscountamount	totallineitemdiscountamount
opportunity	quote	totaltax	totaltax

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
opportunity	quote	transactioncurrencyid	transactioncurrencyid
opportunity	quote	transactioncurrencyiddsc	transactioncurrencyiddsc
opportunity	quote	transactioncurrencyidname	transactioncurrencyidname
opportunity	salesorder	accountid	accountid
opportunity	salesorder	accountiddsc	accountiddsc
opportunity	salesorder	accountidname	accountidname
opportunity	salesorder	campaignid	campaignid
opportunity	salesorder	campaigniddsc	campaigniddsc
opportunity	salesorder	campaignidname	campaignidname
opportunity	salesorder	contactid	contactid
opportunity	salesorder	contactiddsc	contactiddsc
opportunity	salesorder	contactidname	contactidname
opportunity	salesorder	customerid	customerid
opportunity	salesorder	customeriddsc	customeriddsc
opportunity	salesorder	customeridname	customeridname
opportunity	salesorder	customeridtype	customeridtype
opportunity	salesorder	discountamount	discountamount
opportunity	salesorder	discountpercentage	discountpercentage
opportunity	salesorder	freightamount	freightamount
opportunity	salesorder	name	opportunityidname
opportunity	salesorder	name	name
opportunity	salesorder	opportunityid	opportunityid
opportunity	salesorder	pricelevelid	pricelevelid
opportunity	salesorder	priceleveliddsc	priceleveliddsc
opportunity	salesorder	pricelevelidname	pricelevelidname
opportunity	salesorder	totalamount	totalamount
opportunity	salesorder	totalamountlessfreight	totalamountlessfreight
opportunity	salesorder	totaldiscountamount	totaldiscountamount
opportunity	salesorder	totallineitemamount	totallineitemamount
opportunity	salesorder	totallineitemdiscountam	totallineitemdiscountamo

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
		ount	unt
opportunity	salesorder	totaltax	totaltax
opportunity	salesorder	transactioncurrencyid	transactioncurrencyid
opportunity	salesorder	transactioncurrencyiddsc	transactioncurrencyiddsc
opportunity	salesorder	transactioncurrencyidname	transactioncurrencyidname
opportunityproduct	invoicedetail	baseamount	baseamount
opportunityproduct	invoicedetail	description	description
opportunityproduct	invoicedetail	extendedamount	extendedamount
opportunityproduct	invoicedetail	ispriceoverridden	ispriceoverridden
opportunityproduct	invoicedetail	isproductoverridden	isproductoverridden
opportunityproduct	invoicedetail	lineitemnumber	lineitemnumber
opportunityproduct	invoicedetail	manualdiscountamount	manualdiscountamount
opportunityproduct	invoicedetail	priceperunit	priceperunit
opportunityproduct	invoicedetail	pricingerrorcode	pricingerrorcode
opportunityproduct	invoicedetail	productdescription	productdescription
opportunityproduct	invoicedetail	productid	productid
opportunityproduct	invoicedetail	productiddsc	productiddsc
opportunityproduct	invoicedetail	productidname	productidname
opportunityproduct	invoicedetail	producttypecode	producttypecode
opportunityproduct	invoicedetail	quantity	quantity
opportunityproduct	invoicedetail	tax	tax
opportunityproduct	invoicedetail	transactioncurrencyid	transactioncurrencyid
opportunityproduct	invoicedetail	transactioncurrencyiddsc	transactioncurrencyiddsc
opportunityproduct	invoicedetail	transactioncurrencyidname	transactioncurrencyidname
opportunityproduct	invoicedetail	uomid	uomid
opportunityproduct	invoicedetail	uomiddsc	uomiddsc
opportunityproduct	invoicedetail	uomidname	uomidname
opportunityproduct	invoicedetail	volumediscountamount	volumediscountamount
opportunityproduct	quotedetail	baseamount	baseamount

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
opportunityproduct	quotedetail	description	description
opportunityproduct	quotedetail	extendedamount	extendedamount
opportunityproduct	quotedetail	ispriceoverridden	ispriceoverridden
opportunityproduct	quotedetail	isproductoverridden	isproductoverridden
opportunityproduct	quotedetail	lineitemnumber	lineitemnumber
opportunityproduct	quotedetail	manualdiscountamount	manualdiscountamount
opportunityproduct	quotedetail	priceperunit	priceperunit
opportunityproduct	quotedetail	pricingerrorcode	pricingerrorcode
opportunityproduct	quotedetail	productdescription	productdescription
opportunityproduct	quotedetail	productid	productid
opportunityproduct	quotedetail	productiddsc	productiddsc
opportunityproduct	quotedetail	productidname	productidname
opportunityproduct	quotedetail	producttypecode	producttypecode
opportunityproduct	quotedetail	quantity	quantity
opportunityproduct	quotedetail	tax	tax
opportunityproduct	quotedetail	transactioncurrencyid	transactioncurrencyid
opportunityproduct	quotedetail	transactioncurrencyiddsc	transactioncurrencyiddsc
opportunityproduct	quotedetail	transactioncurrencyidname	transactioncurrencyidname
opportunityproduct	quotedetail	uomid	uomid
opportunityproduct	quotedetail	uomiddsc	uomiddsc
opportunityproduct	quotedetail	uomidname	uomidname
opportunityproduct	quotedetail	volumediscountamount	volumediscountamount
opportunityproduct	salesorderdetail	baseamount	baseamount
opportunityproduct	salesorderdetail	description	description
opportunityproduct	salesorderdetail	extendedamount	extendedamount
opportunityproduct	salesorderdetail	ispriceoverridden	ispriceoverridden
opportunityproduct	salesorderdetail	isproductoverridden	isproductoverridden
opportunityproduct	salesorderdetail	lineitemnumber	lineitemnumber
opportunityproduct	salesorderdetail	manualdiscountamount	manualdiscountamount
opportunityproduct	salesorderdetail	priceperunit	priceperunit

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
opportunityproduct	salesorderdetail	pricingerrorcode	pricingerrorcode
opportunityproduct	salesorderdetail	productdescription	productdescription
opportunityproduct	salesorderdetail	productid	productid
opportunityproduct	salesorderdetail	productiddsc	productiddsc
opportunityproduct	salesorderdetail	productidname	productidname
opportunityproduct	salesorderdetail	producttypecode	producttypecode
opportunityproduct	salesorderdetail	quantity	quantity
opportunityproduct	salesorderdetail	tax	tax
opportunityproduct	salesorderdetail	transactioncurrencyid	transactioncurrencyid
opportunityproduct	salesorderdetail	transactioncurrencyiddsc	transactioncurrencyiddsc
opportunityproduct	salesorderdetail	transactioncurrencyidname	transactioncurrencyidname
opportunityproduct	salesorderdetail	uomid	uomid
opportunityproduct	salesorderdetail	uomiddsc	uomiddsc
opportunityproduct	salesorderdetail	uomidname	uomidname
opportunityproduct	salesorderdetail	volumediscountamount	volumediscountamount
pricelevel	productpricelevel	name	pricelevelidname
pricelevel	productpricelevel	pricelevelid	pricelevelid
pricelevel	productpricelevel	transactioncurrencyid	transactioncurrencyid
pricelevel	productpricelevel	transactioncurrencyiddsc	transactioncurrencyiddsc
pricelevel	productpricelevel	transactioncurrencyidname	transactioncurrencyidname
product	dynamicproperty	name	regardingobjectidname
product	dynamicproperty	productid	regardingobjectid
product	product	defaultuomid	defaultuomid
product	product	defaultuomiddsc	defaultuomiddsc
product	product	defaultuomidname	defaultuomidname
product	product	defaultuomscheduleid	defaultuomscheduleid
product	product	defaultuomscheduleiddsc	defaultuomscheduleiddsc
product	product	defaultuomscheduleidn	defaultuomscheduleidna

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
		ame	me
product	product	name	parentproductidname
product	product	productid	parentproductid
product	product	quantitydecimal	quantitydecimal
product	productassociation	defaultuomid	uomid
product	productassociation	defaultuomidname	uomidname
product	productassociation	name	productidname
product	productassociation	productid	productid
product	productpricelevel	defaultuomid	uomid
product	productpricelevel	defaultuomiddsc	uomiddsc
product	productpricelevel	defaultuomidname	uomidname
product	productpricelevel	defaultuomscheduleid	uomscheduleid
product	productpricelevel	defaultuomscheduleiddsc	uomscheduleiddsc
product	productpricelevel	defaultuomscheduleidname	uomscheduleidname
product	productpricelevel	name	productidname
product	productpricelevel	productid	productid
product	productsubstitute	name	productidname
product	productsubstitute	productid	productid
queue	convertrule	name	queueidname
queue	convertrule	queueid	queueid
quote	quotedetail	quoteid	quoteid
quote	quotedetail	shipto_addressid	shipto_addressid
quote	quotedetail	shipto_city	shipto_city
quote	quotedetail	shipto_contactname	shipto_contactname
quote	quotedetail	shipto_country	shipto_country
quote	quotedetail	shipto_fax	shipto_fax
quote	quotedetail	shipto_freighttermscode	shipto_freighttermscode
quote	quotedetail	shipto_line1	shipto_line1
quote	quotedetail	shipto_line2	shipto_line2
quote	quotedetail	shipto_line3	shipto_line3

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
quote	quotedetail	shipto_name	shipto_name
quote	quotedetail	shipto_postalcode	shipto_postalcode
quote	quotedetail	shipto_stateorprovince	shipto_stateorprovince
quote	quotedetail	shipto_telephone	shipto_telephone
quote	quotedetail	transactioncurrencyid	transactioncurrencyid
quote	quotedetail	transactioncurrencyiddsc	transactioncurrencyiddsc
quote	quotedetail	transactioncurrencyidname	transactioncurrencyidname
quote	quotedetail	willcall	willcall
quote	salesorder	accountid	accountid
quote	salesorder	accountiddsc	accountiddsc
quote	salesorder	accountidname	accountidname
quote	salesorder	billto_addressid	billto_addressid
quote	salesorder	billto_city	billto_city
quote	salesorder	billto_contactname	billto_contactname
quote	salesorder	billto_country	billto_country
quote	salesorder	billto_fax	billto_fax
quote	salesorder	billto_line1	billto_line1
quote	salesorder	billto_line2	billto_line2
quote	salesorder	billto_line3	billto_line3
quote	salesorder	billto_name	billto_name
quote	salesorder	billto_postalcode	billto_postalcode
quote	salesorder	billto_stateorprovince	billto_stateorprovince
quote	salesorder	billto_telephone	billto_telephone
quote	salesorder	campaignid	campaignid
quote	salesorder	campaigniddsc	campaigniddsc
quote	salesorder	campaignidname	campaignidname
quote	salesorder	contactid	contactid
quote	salesorder	contactiddsc	contactiddsc
quote	salesorder	contactidname	contactidname
quote	salesorder	customerid	customerid

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
quote	salesorder	customeriddsc	customeriddsc
quote	salesorder	customeridname	customeridname
quote	salesorder	customeridtype	customeridtype
quote	salesorder	description	description
quote	salesorder	discountamount	discountamount
quote	salesorder	discountpercentage	discountpercentage
quote	salesorder	freightamount	freightamount
quote	salesorder	freighttermscode	freighttermscode
quote	salesorder	name	name
quote	salesorder	name	quoteidname
quote	salesorder	opportunityid	opportunityid
quote	salesorder	opportunityiddsc	opportunityiddsc
quote	salesorder	opportunityidname	opportunityidname
quote	salesorder	paymenttermscode	paymenttermscode
quote	salesorder	pricelevelid	pricelevelid
quote	salesorder	priceleveliddsc	priceleveliddsc
quote	salesorder	pricelevelidname	pricelevelidname
quote	salesorder	pricingerrorcode	pricingerrorcode
quote	salesorder	quoteid	quoteid
quote	salesorder	requestdeliveryby	requestdeliveryby
quote	salesorder	shippingmethodcode	shippingmethodcode
quote	salesorder	shipto_addressid	shipto_addressid
quote	salesorder	shipto_city	shipto_city
quote	salesorder	shipto_contactname	shipto_contactname
quote	salesorder	shipto_country	shipto_country
quote	salesorder	shipto_fax	shipto_fax
quote	salesorder	shipto_line1	shipto_line1
quote	salesorder	shipto_line2	shipto_line2
quote	salesorder	shipto_line3	shipto_line3
quote	salesorder	shipto_name	shipto_name
quote	salesorder	shipto_postalcode	shipto_postalcode

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
quote	salesorder	shipto_stateorprovince	shipto_stateorprovince
quote	salesorder	shipto_telephone	shipto_telephone
quote	salesorder	totalamount	totalamount
quote	salesorder	totalamountlessfreight	totalamountlessfreight
quote	salesorder	totaldiscountamount	totaldiscountamount
quote	salesorder	totallineitemamount	totallineitemamount
quote	salesorder	totallineitemdiscountamount	totallineitemdiscountamount
quote	salesorder	totaltax	totaltax
quote	salesorder	transactioncurrencyid	transactioncurrencyid
quote	salesorder	transactioncurrencyiddsc	transactioncurrencyiddsc
quote	salesorder	transactioncurrencyidname	transactioncurrencyidname
quote	salesorder	willcall	willcall
quotedetail	salesorderdetail	baseamount	baseamount
quotedetail	salesorderdetail	description	description
quotedetail	salesorderdetail	extendedamount	extendedamount
quotedetail	salesorderdetail	ispriceoverridden	ispriceoverridden
quotedetail	salesorderdetail	isproductoverridden	isproductoverridden
quotedetail	salesorderdetail	lineitemnumber	lineitemnumber
quotedetail	salesorderdetail	manualdiscountamount	manualdiscountamount
quotedetail	salesorderdetail	priceperunit	priceperunit
quotedetail	salesorderdetail	pricingerrorcode	pricingerrorcode
quotedetail	salesorderdetail	productdescription	productdescription
quotedetail	salesorderdetail	productid	productid
quotedetail	salesorderdetail	productiddsc	productiddsc
quotedetail	salesorderdetail	productidname	productidname
quotedetail	salesorderdetail	producttypecode	producttypecode
quotedetail	salesorderdetail	quantity	quantity
quotedetail	salesorderdetail	requestdeliveryby	requestdeliveryby
quotedetail	salesorderdetail	salesrepid	salesrepid

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
quotedetail	salesorderdetail	salesrepiddsc	salesrepiddsc
quotedetail	salesorderdetail	salesrepidname	salesrepidname
quotedetail	salesorderdetail	shipto_addressid	shipto_addressid
quotedetail	salesorderdetail	shipto_city	shipto_city
quotedetail	salesorderdetail	shipto_contactname	shipto_contactname
quotedetail	salesorderdetail	shipto_country	shipto_country
quotedetail	salesorderdetail	shipto_fax	shipto_fax
quotedetail	salesorderdetail	shipto_freighttermscode	shipto_freighttermscode
quotedetail	salesorderdetail	shipto_line1	shipto_line1
quotedetail	salesorderdetail	shipto_line2	shipto_line2
quotedetail	salesorderdetail	shipto_line3	shipto_line3
quotedetail	salesorderdetail	shipto_name	shipto_name
quotedetail	salesorderdetail	shipto_postalcode	shipto_postalcode
quotedetail	salesorderdetail	shipto_stateorprovince	shipto_stateorprovince
quotedetail	salesorderdetail	shipto_telephone	shipto_telephone
quotedetail	salesorderdetail	tax	tax
quotedetail	salesorderdetail	transactioncurrencyid	transactioncurrencyid
quotedetail	salesorderdetail	transactioncurrencyiddsc	transactioncurrencyiddsc
quotedetail	salesorderdetail	transactioncurrencyidname	transactioncurrencyidname
quotedetail	salesorderdetail	uomid	uomid
quotedetail	salesorderdetail	uomiddsc	uomiddsc
quotedetail	salesorderdetail	uomidname	uomidname
quotedetail	salesorderdetail	volumediscountamount	volumediscountamount
quotedetail	salesorderdetail	willcall	willcall
recommendationmodel	recommendationmodelmapping	name	recommendationmodelidname
recommendationmodel	recommendationmodelmapping	recommendationmodelid	recommendationmodelid
recommendationmodel	recommendationmodelversion	name	recommendationmodelidname
recommendationmod	recommendationmodelvers	recommendationmodeli	recommendationmodelid

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
el	ion	d	
routingrule	routingruleitem	name	routingruleidname
routingrule	routingruleitem	routingruleid	routingruleid
salesorder	invoice	accountid	accountid
salesorder	invoice	accountiddsc	accountiddsc
salesorder	invoice	accountidname	accountidname
salesorder	invoice	billto_city	billto_city
salesorder	invoice	billto_country	billto_country
salesorder	invoice	billto_fax	billto_fax
salesorder	invoice	billto_line1	billto_line1
salesorder	invoice	billto_line2	billto_line2
salesorder	invoice	billto_line3	billto_line3
salesorder	invoice	billto_name	billto_name
salesorder	invoice	billto_postalcode	billto_postalcode
salesorder	invoice	billto_stateorprovince	billto_stateorprovince
salesorder	invoice	billto_telephone	billto_telephone
salesorder	invoice	contactid	contactid
salesorder	invoice	contactiddsc	contactiddsc
salesorder	invoice	contactidname	contactidname
salesorder	invoice	customerid	customerid
salesorder	invoice	customeriddsc	customeriddsc
salesorder	invoice	customeridname	customeridname
salesorder	invoice	customeridtype	customeridtype
salesorder	invoice	description	description
salesorder	invoice	discountamount	discountamount
salesorder	invoice	discountpercentage	discountpercentage
salesorder	invoice	freightamount	freightamount
salesorder	invoice	name	salesorderidname
salesorder	invoice	name	name
salesorder	invoice	opportunityid	opportunityid
salesorder	invoice	opportunityiddsc	opportunityiddsc

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
salesorder	invoice	opportunityidname	opportunityidname
salesorder	invoice	paymenttermscode	paymenttermscode
salesorder	invoice	pricelevelid	pricelevelid
salesorder	invoice	priceleveliddsc	priceleveliddsc
salesorder	invoice	pricelevelidname	pricelevelidname
salesorder	invoice	prioritycode	prioritycode
salesorder	invoice	salesorderid	salesorderid
salesorder	invoice	shippingmethodcode	shippingmethodcode
salesorder	invoice	shipto_city	shipto_city
salesorder	invoice	shipto_country	shipto_country
salesorder	invoice	shipto_fax	shipto_fax
salesorder	invoice	shipto_line1	shipto_line1
salesorder	invoice	shipto_line2	shipto_line2
salesorder	invoice	shipto_line3	shipto_line3
salesorder	invoice	shipto_name	shipto_name
salesorder	invoice	shipto_postalcode	shipto_postalcode
salesorder	invoice	shipto_stateorprovince	shipto_stateorprovince
salesorder	invoice	shipto_telephone	shipto_telephone
salesorder	invoice	totalamount	totalamount
salesorder	invoice	totalamountlessfreight	totalamountlessfreight
salesorder	invoice	totaldiscountamount	totaldiscountamount
salesorder	invoice	totallineitemamount	totallineitemamount
salesorder	invoice	totallineitemdiscountamount	totallineitemdiscountamount
salesorder	invoice	totaltax	totaltax
salesorder	invoice	transactioncurrencyid	transactioncurrencyid
salesorder	invoice	transactioncurrencyiddsc	transactioncurrencyiddsc
salesorder	invoice	transactioncurrencyidname	transactioncurrencyidname
salesorder	invoice	willcall	willcall
salesorder	salesorderdetail	salesorderid	salesorderid

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
salesorder	salesorderdetail	shipto_addressid	shipto_addressid
salesorder	salesorderdetail	shipto_city	shipto_city
salesorder	salesorderdetail	shipto_contactname	shipto_contactname
salesorder	salesorderdetail	shipto_country	shipto_country
salesorder	salesorderdetail	shipto_fax	shipto_fax
salesorder	salesorderdetail	shipto_freighttermscode	shipto_freighttermscode
salesorder	salesorderdetail	shipto_line1	shipto_line1
salesorder	salesorderdetail	shipto_line2	shipto_line2
salesorder	salesorderdetail	shipto_line3	shipto_line3
salesorder	salesorderdetail	shipto_name	shipto_name
salesorder	salesorderdetail	shipto_postalcode	shipto_postalcode
salesorder	salesorderdetail	shipto_stateorprovince	shipto_stateorprovince
salesorder	salesorderdetail	shipto_telephone	shipto_telephone
salesorder	salesorderdetail	transactioncurrencyid	transactioncurrencyid
salesorder	salesorderdetail	transactioncurrencyiddsc	transactioncurrencyiddsc
salesorder	salesorderdetail	transactioncurrencyidname	transactioncurrencyidname
salesorder	salesorderdetail	willcall	willcall
salesorderdetail	invoicedetail	baseamount	baseamount
salesorderdetail	invoicedetail	description	description
salesorderdetail	invoicedetail	extendedamount	extendedamount
salesorderdetail	invoicedetail	iscopied	iscopied
salesorderdetail	invoicedetail	ispriceoverridden	ispriceoverridden
salesorderdetail	invoicedetail	isproductoverridden	isproductoverridden
salesorderdetail	invoicedetail	lineitemnumber	lineitemnumber
salesorderdetail	invoicedetail	manualdiscountamount	manualdiscountamount
salesorderdetail	invoicedetail	priceperunit	priceperunit
salesorderdetail	invoicedetail	productdescription	productdescription
salesorderdetail	invoicedetail	productid	productid
salesorderdetail	invoicedetail	productiddsc	productiddsc
salesorderdetail	invoicedetail	productidname	productidname

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
salesorderdetail	invoicedetail	producttypecode	producttypecode
salesorderdetail	invoicedetail	quantity	quantity
salesorderdetail	invoicedetail	quantitybackordered	quantitybackordered
salesorderdetail	invoicedetail	salesrepid	salesrepid
salesorderdetail	invoicedetail	salesrepiddsc	salesrepiddsc
salesorderdetail	invoicedetail	salesrepidname	salesrepidname
salesorderdetail	invoicedetail	shipto_city	shipto_city
salesorderdetail	invoicedetail	shipto_country	shipto_country
salesorderdetail	invoicedetail	shipto_fax	shipto_fax
salesorderdetail	invoicedetail	shipto_freighttermscode	shipto_freighttermscode
salesorderdetail	invoicedetail	shipto_line1	shipto_line1
salesorderdetail	invoicedetail	shipto_line2	shipto_line2
salesorderdetail	invoicedetail	shipto_line3	shipto_line3
salesorderdetail	invoicedetail	shipto_name	shipto_name
salesorderdetail	invoicedetail	shipto_postalcode	shipto_postalcode
salesorderdetail	invoicedetail	shipto_stateorprovince	shipto_stateorprovince
salesorderdetail	invoicedetail	shipto_telephone	shipto_telephone
salesorderdetail	invoicedetail	tax	tax
salesorderdetail	invoicedetail	transactioncurrencyid	transactioncurrencyid
salesorderdetail	invoicedetail	transactioncurrencyiddsc	transactioncurrencyiddsc
salesorderdetail	invoicedetail	transactioncurrencyidname	transactioncurrencyidname
salesorderdetail	invoicedetail	uomid	uomid
salesorderdetail	invoicedetail	uomiddsc	uomiddsc
salesorderdetail	invoicedetail	uomidname	uomidname
salesorderdetail	invoicedetail	volumediscountamount	volumediscountamount
salesorderdetail	invoicedetail	willcall	willcall
similarityrule	textanalyticsentitymapping	name	similarityruleidname
similarityrule	textanalyticsentitymapping	similarityruleid	similarityruleid
sla	slaitem	name	slaidname
sla	slaitem	slaid	slaid

Source Entity Name	Target Entity Name	Source Attribute Name	Target Attribute Name
subject	subject	subjectid	parentsubject
subject	subject	title	parentsubjectname
systemuser	externalparty	firstname	firstname
systemuser	externalparty	internalemailaddress	emailaddress
systemuser	externalparty	lastname	lastname
systemuser	msdyn_wallsavedqueryusersettings	fullname	msdyn_useridname
systemuser	msdyn_wallsavedqueryusersettings	systemuserid	msdyn_userid
topicmodel	topicmodelconfiguration	name	topicmodelidname
topicmodel	topicmodelconfiguration	topicmodelid	topicmodelid
topicmodelconfiguration	textanalyticsentitymapping	name	topicmodelconfigurationidname
topicmodelconfiguration	textanalyticsentitymapping	topicmodelconfigurationid	topicmodelconfigurationid
uomschedule	uom	uomscheduleid	uomscheduleid

See Also

Create and edit entity relationships
Customizable parental entity relationships

Create and edit global option sets

Applies To: CRM 2016 on-prem, CRM Online

An option set is a type of field that can be included in an entity. It defines a set of options. When an option set is displayed in a form it uses a drop-down list control. When displayed in **Advanced Find** it uses a picklist control. Sometimes option sets are called picklists by developers.

You can define an option set to use a set of options defined within itself (locally) or it can use a set of options defined elsewhere (globally) which can be used by other option set fields. Global option sets are useful when you have a standard set of categories that can apply to more than one entity. Maintaining two separate option sets with the same values is difficult and if they are not synchronized you can see errors, especially if you are mapping entity fields in a one-to-many entity relationship. More information: Map entity fields

In This Topic

Configure global option sets

Create a global option set

1. Go to **Settings** > **Customizations**.

2. Choose **Customize the System**.

3. In the solution explorer, choose **Option Sets**.

4. On the actions toolbar choose **New**.

5. Enter a **Display Name** and (optionally) a **Description**.

    The **Name** field value will be generated based on the value of the **Display Name** you enter.

    The **Name** field value will include the customization prefix for the solution publisher for the solution you are working in. If the customization prefix is important to you, make sure you are working in the context of a solution that has the customization prefix you want for this global option set. See Solution publisher for information about how to change the customization prefix.

    The **Name** field value must be unique. If the generated value is the same as an existing global option set, you will need to change it before you can save.

6. Unlike the **Description** for fields, the **Description** value for a global option set is not displayed as a tooltip when the field is used in a form. This description is only visible in the list of global options. You can use the description to provide information about why you have created this global option set and what it should be used for.

7. In the toolbar choose **Save** to save the global option set. You can then edit the options in the option set using the instructions below.

Edit a global option set

1. Go to **Settings** > **Customizations**.

2. Choose **Customize the System**.

3. In the solution explorer, choose **Option Sets**.

4. Double-click one of the existing option sets to open it.

5. You can edit the **Display Name** or **Description** fields, but editing the options is the most common reason to edit a global option set.

6.

    a. In the **Options** section you can create, edit, delete and change the order in which options are presented.

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b.

    i.   Choose the green **+** icon to create an option.

    ii.   Each option you create will have a **Label** value of **Item** and a **Value** that starts with 10,000 and increments for each option you add.

        Edit the **Label** to be the text you want to display.

        You can edit the **Value**, but we recommend that you accept the auto-generated value. The value must be unique within the options.

        The **Description** for each option is not visible to people using the application. Use it to provide some definition of the category it represents so that others editing this option set in the future can understand your intention in adding it.

c.

    i.   To edit an option that already exists you may change the **Label**, **Value** and **Description** values just as you would when creating a new option.

d.

    i.   To delete an option you select one and choose the delete icon.

    ◆ **Important**

    If you delete an option that has already been used in entity records, the data value in those records will be invalid. If you are not sure, use Advanced Find to see if there are any records set to the value you are about to delete. If they are set to the option you plan to delete, you should change the data before you delete the option. After you delete the option you will no longer be able to use Advanced Find to query records that have that option set.

e.

    i.   Use the green arrows in options toolbar to move selected options up or down.

        Use the ascending or descending sort buttons to sort all options in the respective direction according to their label values.

Use a global option set

To use a global option set, you create or edit a field in the field editor.

1. Go to **Settings** > **Customizations**.
2. Choose **Customize the System**.
3. In the solution explorer, select an entity and then choose **Fields**.
4. Select the field you want to edit or select **New** to create a new field.
5. In the field editor, select **Yes** for **Use Existing Option Set**.

    If you are creating a new field you need to first select **Option Set** for the **Data Type**.

6. Make a selection in the **Option Set** drop-down menu.

7. When you have completed your entries, select **Save and Close**.

 Note

You can also get to the field editor through Forms. Select an entity and then choose **Forms**. Select a field and then choose **Change Properties**. In the dialog box select the **Details** tab and then choose **Edit**.

In addition to the option sets you see in the solution explorer, there are also a number of system global option sets. You can use these if they happen to meet your need but they aren't customizable.

 Note

The system global option set options may change with updates or new versions so we recommend you don't use them unless you are certain that your requirements align with the way that the application uses these values.

In addition to selecting the global option set, you can also choose which of the options (if any) should be the **Default Value** for that field.

See Also
Create and edit metadata
Create and edit entities
Create and edit fields
Create and edit entity relationships

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Create and design forms

Applies To: CRM 2016 on-prem, CRM Online

In Microsoft Dynamics CRM, forms provide the user interface that people will use to interact with the data they need to do their work. It is important that the forms people use are designed to allow them to find or enter the information they need efficiently.

This topic introduces how forms vary by groups of entities, the different types of forms available, and how you can control access to forms. For information about the elements and properties of forms, see Use the form editor.

In This Topic
Form differences by entity
Types of forms
Assign form order

Form differences by entity

Microsoft Dynamics CRM provides many options for designing forms. The forms for the Updated entities and custom entities provide the most options. We selected a group of entities that are used by most people and gave them a new user experience that includes many new capabilities including support for the Microsoft Dynamics CRM for tablets client, business process flows, and business rules. One of the key requirements in providing these new experiences includes the goal that a form customizer can design once and deploy to all clients.

Yet there are still a number of entities that retain the appearance and capabilities carried over from the previous version. Entities using classic forms weren't updated because they are not used frequently by most people and updating them wouldn't have a significant impact on the experience of most people using the application. This allowed us to focus our attention on the updated entities.

Most of your customization work will probably involve the updated entities and custom entities. If some capability applies only to forms for updated entities this document will note that.

Updated entities

Updated entities are listed in the following table:

Account	Appointment	Campaign
Campaign Activity	Campaign Response	Case
Competitor	Contact	Contract
Contract Line	Email	Fax
Invoice	Invoice Product	Lead
Letter	Marketing List	Opportunity
Opportunity Product	Order	Order Product
Phone Call	Price List Item	Product
Quick Campaign	Quote	Quote Product
Recurring Appointment	Sales Literature	Team
Task	User	

Entities using classic forms

Entities that use classic form presentation are listed in the following table:

Address	Article	Article Comment	Bulk Delete Operation	Connection
Discount	Discount List	Document Location	Email Attachment	Follow

Goal	Goal Metric	Import Source File	Invoice Product	Order Product
Price List	Queue Item	Quote Product	Rollup Field	Rollup Query
Saved View	Service	Service Activity	SharePoint Site	Site
Territory	Unit	Unit Group		

Types of forms

The following table describes the types of forms in Microsoft Dynamics CRM:

Form Type	Description
Main	Used in the web application, Dynamics CRM for Outlook and CRM for tablets. These forms provide the main user interface for interacting with entity data. More information: Design considerations for main forms
Mobile	Used for the Microsoft Dynamics CRM for phones pages. This simplified form is designed to be used for mobile devices. The mobile forms for updated entities are not changed. More information: Create and edit mobile forms for CRM for phones express
Quick Create	Used in the web application, Dynamics CRM for Outlook and CRM for tablets. For updated entities, these forms provide a basic form optimized for creating new records. More information: Create and edit quick create forms
Quick View	Used in the web application, Dynamics CRM for Outlook and CRM for tablets. For updated entities, these forms appear within the main form to display additional data for a record that is referenced by a lookup field in the form. More information: Create and edit quick view forms

Assign form order

When you have multiple main, quick create or mobile forms for an entity you can assign a form order. The form order determines which of the available forms will be shown by default. The available main or mobile forms can be further controlled by assigning security roles to forms. See Control access to forms for more information.

You cannot assign security roles to quick create forms, so the only form that will be used by everyone is the one at the top of the form order.

To assign a form order

1. Go to **Settings** > **Customizations**.

2. Choose **Customizations**, then choose **Customize the System**.

3. In the solutions explorer, expand the entity that you want and select **Forms**.

4. In the form list toolbar select **Form Order**.

5. Choose either **Main Form Set**, **Quick Create Form Set**, or **Mobile Form Set** depending on the type of forms you want to work with.

6. The **Form Order** dialog is a simple list where you can move a selected form up or down in the form order.

7. After you have set the order you want, click **OK** to close the dialog.

Control access to forms

There are two ways you can control access to main forms:

- **Make a main form inactive**

  The capability to set an active or inactive state to main forms is new in this release. This was included primarily to manage new forms included when organizations upgrade but you can use it to prevent people from being able to use any main form. See Update your forms for more information.

- **Assign security roles to the main form**

  Use this to make a main form available to specific groups.

Different people in your organization may interact with the same data in different ways. Managers may depend on being able to quickly scan information in a record and service people may require a form that streamlines data entry. You can accommodate different requirements by assigning forms to the security roles that different groups of people belong to.

For step-by-step procedures, see Assign security roles to forms.

When you have more than one main or mobile form defined for an entity, you can select which forms users will be able to use based on their security roles. Because each entity must be able to display a form for any user, at least one form must be designated as a "fallback" form – a form visible to users whose security roles do not have any forms explicitly assigned to them.

 Note

Quick Create and Quick View forms cannot be assigned to security roles.

Within the Form editor or from the Forms grid you can assign security roles to a form. However, if there is only one form for the entity, you will not be able to clear the **Enabled for fallback** option in the **Assign Security Roles** dialog box. In this case, even though you have assigned security roles to the form, anyone associated with a security role you did not include will still be able to view the form because it is enabled for fallback.

After you create a second main or mobile form for the entity, you will be able to clear the **Enabled for fallback** option for one of them. The system will always make sure that at least one form is enabled for fallback.

When you have more than one main form, you can specify a form order that will control which of the forms a person is allowed to see will be the one they see by default. If there is more than one form they can use, they can change forms and the form they choose will be their default form until they choose a different one. This preference is stored in their browser. If they use a different computer or browser they will see the original default form.

Strategies to manage the fallback form

Strategies to manage the fallback form include the following:

All users view the same form

If you do not require multiple forms for an entity you do not need a fallback form.

Create a contingency form

If you are using role-based forms because you want to restrict the information people might view or edit, consider creating a form that has a minimum of information displayed. Then, in the **Assign Security Roles** dialog box, select **Display only to these selected security roles**, but do not select any roles except System Administrator, and select **Enabled for fallback**. The result is that this form will never be seen by anyone except the System Administrator and anyone whose security roles have not been associated with a specific form. You could include a HTML web resource in the form with information about why little information is visible in the form and a link to information about how to request being added to a security role that is associated with a from or to include a new security role for a form.

✒ Note

You can't include a web resource in a form header or footer.

Create a generic form

If you use role-based forms to provide a customized user experience based on a person's role in the organization, you can set your least specialized form as the fallback form and configure it to display for everyone. Then, create customized forms for specific security roles and configure those forms to only display for security roles that require them. Do not enable these forms for fallback. Finally, in the **Forms** list use the **Form Order** dialog to specify which forms to display ranking them from most exclusive to least exclusive. Your fallback form will be at the bottom of the list. This strategy will cause people seeing the form that has been customized for their role as the default form, yet they can still use the form selector to select the most common form if they want. Whatever form they select will remain their default form until they select a different form.

Use form scripting

Finally, in the web application it is possible, but not recommended, for a developer to use scripts in the form Onload event to use the Xrm.Page.ui.formSelector.items collection to query available forms and use the navigate method to direct users to a specific form. Remember that the navigate method will cause the form to load again (and the Onload event to occur again). Your logic in the event handler

should always check some condition before you use the navigate method to avoid an endless loop or unnecessarily restrict users options to navigate between forms.

This approach will not work for Microsoft Dynamics CRM for tablets because multiple forms are not available for selection.

See Also

Customize your CRM system
Create and edit metadata
Create and edit views

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Use the form editor

Applies To: CRM 2016 on-prem, CRM Online

This topic explains how to access the form editor, the features it contains, the form elements you can edit, and the properties of those elements.

In This Topic

Open the form editor
Form editor user interface
Form properties
Visibility options
Tab properties
Section properties
Common field properties
Special field properties
Sub-grid properties
Quick view control properties
Web resource properties
IFRAME properties
Notes control
Configure Bing maps
Edit Navigation
Timer control
Additional controls for CRM for phones and tablets
Configure event handlers
Privacy notices

Open the form editor

You can access the form editor through the command bar or the ribbon, depending on the entity. Both of these methods will open the form in the context of the default solution. If you create any new solution components in the process of editing the form, for example web resources, the names of the components will use the solution publisher customization prefix for the default solution and these components will only be included in the default solution. If you want any new solution components to be included in a specific unmanaged solution, you should open the form editor through that unmanaged solution.

To access the form editor through the command bar

1. Open a record.
2. If there are multiple main forms for the entity, verify that the form is the one you want to edit. If it isn't, use the form selector to choose the form you want to edit.
3. Click the **More Commands** button ⚫⚫⚫.
4. Click **Form Editor**.

To access the form editor through the default solution

1. Go to **Settings** > **Customizations**.
2. Click **Customize the System** to open the default solution.
3. Under **Components**, expand **Entities**, and then the entity you want, and click **Forms**.
4. In the list of forms, click the form you want to edit.

To access the form editor for an unmanaged solution

1. Go to **Settings** > **Customizations**.
2. Click **Solutions**.
3. Double-click the unmanaged solution you want to work with.

Locate the entity with the form you want to edit. If the entity isn't there, you'll need to add it.

Add an entity to an unmanaged solution

a. Select the **Entities** node and, in the toolbar above the list, click **Add Existing**.
b. In the **Select Solution Components** dialog box, with the **Component Type** selector set to **Entity**, select the entity you want to add and click **OK**.
c. If the **Missing Required Components** dialog box appears, you can click **No, do not include required components** if you don't intend to export this unmanaged solution to another organization. If you choose not to include missing required components at this time, you can add them later. You'll receive notification again if you export this solution in the future.

4. In the solution explorer expand the entity with the form you want to edit and select **Forms**.

5. In the list of forms, double-click the form you want to edit.

Form editor user interface

The form editor displays commands in two ribbon tabs: **Home** and **Insert**. For details about the commands available there, see Home tab and Insert tab.
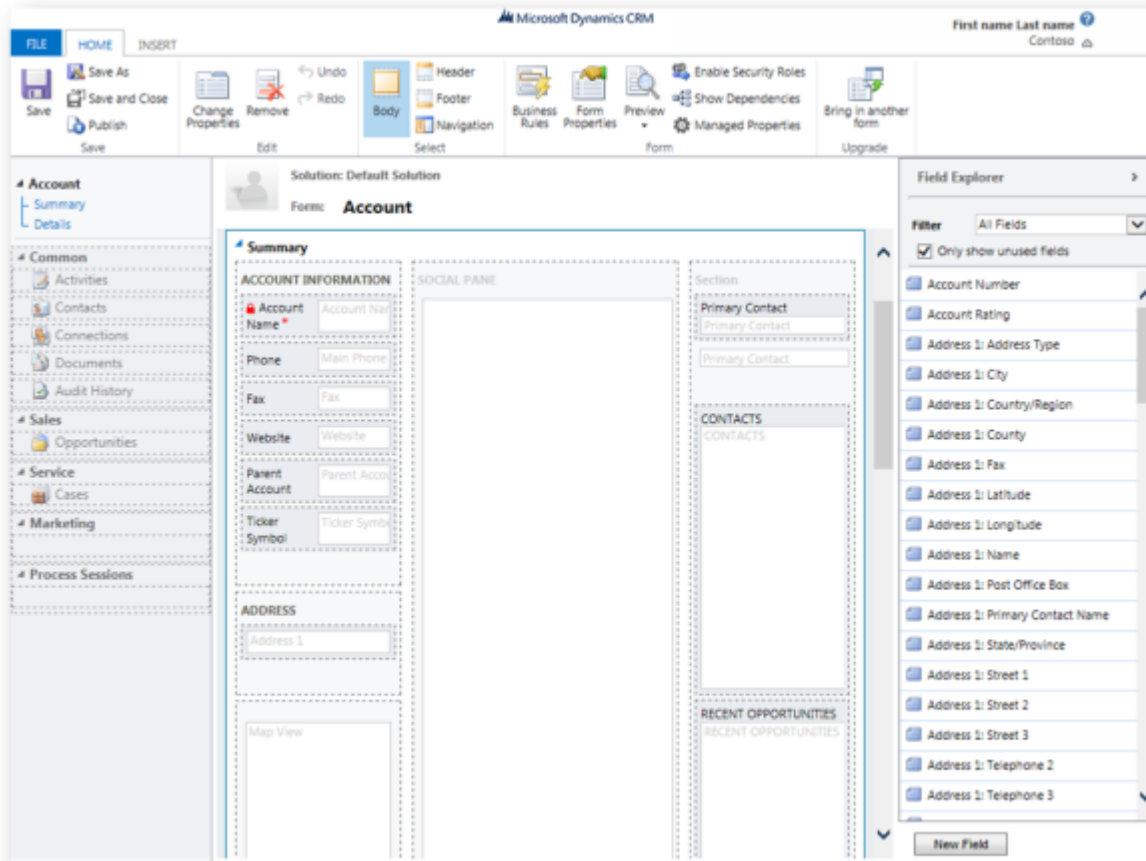
The body of the form editor is divided into three areas: **Navigation**, **Body**, and **Explorer**.

Navigation area

Located on the left side, use the navigation area to control access to related entities or to add links to web resources or URLs to be displayed in the main pane of the form. To edit navigation you must first select the **Navigation** command in the **Select** group of the **Home** tab.

Forms for Entities using classic forms provide a navigation experience that is visually similar to what you see in the navigation area. Forms for Updated entities provide navigation options through the navigation bar, but use the same data to control what navigation options are available. More information: Edit Navigation

Body area

Located in the center, use the body area to control the layout of the form. You can select and drag form elements to position them. Double-clicking on an element will open the properties for the element.

- To add a field, select it from the **Field Explorer** and drag it into a section.

- To add an element that is not a field, select where you want to place it and use the appropriate command from the **Insert** tab add it.

- To remove an element, select it and use the **Remove** command in the **Edit** group of the **Home** tab.

- To edit the **Header** or **Footer** for the form you must first select the corresponding command in the **Select** group of the **Home** tab.

Explorer area

Located on the right side, the content of the explorer area depends on the context.

When you select **Body**, **Header**, or **Footer** in the **Select** group of the **Home** tab, you'll see the **Field Explorer**. Use the **Field Explorer** to drag fields you want to display into a section in the form or within the header or footer. You can include the same field multiple times in a form. Use the **New Field** button as a shortcut to create a new field.

When you select **Navigation** in the **Select** group of the **Home** tab you'll see the **Relationship Explorer**. Drag any of the relationships into one of the groups within the navigation area. You cannot add the same relationship twice. Relationships are available based on how they are configured. If you configure a relationship to not display, it won't display in the **Relationship Explorer**. For information about how to configure default display options for relationships, see Navigation pane item for primary entity.

You can use the **New 1:N** and **New N:N buttons** as a shortcut to add new entity relationships.

Home tab

The **Home** tab displays the commands in the following table.

Group	Command	Description
Save	**Save (Ctrl+S)**	Save the form.
Save As	Create a copy of this form with a different name.	
Save and Close	Save the form and close the form editor.	
Publish	Publish the form. More information: Publishing customizations	
Edit	**Change properties**	Change properties of the selected item in the body.

Group	Command	Description
		See the following sections depending on the selected item: • [Tab properties](#) • [Section properties](#) • [Common field properties](#) • [Special field properties](#) • [Sub-grid properties](#) • [Quick view control properties](#) • [Web resource properties](#) • [IFRAME properties](#) • [Notes control](#) • [Configure Bing maps](#)
Remove	Remove the selected item.	
Undo (Ctrl+Z)	Undo the previous action.	
Redo (Ctrl+Y)	Redo the previous action.	
Select	**Body**	Edit the main body of the form.
Header	Edit the form header.	
Footer	Edit the form footer.	
Navigation	Edit the form navigation. More information: [Edit Navigation](#)	
Form	**Business Rules**	View, Edit, or Create new Business Rules with the Business Rules explorer. More information: [Create and edit business rules](#)
Form Properties	More information: [Form properties](#)	
Preview	Preview how the form will look after it is published. The options are:	

Group	Command	Description
	Desktop Client	
	• **Create Form**: How the form will appear before a record is saved.	
	• **Update Form**: How a form for an existing record will appear.	
	• **Read-Only Form**: How the form will appear for people who have only read access to a record.	
	Scripts in the form can be tested but certain scenarios, like checking data values in the **OnLoad** event, can't be tested because the preview form doesn't contain data.	
	Mobile Client	
	These options appear if the form is available on mobile.	
	✎ **Note**	
	If you see unexpected results while previewing the mobile form, try clearing the browser cache.	
	Mobile form preview doesn't work in a browser's In Private mode.	
	• **Tablet (1024 x 768 4:3)**: How the form will appear on tablets.	
	• **Phone (360 x 640 9:16)**: How the form will appear on phones.	
	Mobile preview forms contain data, but the form is blocked for editing. It will always display the first record (oldest) that the current user	

Group	Command	Description
		has access to. If no record is available, it's possible to create a new one through a command in the preview window.
Enable Security Roles	Use this to set which security roles will have access to the forms. More information: [Control access to forms](#) ◆ **Important** If you create a new form only the System Administrator and System Customizer security roles will have access to the form. You must assign access to other security roles before people in your organization can use it.	
Show Dependencies	See which solution components depend on this form and which solution components are required by this form. More information: [Solution dependencies](#)	
Managed Properties	The only managed property is **Customizable**. Setting this to false means the form won't be customizable after you included it in a solution, export that solution as a managed solution, and import that managed solution into a different organization. More information: [Managed properties](#)	
Upgrade	**Merge Forms**	Use this setting to merge a form from a previous version after you upgrade. This will facilitate adopting new form layouts introduced in this version. The form you bring in will be appended to the bottom of the current form. Use this to combine forms while preserving event handers for form scripts.

Insert tab

The **Insert** tab displays the commands in the following table:

Group	Command	Description
	Section	Add a section to a selected tab. You can choose to include a section with one to four columns. More information: Section properties
3 Tabs	**Three Columns**	Insert a three-column tab with equal widths. More information: Tab properties
Three Columns	Insert a three-column tab with a wider middle column.	
2 Tabs	**Two Columns**	Insert a two-column tab with a wider right column.
Two Columns	Insert a two-column tab with a wider left column.	
Two Columns	Insert a two-column tab with equal width columns.	
1 Tab	**One Column**	Insert a one-column tab.
Control	**Sub-Grid**	Format a sub-grid and insert it into the form. More information: Sub-grid properties
Spacer	Insert an empty space.	
Quick View Form	Insert a Quick View Form. More information: Quick view control properties	
Web Resource	Insert a web resource. More information: Web resource properties	

Group	Command	Description
IFRAME	Insert an IFRAME. More information: IFRAME properties	
Notes	Insert a control to view activities, posts, and notes. More information: Notes control	
Bing Maps	Insert a control to show maps in the form. More information: Configure Bing maps	
Navigation Link	Insert a navigation link into the navigation area. This command is disabled unless you select the **Navigation** command in the **Select** group of the **Home** tab. More information: Navigation link properties	
Timer	Insert a timer control. More information: Timer control	

Form properties

The properties of the form are in the following table:

Tab	Property	Description
Events	**Form Libraries**	Manage which JavaScript web resources are available in the form and the order in which they will be loaded.
Event Handers	Configure which JavaScript functions from the Form Libraries will run for the **OnLoad** and **OnSave** form events and the order in which they'll be run.	
Display	**Form Name**	Enter a name that will be meaningful to people. This name will be shown to people when they use the form. If they can use multiple forms configured for the entity they will use this name to differentiate between available forms.
Description	Enter a description that explains how this form is different from other main forms. This description is	

Tab	Property	Description
		only shown in the list of forms for an entity in the solution explorer.
Page Navigation	You can choose not to show navigation items. In forms for updated entities this means the primary name value for the record currently being viewed will not appear in the navigation bar to allow navigation to associated views. In forms using the classic presentation, the navigation options to choose associated views on the left side of the form will not be shown.	
Image	When an entity has an image field and the entities' **Primary Image** option is set, this setting will enable showing the image field in the header of this form. See [Enable or disable entity options](#) for more information about entity options.	
Display	**Set a Max Width (in pixels)** to limit the width of the form. The default value is 1900.	
Parameters	Parameters	Each form can be opened with code using a URL. The URL may also contain data that can be passed to the form using a query string that is appended to the URL. Query strings look like this example: `?p_firstName=Jim&p_lastName=Daly` As a security measure, forms will not accept any unknown query string parameters. Use this parameters list to specify parameters this form should accept to support code that will pass data to the forms using a query string. The name and type of data will be checked and the form won't open if invalid query string parameters are

Tab	Property	Description
		passed to it. For more information see the topic Open Forms, Views, Dialogs and Reports with a URL in the Microsoft Dynamics CRM SDK.
Non-Event Dependencies	**Dependent Fields**	Each event handler has a similar **Dependent Fields** property so that any fields that are needed by the script can be registered. Anyone who tries to remove the dependent fields will not be able to.
		Some scripts operate on the form but are not configured in an event handler. Scripts that are initiated from the command bar do not have a place where dependent fields can be registered. This form property provides a place for dependent fields for those scripts to be registered.

Visibility options

Several types of form elements have the option to be shown or hidden by default. Tabs, sections, fields, IFRAMEs, and web resources all provide this option. Using form scripts or business rules the visibility of these elements can be controlled to create a dynamic form to provide a user interface that adapts to conditions in the form.

 Note

Hiding form elements is not a recommended way to enforce security. There are several ways people can view all the elements and data in the form when elements are hidden.

The Microsoft Dynamics CRM for Outlook reading pane presentation does not support form scripts. This presentation will use whatever the default visibility options are set for the form.

Rather than designing forms that depend on scripts to control visibility of options, consider whether a business process flow, a dialog, or switching to a different form may be better suited to meet your requirements. If you do use scripts, make sure that any element that might be hidden is hidden by default. Only show it with scripts when your logic calls for it. This way it will not be displayed in presentations that do not support scripts.

Tab properties

In the body of the form tabs provide horizontal separation. Tabs have a label that can be displayed. If the label is displayed tabs can be expanded or collapsed to show or hide their content by choosing the label.

Tabs contain up to three columns and the width of each column can be set to a percentage of the total with. When you create a new tab, each column is pre-populated with a section.

The following table shows properties that may be set for tabs in the form.

Tab	Property	Description
Display	**Name**	**Required**: The unique name for the tab that is used when referencing it in scripts. The name can contain only alphanumeric characters and underscores.
Label	**Required**: The localizable label for the tab visible to users.	
Show the label of this tab on the Form	When the label is displayed people can click it to toggle whether the tab is expanded or collapsed. Choose whether you want to show the label.	
Expand this tab by default	The tab state can toggle between expanded or collapsed using form scripts or by people clicking the label. Choose the default state for the tab.	
Visible by default	Showing the tab is optional and can be controlled using scripts. Choose whether to make the tab visible. More information: [Visibility options](#)	
Lock the tab on the form	This will prevent the tab from accidentally being removed and prevents people from modifying the contents. Removing a tab will not only remove the tab, but also any script event handlers defined for the tab or fields within the tab. Recreating all this work could be a substantial effort. Someone wanting to remove this tab would need to change this setting before removing it.	
Formatting	**Layout**	Tabs may have up to three columns. Use these options to set the number of tabs and what percentage of the total width they should fill.
Events	**Form Libraries**	Specify any JavaScript web

Tab	Property	Description
		resources that will be used in the tab **TabStateChange** event handler.
		See the SDK Form Events Reference : Tab TabStateChange Event topic
Event Handers	Configure the functions from the libraries that should be called for the tab **TabStateChange** event. More information: Configure event handlers	

Section properties

A section occupies the space available in a tab column. Sections have a label that can be displayed and a line may be shown below the label.

Sections can have up to 4 columns and includes options for displaying how labels for fields in the section are displayed.

Headers and footers are similar to sections but cannot be removed. If they don't contain anything they will not be shown.

Tab	Property	Description
Display	Name	**Required**: The unique name for the section that is used when referencing it in scripts. The name can contain only alphanumeric characters and underscores.
Label	**Required**: The localizable label for the section visible to users.	
Show the label of this section on the form	Sections are frequently used without labels to control formatting of the fields within them.	
Show a line at top of the section	A line at the top of a section can help break up the form layout.	
Field Label Width	**Required**: Set a value between 50 and 250 to specify the space allowed for field labels.	
	Header and footer elements also have this property.	
Visibility	Showing the section is optional and can be controlled using	

Tab	Property	Description
	scripts. More information: Visibility options	
Lock the section on the form	This will prevent the section from accidentally being removed and prevents people from removing the contents. Removing a section will not only remove the section, but also any fields within it. Someone wanting to remove this section would need to change this setting before removing it.	
Formatting Header and footer components also have this property.	**Layout**	Specify up to four columns to be in the section.
Field Label Alignment	Labels for fields within the section can be aligned left, right, or center.	
Field Label Position	Labels for fields within the section can be positions on the side or on top of the fields.	

Common field properties

Fields display controls people use to view or edit data in an entity record. Fields can be formatted to occupy up to four columns within a section.

The following table describes properties that all fields have. Certain types of fields have special properties. These are described in Special field properties.

Tab	Property	Description
Display	**Label**	**Required**: By default the label will match the display name of the field. You can override that name for the form by entering a different label here.
Display label on the form	You can choose not to display the label at all.	
Field is read-only	You can specify that the field is not editable. Using form scripts you can change this to enable or disable editing based on criteria evaluated in the script.	

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Tab	Property	Description
Lock the field on the form	This will prevent the field from being removed from the form accidentally. This will prevent any configuration you have applied to the field, such as event handlers, from being cleared if the field were removed. To remove this field a customizer would need to clear this setting first.	
Visible by default	Showing the field is optional and can be controlled using scripts. More information: Visibility options	
Formatting	**Select the number of columns the control occupies**	When the section containing the fields has more than one column you can set the field to occupy up to the number of columns that the section has.
Details	**Display Name**, **Name**, and **Description**	These read-only fields are for reference. Click the **Edit** button for convenient access to the field definition if you want to edit it. Each instance of a field in the form has a name property so that they can be referenced in form scripts, but this name is managed by the application. The first instance of the field is the name of the field specified when it was created. More information: Create and edit fields For each additional time that a field is included in a form, the name appends a number starting with 1 to the end. So if the field name is 'new_cost', the first instance is 'new_cost', the second is 'new_cost1', and so on for each instance of the field in the form. **Note** The field **Description** value provides tooltip text for the field when people place their cursor

Tab	Property	Description
		over it.
Events	Form Libraries	Specify any JavaScript web resources that will be used in the field **OnChange** event handler. See the SDK [Form Events Reference : Field OnChange Event](#)
	Event Handlers	Configure the functions from the form libraries that should be called for the field **OnChange** event. More information: [Configure event handlers](#)
Business Rules	Business Rules	View and manage any business rules that reference this field. More information: [Create and edit business rules](#)

Special field properties

All fields have the properties listed in [Common field properties](#), but certain fields have additional properties.
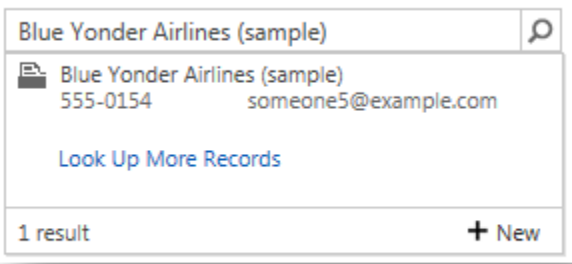
Lookup field properties

On the **Display** tab, lookup fields have some additional properties. Some system fields that look like lookup fields and have similar behaviors are Owner, Customer, PartyList and Regarding lookups. These fields are different from lookups because they allow for setting multiple values or multiple types, or both. These fields have only the first two properties: **Turn off automatic resolutions in the field** and **Disable most recently used items for this field**.

This is an example of the lookup dialog shown when people click the **Look Up More Records** option when setting the value for a lookup.
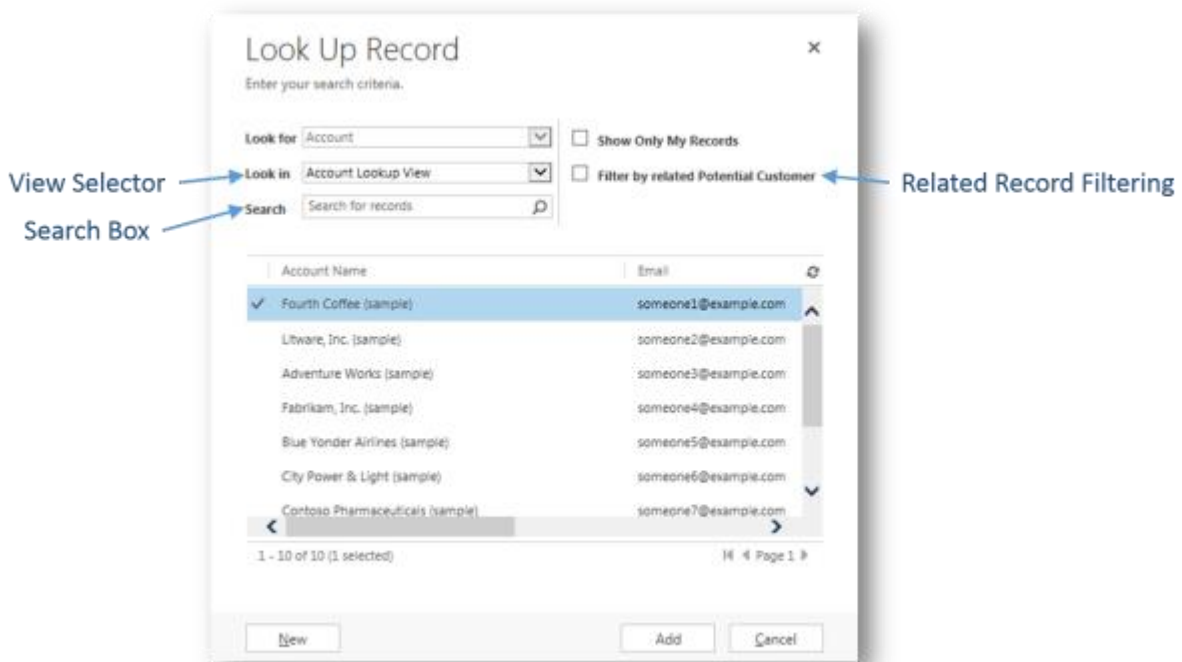
Property	Description
Turn off automatic resolutions in the field	Only main forms using the [Classic forms]() support automatic resolution. This can be disabled with this setting.
Disable most recently used items for this field	Only main forms using the [Classic forms]() support most recently used items. This can be disabled with this setting.
Related Records Filtering	When this is enabled the records displayed when someone searches for a record will have additional filtering applied. This helps provide more relevant searches when setting the value of the lookup. You can also allow users to turn off the filter.
Display Search Box in lookup dialog	You can choose not to display the search box in the lookup dialog.
Default View	This view will be used to filter the results of the inline search and specify the default view shown in the lookup dialog if people choose the **Look Up More Records** option. The default view also controls which fields are included in the inline lookup.

Property	Description
	Blue Yonder Airlines (sample) Blue Yonder Airlines (sample) 555-0154 someone5@example.com Look Up More Records 1 result + New For lookups that only allow selection of a single type of entity, the fields displayed in the inline lookup are set to be the first two fields included in the default view. In this example, **Main Phone** and **Email** are the first two columns in the default view configured for an account lookup. For system lookups that allow for multiple types of entities, the first two columns of the entity lookup view are shown.
View Selector	You can choose from three options: • **Off**: Do not allow people to choose a different view. • **Show All Views**; All views are available. • **Show Selected Views**: When you choose this option you can use the Ctrl key and your cursor to choose which views to show. The Lookup view for the entity cannot be de-selected.

Two option field properties

On the formatting tab, two option fields have the following formatting options

• **Two radio buttons**: Two labeled controls with labels. Only one may be selected.

• **Checkbox**: A single checkbox to set the true value, otherwise false.

• **List**: A drop-down list containing both values.

Multiple lines of text field properties

Multiple lines of text and single line of text fields that use the **Text Area** format have a **Row Layout** property. With this property you can specify a value for **Number of Rows** or select **Automatically expand to use available space**.

Sub-grid properties

You can configure a sub-grid to display a list of records or a chart. Select **Show Chart Only** on the **Display** tab to show a chart instead of a list.

Tab	Property	Description
Display	**Name**	**Required**: The unique name for the sub-grid that is used when referencing it in scripts. The name can contain only alphanumeric characters and underscores.
Label	**Required**: The localizable label for the sub-grid visible to users.	
Display label on the Form	Whether the label should be displayed on the form. This is required if you enable **Display Search Box**.	
Records	Choose from two options: • **Only Related Records**: Sub-grid will display only records related to the current record. • **All Record Types**: Sub-grid will display records filtered only by the default view or, if the view selector is enabled, any views the user chooses. The option you choose will affect the behavior of the show list control. More information: [Show list behavior](#)	
Entity	Depending on the option you choose for **Records**, this list displays either: • **Only Related Records**: A list of entities that are related to this entity with the name of the lookup field on that entity which defines the relationship in parentheses. • **All Record Types**: A list of all entities.	
Default View	Choose the view that will be	

Tab	Property	Description
	applied by default. If you do not enable any other views using the **View Selector** property. This will be the only view. Use the **Edit** button to open the default view for editing. Use the **New** button to create a new view to use for this sub-grid.	
Display Search Box	Display the search box. When this option is chosen the **Display Label on the Form** option is required.	
Display Index	Only forms using the [Classic forms](#) support display index. Select this check box if you want the alphabetical index to be available with the list. This lets you jump to records starting with a particular letter or number.	
View Selector	You have three options: • **Off**: Only the default view can be used. • **Show All Views**: Allow people to choose any view. • **Show Selected Views**: Use the Ctrl key with your cursor to select which of the available views to show.	
Default Chart	Select which chart to show if **Show Chart Only** is selected.	
Show Chart Only	Rather than a list of records a chart will be displayed.	
Display Chart Selection	If **Show Chart Only** is selected, allow people to choose different charts.	
Formatting	**Layout**	**Select the number of columns the control occupies**. When the section containing the sub-grid has more than one column you can set the field to occupy up to the number of

Tab	Property	Description
		columns that the section has.
Row Layout	**Number of Rows** will determine how many records are shown on a page of a sub-grid. If **Automatically expand to use available space** is chosen the form will allow space for two records and will expand the space as the number of records increases. If the number exceeds the **Number of Rows**, people can navigate to additional pages to view the records. If **Automatically expand to use available space** is not chosen the form will provide space for the number of records defined by **Number of Rows** and people can navigate to additional pages to view any additional records.	

In forms using the [Classic forms](#), actions performed on a sub-grid were available in the ribbon. Developers can customize the behavior of these actions or add additional actions by customizing the ribbon.

In forms using the [Updated forms](#) actions for sub-grids are placed near the sub-grid, making them easier to access. However the command bar does not allow for custom actions to be added. Developers can edit the ribbon to modify the actions for the remaining three actions: show list, add record, and delete record.

Show list behavior

When displaying a list in forms with the [Updated forms](#), each sub-grid displays the **Open View** button in the top right corner when the entity is also displayed as one of the entities included in the navigation area of the form editor. Choosing this button will open the view. The behavior will change depending on the option chosen for the **Records** property.

When you select **Only Related Records** the view will open using one of the associated views in the same window. To return to the form, use the back button or choose the current record primary name value in the navigation bar.

When you select **All Record Types** the view will open in a new window.

Add record behavior

When displaying a list in forms with the [Updated forms](#), each sub-grid displays the **Add record** button in the top right side of the sub-grid. Choosing this button will allow you to add a record. This

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behavior will change depending on the option chosen for the **Records** property and if the lookup is for activity records.

When you select **Only Related Records** the default behavior is the behavior to add existing records. People see an in-line lookup to search for an existing record first. This helps prevent creating duplicate records. If they can't find an existing record, they can choose the **New** option. When a new record is created any of the field mappings defined in the relationship will be applied. More information: Map entity fields

When you select **All Record Types** the default behavior is to add a new record. The quick create form will be shown if the target entity has one. If not, the default entity main form is shown.

If the sub-grid displays activities, people will first need to choose the type of activity and then they will see the "add new record" behavior.

Delete record behavior

When you select a record in a sub-grid the **Delete** button 🗑 appears on the right side of the row. The behavior of this delete action is different depending on the type of relationship with the current entity.

When the sub-grid uses a 1:N (one-to-many) relationship, the normal record delete behavior is to show a confirmation dialog before deleting the record.

When the sub-grid uses a N:N (many-to-many) relationship, the record in the relationship (or intersect) entity relating to two records is deleted without a confirmation and the record will no longer be displayed in the sub-grid. But the record that was displayed is not deleted.

Quick view control properties

A quick view control displays data from a record that is selected in a lookup on the form. The data displayed in the control is defined using a quick view form. The data displayed is not editable, but when the primary field is included in the quick view form, it becomes a link to open the related record. More information: Create and edit quick view forms

Property	Description
Name	**Required**: The unique name for the quick view form that is used when referencing it in scripts.
Label	**Required**: A label to display for the quick view form.
Display label on the Form	Displays the label on the form.
Lookup Field	Choose one of the lookup fields included in the form.
Related entity	This value depends on the **Lookup Field** you choose. It is usually the primary entity for the 1:N entity relationship for the lookup.
	If the entity includes a **Potential Customer** lookup that can accept either an account or contact, in the **Quick View Form** field you can choose a quick view form for both account and contact by changing this value and then choosing another quick view form.

Property	Description
Quick View Form	If the **Related entity** has any quick view forms you can select them here. Otherwise, click **New** to create one. Click **Edit** to change the selected quick view form.

Web resource properties

You can add or edit web resources on a form to make it more appealing or useful to users. Form enabled web resources are images, HTML files, or Silverlight controls.

For step-by-step instructions, see [Add or edit a form web resource](#).

Tab	Property	Description
General	**web resource**	**Required**: The image, HTML, or Silverlight web resource that you want.
Name	**Required**: A unique name for the field. The name can contain only alphanumeric characters and underscores.	
Label	**Required**: A label to display for the web resource.	
Visible by default	Showing the web resource is optional and can be controlled using scripts. More information: [Visibility options](#)	
Custom Parameter	A custom value to pass as the **data** query string parameter. More information: [Pass parameters to web resources](#)	
Alternative Text	When an image web resource is displayed, this value will provide tooltip text for people using screen readers.	
Restrict cross-frame scripting, where supported.	When pages exist on different domains you may want to prevent them from accessing the content of your form pages. Web resources are always in the same domain, so this should not be an issue with web resources.	
Pass record object-type code and unique identifiers as	Data about the organization, user, and the record can be	

Tab	Property	Description
parameters	passed to the web resource so it can adapt to organization settings. More information: [Pass parameters to web resources](#)	
Formatting	**Select the number of columns the control occupies**	When the section containing the web resource has more than one column you can set the field to occupy up to the number of columns that the section has.
Select the number of rows the control occupies	You can control the height of the web resource by specifying a number of rows.	
Automatically expand to use available space	You can allow the web resource height to expand to available space.	
Select the scrolling type for the IFRAME	An HTML web resource is added to the form using an IFRAME. • **As Necessary**: Show scrollbars when the size of the web resource is larger than the available. • **Always**: Always show scrollbars. • **Never**: Never show scrollbars.	
Display border	Display a border around the web resource.	
Dependencies	**Dependent fields**	A web resource may interact with fields in the form using script. If a field is removed from the form the script in the web resource may break. Add any fields referenced by scripts in the web resource to the **Dependent fields** so that they cannot be removed accidentally.

Pass parameters to web resources

An HTML or Silverlight web resource can accept parameters to be passed as query string parameters.

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Information about the record can be passed by enabling the **Pass record object-type code and unique identifiers as parameters** option. If information is typed into the **Custom Parameter(data)** field it will be passed using the data parameter. The values passed are:

Parameter	Description
data	This parameter is only passed when text is provided for **Custom Parameter(data)**.
orglcid	The Organization default language LCID.
orgname	The name of the organization.
userlcid	The user's preferred language LCID
type	The entity type code. This value can be different for custom entities in different organizations. Use entity type name instead.
typename	The entity type name.
id	The id value of the record. This parameter has no value until the entity record is saved.

Any other parameters are not allowed and the web resource will not open if other parameters are used. If you need to pass multiple values, the data parameter can be overloaded to include more parameters within it. See the SDK Sample: Pass Multiple Values to a Web Resource Through the Data Parameter

IFRAME properties

You can add IFRAMEs to a form to integrate content from another website within a form.

 Note

Microsoft Dynamics CRM forms are not designed to be displayed within IFRAMEs.

Tab	Property	Description
General	**Name**	**Required**: A unique name for the IFRAME. The name can contain only alphanumeric characters and underscores.
URL	**Required**: The URL for the page to display in the IFRAME.	
Pass record object-type code and unique identifiers as parameters	Data about the organization, user, and the record can be passed to the IFRAME. More information: Pass parameters to IFRAMES	
Label	**Required**: A label to display for	

Tab	Property	Description
	the IFRAME.	
Display label on the Form	Whether the label should be displayed.	
Restrict cross-frame scripting, where supported	It is considered a security risk to allow pages from a different web site to interact with the Microsoft Dynamics CRM application using scripts. Use this option to restrict cross frame scripting for pages you do not have control over. More information: Select Whether to Restrict Cross-Frame Scripting	
Visible by default	Showing the IFRAME is optional and can be controlled using scripts. More information: Visibility options	
Formatting	**Select the number of columns the control occupies**	When the section containing the IFRAME has more than one column you can set the field to occupy up to the number of columns that the section has.
Select the number of rows the control occupies	You can control the height of the IFRAME by specifying a number of rows the control occupies.	
Automatically expand to use available space	Instead of setting the height by a number of rows, you can allow the IFRAME height to expand to available space.	
Select the scrolling type for the IFRAME	You have three options: • **As Necessary**: Show scrollbars when the size of the IFRAME is larger than the available space. • **Always**: Always show scrollbars. • **Never**: Never show scrollbars.	
Display border	Display a border around the IFRAME.	

Tab	Property	Description
Dependencies	**Dependent fields**	An IFRAME may interact with fields in the form using script. If a field is removed from the form the script in the IFRAME may break. Add any fields referenced by scripts in the IFRAMES to the **Dependent fields** so that they cannot be removed accidentally.

Pass parameters to IFRAMES

Information about the record can be passed by enabling the **Pass record object-type code and unique identifiers as parameters** option. The values passed are:

Parameter	Description
orglcid	The Organization default language LCID.
orgname	The name of the organization.
userlcid	The user's preferred language LCID
type	The entity type code. This value can be different for custom entities in different organizations. Use **typename** instead.
typename	The entity type name.
id	The id value of the record. this parameter has no value until the entity record is saved.

Notes control

In forms for certain system entities using the [Updated forms](#), the notes control provides the ability to access information about **POSTS**, **ACTIVITIES**, and **NOTES**. For custom entities where you have enabled notes and activities, you will only see **NOTES** and **ACTIVITIES**. To include **POSTS** you must enable them for the custom entity.

Enable posts for a custom entity

1. Go to **Settings** > **Post Configurations**.
2. Locate the record for your custom entity.
3. Make sure that **Enable walls for this type of record form** is selected and save the record.
4. In the command bar, select **ACTIVATE**.
5. If you needed to enable walls, you need to publish the entity.

By default, for system entities the notes control is positioned in a social pane section in the center of a three column tab at the top of the form. It can appear in a form just one time. You can move or remove the notes control. To add it back, use the **Notes** button in the **Control** group of the **Insert** tab.

The following table describes the properties for the Notes control.

Tab	Property	Description
Display	**Label**	**Required**: Although the label is not displayed by default, a label is required.
Display Label on the form	You can choose to display the label.	
Lock the field on the form	This will prevent the notes from being removed from the form accidentally.	
Default tab	Select which tab should be displayed by default. The options are: • **Activities** • **Posts** • **Notes**	
Formatting	**Select the number of columns the control occupies**	When the section containing the notes control has more than one column you can set the field to occupy up to the number of columns that the section has.
Number of Rows	Control the height of the notes control by selecting the number of rows the control occupies.	
Automatically expand to use available space	Instead of setting the height by a number of rows, you can allow the notes control height to expand to available space.	

Configure Bing maps

Bing Maps can be displayed in forms for the account, contact, lead, quote, order, invoice, competitor, and system user forms. You can remove the Bing Maps area in the form editor or add it back by using the **Bing Maps** button on the **Insert** tab of the form editor.

To enable Bing Maps the system setting **Show Bing Maps on forms** must be enabled. Microsoft Dynamics CRMon-premise organizations will need to enter a Bing Maps Key and enter it in the system setting **Please enter Bing Maps key**. Obtain a Bing Map key from: https://www.bingmapsportal.com. Microsoft Dynamics CRM Online subscribers do not require a key.

Tab	Property	Description
General	**Label**	**Required**: A label to display for the Bing Maps.
Display label on the form	Whether the label should be displayed.	
Select an address to use with the Bing Maps control	Choose which address should be used to provide data for the map.	
Visible by default	Showing the Bing maps is optional and can be controlled using scripts. More information: Visibility options	
Formatting	**Select the number of columns the control occupies**	When the section containing the Bing Maps has more than one column you can set the field to occupy up to the number of columns that the section has.
Select the number of rows the control occupies	You can control the height of the Bing Maps by specifying a number of rows.	
Automatically expand to use available space	You can allow the Bing Maps height to expand to available space.	

Edit Navigation

Navigation within the form allows people to view lists of related records. Each entity relationship has properties to control whether it should be shown. More information: Navigation pane item for primary entity

Any entity relationships that are configured to be displayed can be overridden within the form editor. You can also include navigation links to display web resources or other web sites via form navigation.

For step-by-step instructions, see Add or edit form navigation for related entities

To enable editing navigation you must first select **Navigation** from the **Select** group on the **Home** tab.

In the **Relationship Explorer** you can filter by 1:N (one-to-many) or N:N (many-to-many) relationships, or view all available relationships. The **Only show unused relationships checkbox** is disabled and selected. So you can only add each relationship one time.

To add a relationship from the **Relationship Explorer** just double click it and it will be added below the currently selected relationship in the navigation area. Double-click a relationship in the navigation area and you can change the label on the **Display** tab. On the **Name** tab you can see information about the relationship. Use the **Edit** button to open the definition of the entity.

There are five groups in the navigation area. You can drag them to reposition them and double-click them to change the label, but you can't remove them. These groups will only display when there is something in them. So if you don't want a group to appear, just don't add anything to it.

Use the **Navigation Link** button in the **Control** group of the **Insert** tab to add a link to a web resource or external URL.

Navigation link properties

Navigation links have the following properties:

Property	Description
Name	**Required**: Text to display as a label.
Icon	Use a 32x32 pixel web resource. Use a PNG image with a transparent background is recommended.
Web Resource	Specify a web resource to display in the main pane of the form.
External URL	Specify the URL of a page to display in the main pane of the form.

Timer control

Use a timer control in forms where records need to meet a specific time-based milestone. A timer control shows people how much time is available to complete an action in the resolution of an active record or how much time has passed since the time to complete the action has passed. At a minimum, timer controls must be configured to show success or failure in completing the action. In addition, they can be configured to display warnings when the conditions are approaching failure.

A timer control can be added to a form for any entity, but they are most frequently used for the case entity, especially when linked to fields that track service level agreements. You can add multiple timer controls in the body of a form. You can't add them to the header or footer.

Timer control **Data Source** properties use fields for the entity.

- The **Failure Time Field** uses a date-time field to set the time.

- The three condition fields use one of the **Option Set**, **Two Options**, **Status**, or **Status Reason** fields for the entity.

Timer control properties

The following table describes the properties of a timer control.

Group	Name	Description
Name	Name	**Required**. A unique name for the control.
Label	**Required**. The label to display for the timer control.	
Data Source	Failure Time Field	**Required**. Choose one of the date-time fields for the entity to

Group	Name	Description
		represent when a milestone should be successfully completed.
Success Condition	**Required**. Select a field for the entity to evaluate the success of the milestone, then choose which option indicates success.	
Warning Condition	Select a field for the entity to evaluate whether the success of the milestone is at risk so that a warning should be displayed, then choose which option indicates that a warning should be displayed.	
Cancel Condition	Select a field for the entity to evaluate whether the achievement of th milestone should be cancelled, then choose which option indicates that the milestone is cancelled.	

Additional controls for CRM for phones and tablets

You can use a rich set of additional controls to create a more touch-friendly experience on CRM for phones and tablets. These include sliders, switches, multimedia player, input masks, calendar, and other controls.

 Note

You can use these additional controls only with the mobile apps. They aren't supported in the web app.

 Important

This feature was introduced in CRM Online 2016 Update and CRM 2016 (on-premises).

Interested in getting this feature? <u>Find your CRM administrator or support person.</u>

To use these controls in the form editor:

1. Double-click the field or list you want to add the control to.
2. Click the **Controls** tab.
3. Click **Add control**.
4. Select the control you want and then click **Add**.

Note

Different controls are available depending on the field or list type. For example, slider controls might only be available for numerical or money fields, and the calendar control is only available for lists.

5. Select the devices you want the control to appear on (phone, tablet, or both). Controls aren't available for phone header fields.

6. Configure the values for each property.

7. Click **OK** when you're done configuring the control.

Following are descriptions for each control you can use on forms for CRM for phones and tablets.

Calendar control

Use this control to configure CRM forms so they show up as a calendar view in CRM for phones and tablets. You can also use this control to replace dashboards, lists, or entity grids for phones and tablets.

Property	Description
Start Date	Define the start date and time of the item to visualize in the calendar view. The available values are any of the columns in this view of type date.
End Date	Define the end date and time of the item to visualize in the calendar view. The available values are any of the columns in this view of type date.
Duration	The duration in minutes. If you specify a value for End Date, Duration is ignored.
Description	This is the caption you want to see for calendar items.

The minimum duration shown in the calendar is 30 minutes. Items with a duration less than 30 minutes will still appear as 30 minutes long.

The calendar control supports all date behaviors (User Local, Date Only, and Time-Zone Independent).

Timeline control

Provide a timeline of recent, relevant news articles and Twitter tweets for an account.

This feature is available in Microsoft Dynamics CRM Online 2016 Update 1 or later.

Property	Description
CC_Timeline_Title	Property to map for the title of each timeline item.
CC_Timeline_Title_Desc	Description for Title.
CC_Timeline_Label1	Field to be displayed below the title of timeline item.

Property	Description
CC_Timeline_Label1_Desc	Description for Label 1.
CC_Timeline_Label2	Field to be displayed after Label 1.
CC_Timeline_Label2_Desc	Description for Label 2.
CC_Timeline_Label3	Field to be displayed after Label 2.
CC_Timeline_Label3_Desc	Description for Label 3.
CC_Timeline_Label4	Field to be displayed after Label 3.
CC_Timeline_Label4_Desc	Description for Label 4.
CC_Timeline_Label5	Field to be displayed after Label 4.
CC_Timeline_Label5_Desc	Description for Label 5.
CC_Timeline_Timestamp	Field to use for sorting timeline in reverse chronological order.
CC_Timeline_Timestamp_Desc	Description for Timestamp.
CC_Timeline_Group	Field to map for grouping timeline.
CC_Timeline_Group_Desc	Description for Group field.
CC_Timeline_GroupOrder	Order of the group the item belongs to relative to other groups (assign values 1, 2, 3, and so on for groups to be displayed). The group will be displayed in ascending value of group values assigned.
CC_Timeline_GroupOrder_Desc	Description for Group Order field.
CC_Timeline_URL	URL field to map for displaying the URL of each timeline item.
CC_Timeline_URL_Desc	Description for URL field.
CC_Timeline_ThumbnailURL	Field to map for thumbnail of image/icon to display for each item.
CC_Timeline_ThumnailURL_Desc	Description for the **ThumbnailURL** field.
CC_Timeline_Filter	Field to map for timeline filter.
CC_Timeline_Filter_Desc	Description for Filter.
CC_Timeline_Footer	Web resource to display as the footer of the timeline.
CC_Timeline_Footer_Desc	Description for Footer field.

Linear slider

The linear slider control lets your users input numerical values by dragging a slider and also provides an option for typing in the quantity. The slider provides whole number input and display only. Use this control for any numerical or money field.

Property	Description
Max	Set the maximum value to display on the slider.
Min	Set the minimum value to display on the slider.
Value	The value to display on the slider.
Step	Set the amount to add or subtract from the current value when entering data with this control.

Option sets

The option set control presents a set of choices for your users to choose from when entering data. Use this control for option sets with two or three choices only.

Property	Description
Field	Shows the field that the control is mapped to.

Flip switch

The flip switch is like an on/off switch, providing a choice between two values.

Property	Description
Field	Shows the field that the control is mapped to.

Star rating

Use the star rating to provide a visual representation of a rating. The maximum number of stars you can set is five. You can use this control for whole numbers only; it can't accept decimal values.

Note

Be sure to select the **Hide on web** option for this control.

Property	Description
Max	Select the maximum number of stars for the control from the dropdown list.

Radial knob

The radial knob provides a way for users to enter data by sliding the knob, and shows up on the screen as a circle. The radial knob control provides whole number input and display only. Use this control for any numerical or money fields. You can use touch to change the value, or you can use the keypad to focus on the number and edit it.

 Note

This control isn't supported on Android 4.2 and 4.3 devices. It impacts the scrolling experience on those versions.

Property	Description
Max	Set the maximum value to display on the gauge.
Min	Set the minimum value to display on the gauge.
Value	Get or set the value to display on the gauge.
Step	Set the amount to add or subtract from the current value when entering data with this control.

Website preview

Use the website preview control to map a URL field and show a preview of the website.

 Note

This control isn't supported in on-premises CRM deployments. For on-premises systems, this control defaults to the out-of-box control.

 Important

By enabling this control, you consent to allow your users to share certain identifiable device information with an external system. Data imported from external systems into CRM are subject to our privacy statement at Microsoft Online Services Privacy Statement.

Privacy notices

Property	Description
Field	Shows the field the control is mapped to.

Bullet graph

The bullet graph control displays a single key measure with a comparative measure and qualitative ranges to instantly signal whether the measure is good, bad, or in another state. Use this control in

dashboards for any numerical or money field. For example, you can map the value to actual revenue and the target to estimated revenue to visualize actual versus estimated revenue.

Property	Description
Max	Set the maximum value to display on the graph.
Min	Set the minimum value to display on the graph.
Good	Set a value that's considered good for the measure (optional).
Bad	Set a value that's considered bad for the measure (optional).
Value	Shows the field that the control is mapped to.
Target	Map this to the field you want to compare the value with. For example, if **Value** is mapped to **Actual Revenue**, you can map **Target** to **Estimated Revenue**, or you can provide a static value.

Pen control

Use the pen control to capture written input such as signatures.

📝 Note

The minimum recommended **Maximum Length** specified for the field this control maps to is 15000.

Be sure to select the **Hide on web** option for this control.

Property	Description
PenMode	Specify **PenMode!Draw**, **PenMode!Erase**, or **PenMode!Select** to determine what happens when a user drags a pointing device in a pen control.

Auto-complete

The auto-complete control filters an item list as you type and lets you select a value from the drop-down list. For example, you can use this control to let users choose from a dropdown list of states or countries/regions. This control maps to a **Single Line of Text** type field.

Property	Description
Field	Shows the field the control is mapped to.
Source	Set the source for the data (Grouped Options, Option Set, or View).

Property	Description
Option Set	Select the option set for this field.
View	Select the entity and view for this field.
Field	Select the field of the view's primary entity to use as the data source.

Multimedia

You can embed videos to provide a richer customer experience for sales and field people on the go. Use this control to map to a URL field that contains the audio or video link to play in the control.

Note

This control is supported on Android versions 4.4 and later.

YouTube videos aren't currently supported on Windows 8 and Windows 8.1 tablets and phones. On Windows 10, only HTTPS videos (including YouTube) are supported.

Supported media types include:

- Streaming MP4 files

- YouTube videos

- Azure media

- Audio streams

Privacy notices

Property	Description
Media	Enter the URL of the media to play in this control.

Number input

Use the number input control to help users enter data quickly. Users only have to tap the plus and minus buttons to change a numeric value in increments you set. Use this control for any numerical or money field. Users can also type a number directly into the field. This field is only supported in edit mode.

Property	Description
Step	Set the amount to add or subtract from the current value when entering data with this control.
Field	Shows the field the control is mapped to.

Input mask

With the input mask control, you set the formatting for a field like phone number or credit card to prevent entering invalid data. For example, if you want users to enter a United States phone number in the format +1-222-555-1011, use the input mask +1-000-000-0000.

Property	Description
Mask	Enter the mask to use for validating data as users enter it. You can use a combination of the following characters for the mask: 0 – Digit 9 – Digit or space # – Digit, sign, or space L – Letter I – Letter or space A – Alphanumeric A – Alphanumeric or space < – Converts characters that follow to lower case > – Converts characters that follow to upper case | – Disables case conversion \ – Escapes any character, turning it into a literal All others – Literals
Field	Shows the field the control is mapped to.

Linear gauge

The linear gauge lets your users input numerical values by dragging a slider instead of typing in the exact quantity. The slider provides whole number input and display only. Use this control for any numerical and money fields.

Property	Description
Max	Set the maximum value to display on the gauge.
Min	Set the minimum value to display on the gauge.
Value	Get or set the value to display on the gauge.
Step	Set the amount to add or subtract from the current value when entering data with this control.

Arc knob

The arc knob provides a way for users to enter data by sliding the knob, and shows up on the screen as an arc. The arc knob control provides whole number input and display only. Use this control for any numerical and money fields. You can use touch to change the value, you can also focus on the number and edit it using the keypad.

This control isn't supported on Android 4.2 and 4.3 devices. It impacts the scrolling experience on those versions.

Property	Description
Max	Set the maximum value to display on the gauge.
Min	Set the minimum value to display on the gauge.
Value	Get or set the value to display on the gauge.
Step	Set the amount to add or subtract from the current value when entering data with this control.

Configure event handlers

Form event handlers can be configured for the following areas in a form:

Element	Event	Description
Form	**OnLoad**	Occurs when the form loads.
OnSave	Occurs when data is saved.	
Tab	**TabStateChange**	Occurs when the tab is expanded or collapsed.
Field	**OnChange**	Occurs when data in the field changes and the control loses focus.
IFRAME	**OnReadyStateComplete**	Occurs when the content of an IFRAME loads.

An event handler consists of a reference to a JavaScript web resource and a function defined within that web resource that will execute when the event occurs. Each element can have up to 50 separate event handlers configured.

Important

Configuring an event handler incorrectly can result in script errors that may cause the form to fail to load or function correctly. If you are not the developer of the script, make sure you understand exactly what configuration options the script requires.

Do not configure a script event handler using a library that does not come from a source you trust. Scripts can be used to perform any action a user might perform and a poorly written script can significantly damage the performance of a form.

After you configure an event handler always test it to verify it is working correctly.

To configure an event handler

1. In the form editor, select the element with the event you want to configure a handler for.

2. On the [Home tab](), in the **Edit** group, click **Change Properties** or simply double-click the element.

3. In the element properties dialog, select the **Events** tab.

4. Expand the **Form Libraries** area. If the library containing the function you want to set as the event handler is not already listed, add the library.

5.

   a. In the **Form Libraries** section of the **Event List**, click **Add**.

   b. Locate the JavaScript web resource in the list of available web resources. Select it and click **Add**.

      If the JavaScript web resource you need does not exist, click **New** to open a new web resource form and create one.

   c.
      i. In the web resource form set the following properties:

Property	Value
Name	**Required**. Type the name of the web resource.
Display Name	**Required**. Type the name to be displayed in the list of web resources.
Description	Optional. Type a description of the web resource.
Type	**Required**. Select **Script (JScript)**.
Language	Optional. Choose one of the languages available for your organization.

      ii. If you have been provided with a script, we highly recommend that you use the **Browse** button to locate the file and upload it.

         Alternatively, you can click the **Text Editor** button and paste or type the contents of the script in the **Edit Content** dialog.

      ✒ **Note**

      Because this simple text editor does not provide any features to check the correctness of the script, generally you should always try to use a separate application like Microsoft Visual Studio to edit scripts and then upload them.

      iii. Click **Save** and close the web resource dialog.

      iv. The web resource you created is now selected in the **Look Up Record** dialog. Click **Add** to close the dialog.

6. In the **Event Handlers** section, select the event you want to set an event handler for.

7. Click **Add** to open the **Handler Properties** dialog.

8. On the **Details** tab choose the appropriate library and type the name of the function that should be executed for the event.

9. By default the event handler is enabled. Clear the **Enabled** checkbox if you do not want to enable this event.

   Some functions require an execution context to be passed to the function. Select **Pass execution context as the first parameter** if it is required.

   Some functions can accept a set of parameters to control the behavior of a function. If these are required, enter them in the **Comma separated list of parameters that will be passed to the function**.

10. On the **Dependencies** tab, add any fields that the script depends on into the **Dependent Fields** area.

11. Click **OK** to close the **Handler Properties** dialog.

12. When the event handler is entered you may adjust the order in which the function will be executed relative to any other functions by using the green arrows to move it up or down.

13. Click **OK** to close the element properties dialog.

14. Click **Save** to save your changes. Click **Publish** to publish the form.

 Note

While the user interface (UI) lets you adjust the order in which the scripts are loaded by using the up and down green arrows, the scripts are actually not loaded sequentially. More information: MSDN: Manage library dependencies

Privacy notices

When you add the Website Preview Control to a form, on load, certain identifiable device information (the device name – such as iPhone, the OS and the OS version, the browser and the browser version) will be sent to Bing (a consumer service). Therefore, Consumer Data sent to Bing will be subject to the Microsoft Online Services Privacy Statement. By adding this control, you agree for this limited set of data to be sent to the Bing service. Note that you may remove the control at any time to discontinue use of this functionality.

When you add the Multimedia Control to a form, certain identifiable device information (the device name – such as iPhone, the OS and the OS version, the browser and the browser version) will be sent to the service that you are calling (such as YouTube or Azure Media Services) and will be subject to the terms of that service's privacy statement. By adding this control, you agree for this limited set of data to be sent to the external service you are calling. Note that you may remove the control at any time to discontinue use of this functionality.

See Also

Create and design forms
Design considerations for main forms
Create and edit mobile forms for CRM for phones express

Design considerations for main forms

Applies To: CRM 2016 on-prem, CRM Online

Main forms are the primary user interface where people view and interact with their data in Microsoft Dynamics CRM. Main forms provide the widest range of options and are available for most clients, the exception being Microsoft Dynamics CRM for phones.

One of the main design objectives for main forms is that you design them once and deploy them everywhere. The same main form you design for the web application is also used in Dynamics CRM for Outlook and CRM for tablets. The advantage to this approach is that you don't have to integrate changes into three different forms. However there are several important factors to consider in designing these forms.

In This Topic

Custom forms for different groups
Presentation differences
Form performance
Managing auto-save

Custom forms for different groups

Because you can create multiple main forms and assign different security roles to each form you can present different groups in your organization with a form that is optimized for how they use the application. You can even provide each group with different options so that they have different forms to choose from. More information: Control access to forms

You can expect that managers and decisions makers will want forms that are optimized to provide quick reference to key data points. They will like to see charts more than lists and they may not perform a lot of data entry.

People who interact directly with customers may need forms tailored to tasks they perform most frequently. They may want forms that allow for the most efficient data entry.

You'll need to find out what people in your organization want and need. This is frequently an iterative process where you gather input, try different things and build forms that people can use. Keep in mind that you have a variety of tools available to you and that not everything has to be done within the form. Use business rules, workflow processes, dialogs and business process flows together with your forms to provide a solution that works for your organization.

You'll have to balance this with the amount of time you want to spend managing forms. Creating and editing forms is relatively easy, but as you create more forms, you have to manage more forms.

Presentation differences

Although you don't have to manage multiple forms for each presentation, you must consider how differences in the presentation can be accounted for in the main form. Main form presentations describes the different ways that the main form may be presented. The primary things to take into consideration are:

- CRM for tablets doesn't support image, HTML, or Silverlight web resources to be added to forms.

- The layout of CRM for tablets forms is auto-generated based on the main form. There is no special form editor for CRM for tablets forms. You need to verify that the form presentation works well for both clients.

- If you have unsupported scripts that interact with DOM elements found in the web application, those scripts won't work in the CRM for tablets forms because the same DOM elements aren't available.

- Dynamics CRM for Outlook Reading Pane forms don't allow for scripting. The visibility of form elements depend on the default settings and can't be changed at runtime using scripts.

Form performance

Forms that load slowly or don't respond quickly are sure to affect productivity and user adoption of the system. Optimize form performance provides a number of recommendations you should consider when designing forms so that customizations don't adversely affect form performance.

Managing auto-save

Most people will welcome the simplified interaction they have with auto-save enabled. However this is a significant change from the save model in place for earlier versions of Microsoft Dynamics CRM where the record needed to be explicitly saved each time data was updated. Some organizations created customizations that assumed that saving a record meant that the person was finished editing it. Best practices for customizations are to treat each save as an update and to design automated tasks so that they fire only when specific data conditions occur. This change will require some time for organizations to adapt to, so there are options to control how auto-save works for your organization. More information: Manage auto-save

See Also

Main form presentations

Applies To: CRM 2016 on-prem, CRM Online

The main form is used by every client except Microsoft Dynamics CRM for phones express (the previous version of the phone app). This form provides a consistent user experience whether someone is using the web application,Microsoft Dynamics CRM for phones (the latest version of the phone app), Microsoft Dynamics CRM for tablets, or Dynamics CRM for Outlook.

In This Topic

Main forms
Updated forms
CRM for phones and tablets forms
Classic forms
CRM for Outlook reading pane

Main forms

Any main forms that exist for an entity may be displayed differently depending on the factors in the following table below. When you design a main form, consider how it works in each different presentation.

Presentation	Description
Updated	For the Updated entities and any custom entities, the updated form provides a new user experience in Microsoft Dynamics CRM and Microsoft Dynamics CRM Online. These forms have the new command bar design, and enable additional features such as the command bar, auto-save, and business process flows.
CRM for tablets	Microsoft Dynamics CRM for tablets presents the content of the main form in a manner optimized for a tablet.
CRM for phones	CRM for phones presents the content of the main form in a manner optimized for a tablet.
Classic	These forms are for the entities that are not updated. They use the ribbon rather than the command bar and the navigation pane on the left side of the form. These forms have a two-column layout.
CRM for Outlook reading pane	Dynamics CRM for Outlook presents a read-only view of records in Outlook. This presentation doesn't support form scripts.

CRM for phones express (the previous version of the phone app) uses the **Mobile – Express** form. To learn more about customizing these forms, see Create and edit mobile forms for CRM for phones express.

Updated forms

This diagram represents common components found in updated entity forms.
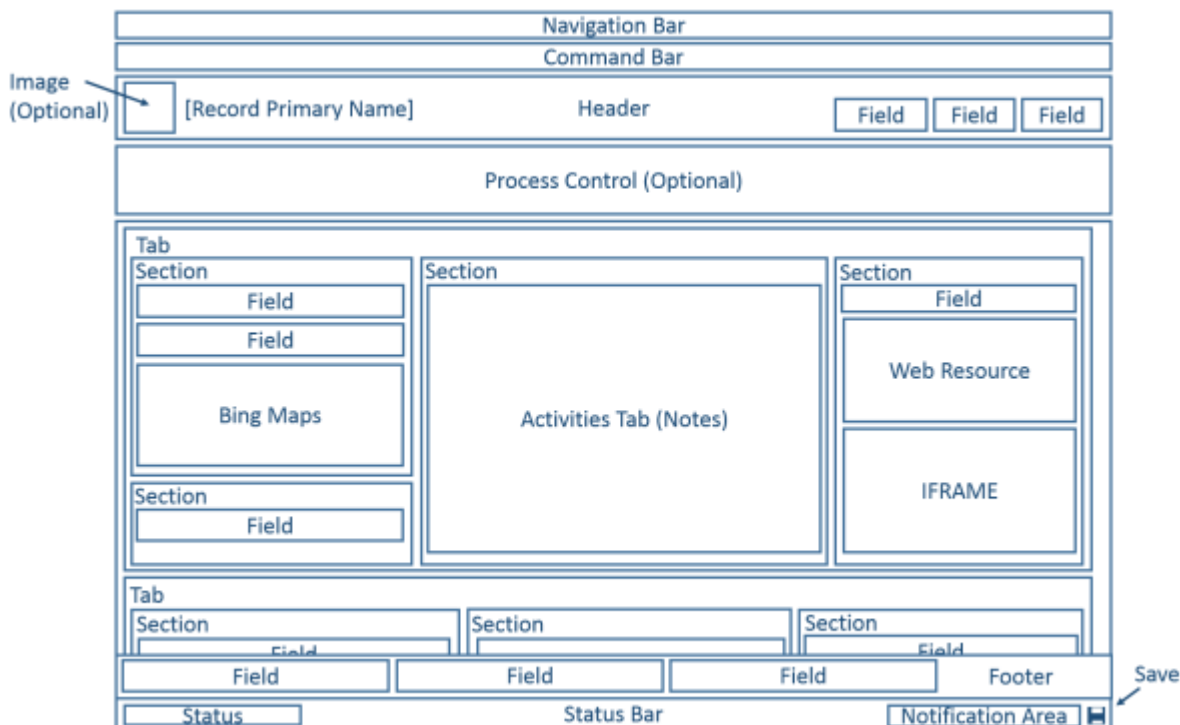
For updated entities, the layout of the form works with a wide range of displays and window sizes. As the width of window decreases, tab columns move down so that you can scroll down to work with them instead of being compressed or requiring you to scroll to the right.

The following table summarizes available components of the main form for updated entities.

Component	Summary
Navigation bar	Uses the data in the site map to provide the ability to move to different areas of the application.
	The navigation pane used in classic forms isn't included in the updated form. In the context of a record, the navigation bar provides access to views of related records. Rather than navigating to related records using the navigation pane or by using the navigation bar, adding sub-grids configured to show useful related entity records

Component	Summary
	provides a better experience for most people.
Command bar	Uses the data defined for ribbons to provide commands relevant for the record.
	The first five commands are displayed followed by an ellipsis (•••) that provides a flyout menu to choose additional commands.
Image	When an entity has an image field and the entity **Primary Image** option is set to **Default Image**, an image can be displayed in the header when the form is configured to show the image. More information: Enable or disable entity options, Image fields and Form properties
Header	Fields placed in the header remain visible when people scroll down through the body of the form.
	Up to four fields can be placed in the header. Multiple lines of text, web resources, or IFRAMEs aren't allowed in the header. The header and footer share some properties with sections. More information: Section properties
Process Control	When an entity has active business process flows, the process control displays below the header. More information: Business process flows
Body	The body is the scrollable part of the form that contains the tabs.
Tabs	In the body of the form, tabs provide horizontal separation. Tabs have a label that can be displayed. If the label is displayed, tabs can be expanded or collapsed to show or hide their content by clicking the label.
	Tabs contain up to three columns and the width of each column can be set to a percentage of the total width. When you create a new tab, each column is prepopulated with a section. More information: Tab properties
Sections	A section occupies the space available in a tab column. Sections have a label that can be displayed and a line may be shown below the label.
	Sections can have up to four columns and include options for displaying how labels for fields in the section are displayed. More information: Section properties
Fields	Fields display controls people use to view or edit

Component	Summary
	data in an entity record. Fields can be formatted to occupy up to four columns within a section. More information: Common field properties
Spacer	A spacer allows for an empty space to be added to a section column.
Sub-grids	Sub-grids allow for the display of a list within the form. The ability to display charts using a sub-grid isn't available in forms for updated entities.
Quick View Form	A quick view form displays data from a record referenced by a lookup field on the form. The entity that is the target of the lookup must have a quick view form before one can be added to the form. More information: Create and edit quick view forms
Web Resources	HTML and Microsoft Silverlight web resources can be added to main forms but they won't be displayed when using CRM for phones and tablets or the Dynamics CRM for Outlook reading pane.
IFRAME	An inline-frame that you configure to show a webpage from another website. ◆ **Important** • When the page displayed in an IFRAME is on another domain, browsers apply a higher level of security. This may complicate the requirements for the contents of an IFRAME to interact with data in the form. • IFRAMEs aren't displayed when using CRM for tablets or the Dynamics CRM for Outlook reading pane. • Displaying an entity form within an IFRAME embedded in another entity form is not supported. More information: SDK: Supported extensions for Microsoft Dynamics CRM
Bing Maps	When this control is present in a form for an updated entity and the system setting **Enable Bing Maps** is enabled with a valid Bing Maps key, this control can be used one time in a form to show the location for one of the addresses in an

Component	Summary
	updated entity. More information: Configure Bing maps
Footer	Any number of fields, web resources, or IFRAMES can be added to the footer. Fields are read-only when displayed in the footer. The header and footer share some properties with sections. More information: Section properties
Status Bar	The status bar displays the status field for the record, a notification area, and a save button.

CRM for phones and tablets forms

Most system entities and custom entities are available for CRM for phones and tablets. The main form for these entities is transformed to a presentation optimized for phones or tablets.

Entities enabled for CRM for phones and tablets

Only entities that are enabled for CRM for phones and tablets use this presentation of the main form. More information: Entities displayed in CRM for phones and tablets

Form design

CRM for phones and tablets takes many of the main form elements and presents them in a way optimized for phones or tablets. The following diagrams show the reflow from the web app to the tablet and phone apps.

Web app
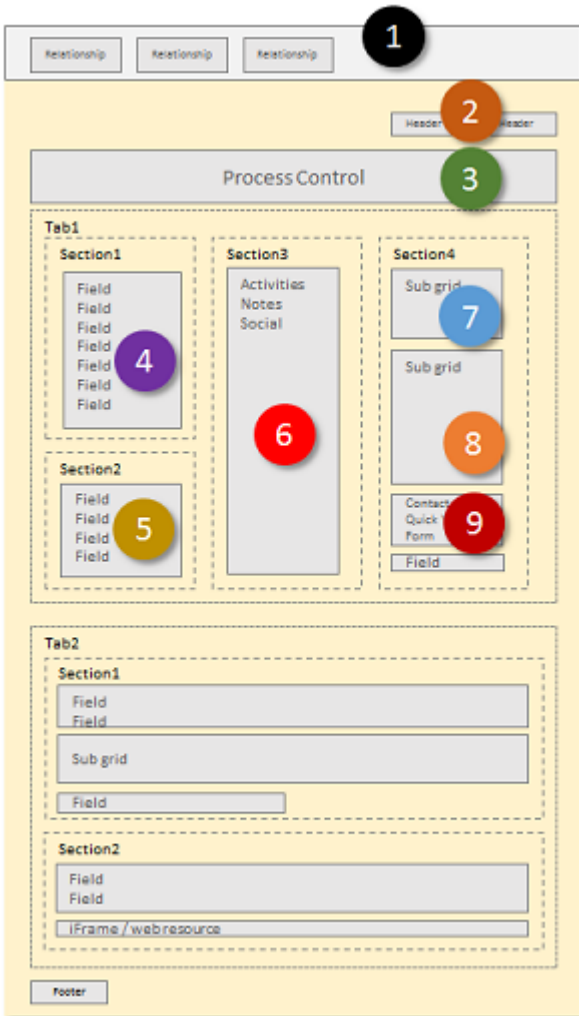
Tablet app
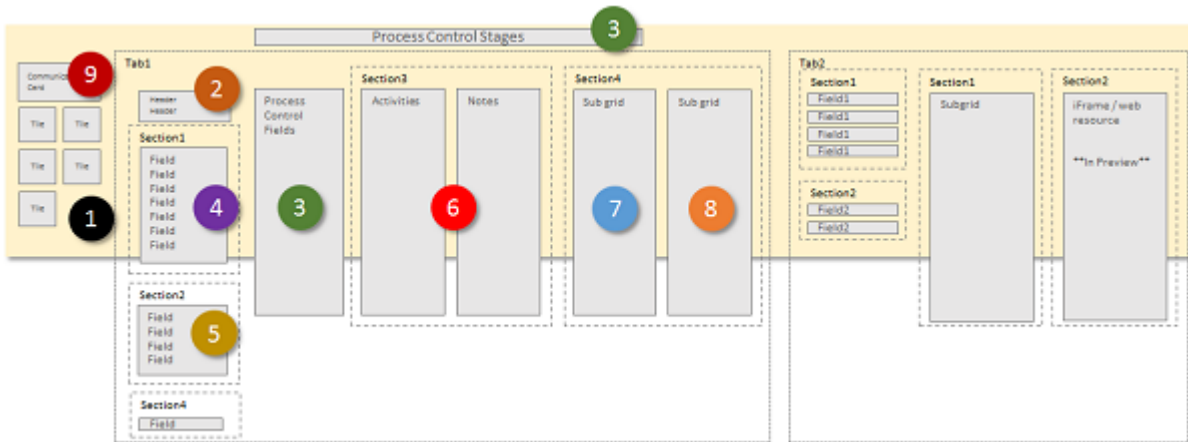
Phone app
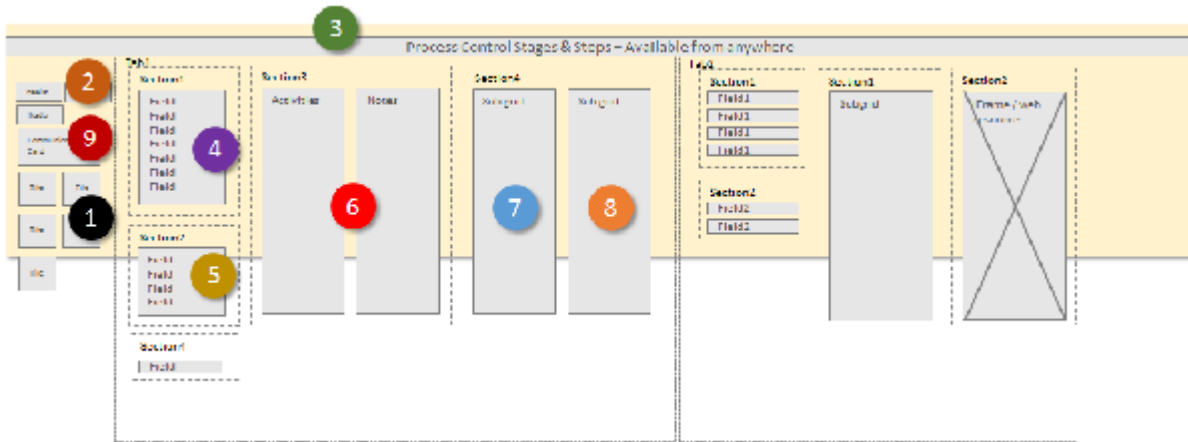
The form elements are transformed to a wide panorama layout in CRM for tablets, where users swipe the screen to change elements visible within a view port. In CRM for phones, users swipe the screen to see a different column, or pane of elements, and the process control appears over every column.

View port element

The following items are always visible within the view port in the context of a form:

Nav bar

> The nav bar is a presentation of the sitemap that is optimized for touch. More information: Change navigation options for CRM for phones and tablets

Home

> The home button takes users to the dashboard that is the starting page for CRM for phones and tablets.

Process Control

> If the entity has a business process enabled, it will appear in the top right corner next to the

search control in CRM for tablets, and at the top of the screen in CRM for phones.

Search

People can tap the search control to open the screen to search for records.

Command Bar

By default, some of the commands that appear in the web application do not appear in the CRM for phones and tablets apps. Similar to the web application, the command bar is context-sensitive, so the available commands change depending on what is currently viewed or selected. . More information: Change commands for CRM for phones and tablets

Form elements

The form elements displayed are taken from the main form and presented as a series of panels that users see through the view port.

In CRM for tablets, the first panel displays contact information about relationships that exist for the record. In CRM for phones, the first panel also displays header fields from the form above the relationship tiles.

For Contact and User forms, the top item displays a communication card for the record. The communication card provides buttons to initiate communication with the person. For other entities, a communication card is displayed if there is a Contact quick view form embedded in the main form.

You can show additional tiles based on entity relationships, but you can't customize the the tiles for the following entities:

Entity	Tiles
Account	Owner

Entity	Tiles
Contact	Company Name, Owner
Lead	Owner
Opportunity	Account, Owner

You can customize the remaining tiles with the form editor. The order is fixed, but you can set which elements are visible in the relationship panel.

In CRM for tablets, the second panel begins with the name of the first tab on the form. Any fields that are included within the header are included and then the contents of the first tab. In CRM for phones, headers appear in the first column.

If there is a process flow active for the form, the third tab displays tasks for the current stage of the process in CRM for tablets. In CRM for phones, the process control floats above the panes, expands over the user's current pane when it's selected, and is always visible and actionable.

The remaining panels of the form contain the contents of the tabs in the form. Any subgrids found display as a separate panel.

The CRM for phones and tablets form always displays the labels for tabs and sub-grids. The **Display Label on the Form** setting is not applied.

To optimize performance on mobile devices, the number of objects is limited to 5 tabs or 75 fields and 10 subgrids.

Forms for CRM for phones and tablets don't support the following:

- Web resources

- iFrames

- Bing maps

- Yammer

- Activity feeds

- SharePoint document libraries

- Parature, from Microsoft knowledge base integration

- Theming

If you're interested in trying out a preview feature that does display web resource or iFrame elements in CRM for tablets, see Preview feature: iFrame and web resource support in CRM for tablets.

In addition, entity images are visible in list views and contact cards, but not within the actual form.

Multiple forms

CRM for phones and tablets and CRM for phones express support multiple forms but don't provide a way for people to switch between forms if they can access more than one. People will see the first form in the form order that they have access to.

For example, if you have the following main forms for the opportunity entity and have assigned the following security roles for each one, you'll see the form order shown in the following table.

Form Order	Form Name	Security roles
1	**Sales Form One**	Salesperson
2	**Sales Form Two**	Salesperson and Sales Manager
3	**Sales Form Three**	Sales Manager
4	**Sales Form Four**	Vice President of Sales

- People with the Salesperson role will always see **Sales Form One**.

- People with the Sales Manager role will always see **Sales Form Two**.

- People with the Vice President of Sales role will always see **Sales Form Four**.

Classic forms

The following diagram shows the main form components used in the classic presentation.

Note

When an organization upgrades from Microsoft Dynamics CRM 2011 or an earlier version of Microsoft Dynamics CRM Online, their forms were designed to use the classic presentation. For information about how to migrate these forms for updated entities, see Update your forms.
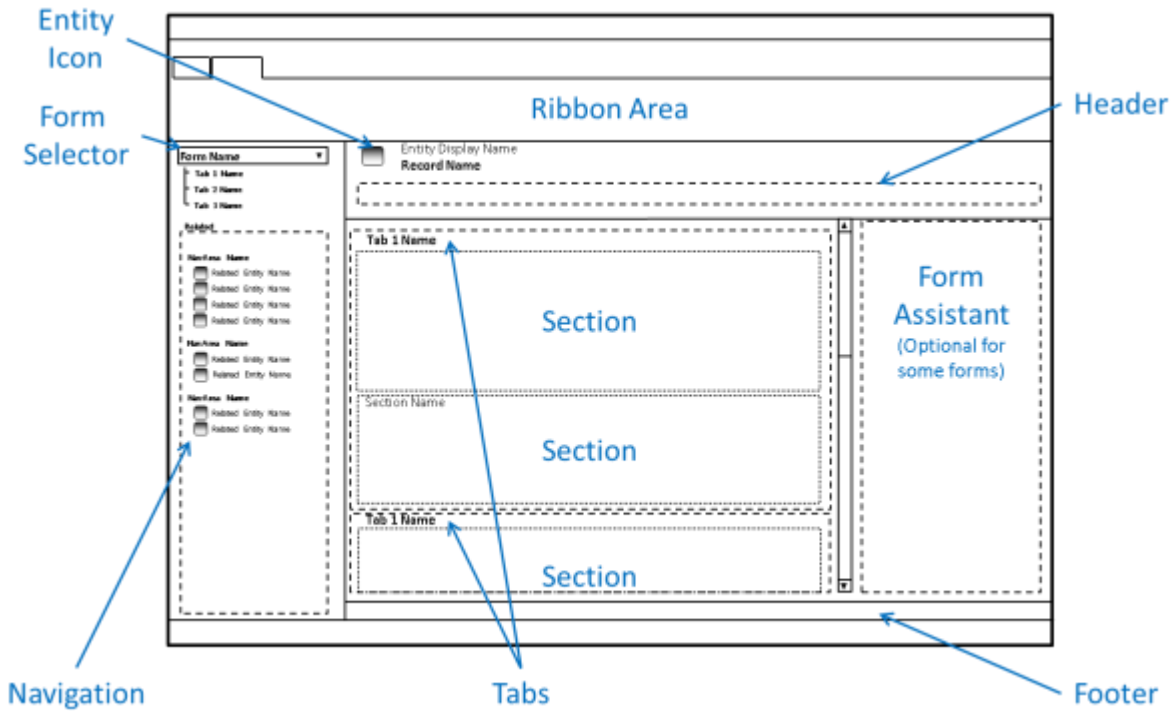
The forms for updated entities have inherited many components from the classic forms, but there are significant differences.

Forms using the classic presentation don't include the navigation bar and the ribbon is used instead of the command bar. These forms don't support entity images, the process control, quick view forms, auto-save, or Bing Maps. Fields in the header aren't editable.

The form assistant is exposed for certain entities, such as **Article**.

CRM for Outlook reading pane

People using Dynamics CRM for Outlook to view records can access a read-only view of the record using the reading pane as shown here.

A. Datum Corporation (sample)

Annual Revenue	$10,000.00
No. of Employees	6,200
Owner	👤 First name Last name

ACCOUNT INFORMATION

Account Name	A. Datum Corporation (sample)
Phone	555-0158
Fax	
Website	http://www.adatum.com/
Parent Account	
Ticker Symbol	

ADDRESS

2137 Birchwood Dr

More

Summary

There are no Notes for this Account.

Summary

Primary Contact 📇 Rene Valdes (sample)

Rene Valdes (sample)

CONTACTS

Full Name ▲	Email
📇 Rene Valdes (sample)	someone_i@example.com
📇 Susan Burk (sample)	someone_i@example.com

1 - 2 of 2

RECENT OPPORTUNITIES

Topic	Status ▲	Actual Close Date	Actual Revenue	Est. Close Date ▼	Est. Revenue
☐ Very likely will order 73 Produc...	Won	3/26/2013	$153,385.37	4/7/2013	$16,000.00

1 - 1 of 1

RECENT CASES

Status	Case Title
🔧 Resolved	Required Service (sample)
🔧 Resolved	Operating manual required (sample)
🔧 Active	Noise from product (sample)
🔧 Active	Faulty product catalog (sample)
🔧 Active	Missing parts (sample)

1 - 5 of 5

The reading pane uses the main form and displays just the sections within each tab. Form scripts aren't loaded. Process controls, Bing Maps, web resources, quick view forms, footer fields, and IFRAMEs aren't displayed. The notes control displays only notes, not posts or activities. Like CRM for phones and tablets forms, the reading pane supports multiple forms but people can't switch forms. The form used is the first form that the person has access to. For an example, see Multiple forms.

When viewing the reading pane, people can rearrange the sections as they like. Their changes will be preserved as they navigate between records.

See Also

Create and design forms
Use the form editor
Design considerations for main forms
Optimize form performance
Manage auto-save
Update your forms

Optimize form performance

Applies To: CRM 2016 on-prem, CRM Online

Forms that load slowly can reduce productivity and user adoption. Follow these recommendations to maximize how quickly your forms will load. Many of these recommendations are about how a developer may implement form scripts for your organization. Be sure to discuss these recommendations with developers who create form scripts for your forms.

In This Topic

Form design
Form scripts
Command bar or ribbon

Form design

Think about the interaction the user will have with the form and the amount of data that must be displayed within it.

Keep the number of fields to a minimum

The more fields you have in a form, the more data that needs to be transferred over the Internet or intranet to view each record.

Form scripts

When you have customizations using form scripts make sure that the developer understands these strategies to improve performance.

Avoid including unnecessary JavaScript web resource libraries

The more scripts you add to the form, the more time it will take to download them. Usually scripts are cached in your browser after they are loaded the first time, but the performance the first time a form is viewed often creates a significant impression.

Avoid loading all scripts in the Onload event

If you have code that only supports **OnChange** events for fields or the **OnSave** event, make sure to set the script library with the event handler for those events instead of the **OnLoad** event. This way loading those libraries can be deferred and increase performance when the form loads.

Use collapsed tabs to defer loading web resources

When web resources or IFRAMES are included in sections inside a collapsed tab they will not be loaded if the tab is collapsed. They will be loaded when the tab is expanded. When the tab state changes the **TabStateChange** event occurs. Any code that is required to support web resources or IFRAMEs within collapsed tabs can use event handlers for the **TabStateChange** event and reduce code that might otherwise have to occur in the **OnLoad** event.

Set default visibility options

Avoid using form scripts in the **OnLoad** event that hide form elements. Instead set the default visibility options for form elements that might be hidden to not be visible by default when the form loads. Then, use scripts in the **OnLoad** event to show those form elements you want to display.

Command bar or ribbon

Keep these recommendations in mind as you edit the command bar or ribbon.

Keep the number of controls to a minimum

Within the command bar or the ribbon for the form, evaluate what controls are necessary and hide any that you don't need. Every control that is displayed increases resources that need to be downloaded to the browser.

See Also

Create and design forms
Use the form editor
Design considerations for main forms
Main form presentations
Manage auto-save
Update your forms

Manage auto-save

Applies To: CRM 2016 on-prem, CRM Online

Auto-save helps people focus on their work without having to manage saving data in the form. Most people will appreciate not having to explicitly save data each time they update a record, but some organizations may have customizations that were designed expecting an explicit save. For these organizations there are options to manage how auto-save is applied.

In This Topic

How auto-save works

By default all main forms for Updated entities will have auto-save enabled. After a record is created (initially saved), any changes made to a form will automatically be saved thirty seconds after the change is made. If no changes are made in the form, the automatic save won't occur while the form is open. After a change is made the 30-second period before an auto-save begins again. The field that someone is currently editing isn't included in an auto-save. If someone else has updated the same record while you're editing it, those changes will be retrieved and displayed in the form when auto-save occurs.

With auto-save enabled, the save button only appears for the initial save of the record. After the record is created, the save button in the command bar isn't shown, but you can see a 🖫 button in the lower right corner that will show if there are any unsaved changes. This control is also displayed if auto-save is disabled.

You can click this button to save the record and refresh data in the form immediately. When auto-save is enabled the record will be saved whenever you navigate away from a record or close a separate window displaying a record. There is no need for the **Save & Close** button that appears in forms for entities that aren't updated.

Should you disable auto-save?

If you have plug-ins, workflows, or form scripts that execute when a record is saved, they'll run each time auto-save occurs. This might lead to undesirable behaviors if these extensions weren't designed to work with auto-save. Whether auto-save is enabled or not, plug-ins, workflows, and form scripts should be designed to look for specific changes, and shouldn't execute indiscriminately for each save event.

If you have auditing configured for an entity, each save is treated like a separate update. If someone lingers on a form with unsaved changes for more than thirty seconds, you'll see an additional entry only if they add more data after the auto-save is performed. If you have reports that depend on auditing data and treat each save as an individual "touch" of a record, you might see an increase in the frequency of touches. If you are using this approach, you should consider that individual user behaviors make it an unreliable metric with or without auto-save enabled.

Disable auto-save for the organization

If you determine that auto-save will cause problems with any extensions you are using, you can disable it for your organization. There is no setting to disable auto-save for individual entities or forms.

1. Go to **Settings** > **Administration**.
2. Choose **System Settings**.

3. For the **Enable auto-save for all forms** option, select **No**.

Disable auto-save for a form

If you want to disable auto-save for specific entity forms, you can add code to the **OnSave** event in an entity.

✎ Note

Auto-save will be disabled for the form, but data will still be saved whenyou click the 🖫 button in the lower-right corner. If you attempt to navigate away from a form or close a form where data has been changed they will get prompt to save their changes before they are allowed to navigate away or close the form.

1. On the nav bar, choose **Microsoft Dynamics CRM** > **Settings**.

    Settings appears on the nav bar.

2. Go to **Settings** > **Customizations**.

3. Choose **Customize the System**.

4. Under Components, expand **Entities** and locate the entity for the form.

5. Expand the entity node and choose **Forms**

6. Open the form you want to edit.

Create a JavaScript web resource and add it to the form

a. In the form editor, in the **Form** group, choose **Form Properties**.

b. On the **Events** tab, below **Form Libraries** choose **Add**.

c. In the **Look Up Record** dialog box, choose **New**.

d. Enter the following information in the web resource form:

Name	preventAutoSave
Display Name	Prevent Auto Save
Type	Script (JScript)

e. Next to the **Type** field, choose **Text Editor**.

f. In the **Source** field, paste the following code:

```
function preventAutoSave(econtext) {
```

```
        var eventArgs = econtext.getEventArgs();

        if (eventArgs.getSaveMode() == 70 || eventArgs.getSaveMode() == 2) {

            eventArgs.preventDefault();

        }

    }
```

g. Choose **OK** to close the text editor.

h. Choose **Save** to save the web resource and then close the web resource window.

i. In the **Look Up Record** dialog the new web resource you created will be selected. Choose **Add** to close the dialog.

Configure the OnSave event

a. In the **Form Properties** window, in the **Event Handlers** section, set **Event** to **OnSave**.

b. Click **Add**.

c. In the **Handler Properties** window, set **Library** to the web resource you added in the previous step.

d. Type '`preventAutoSave`' in the **Function** field. This is case sensitive. Do not include quotation marks.

e. Make sure that **Enabled** is checked.

f. Check **Pass execution context as first parameter**.

◆ **Important**

If you do not do this the script will not work.

The **Handler Properties** dialog should look like this. The customization prefix: "new_" may vary based on the customization prefix set for the default publisher for your organization.

Handler Properties

Details   Dependencies

Library   new_preventAutoSave

Function *   preventAutoSave

☑ Enabled

Parameters

☑ Pass execution context as first parameter

Comma separated list of parameters that will be passed to the function

OK   Cancel
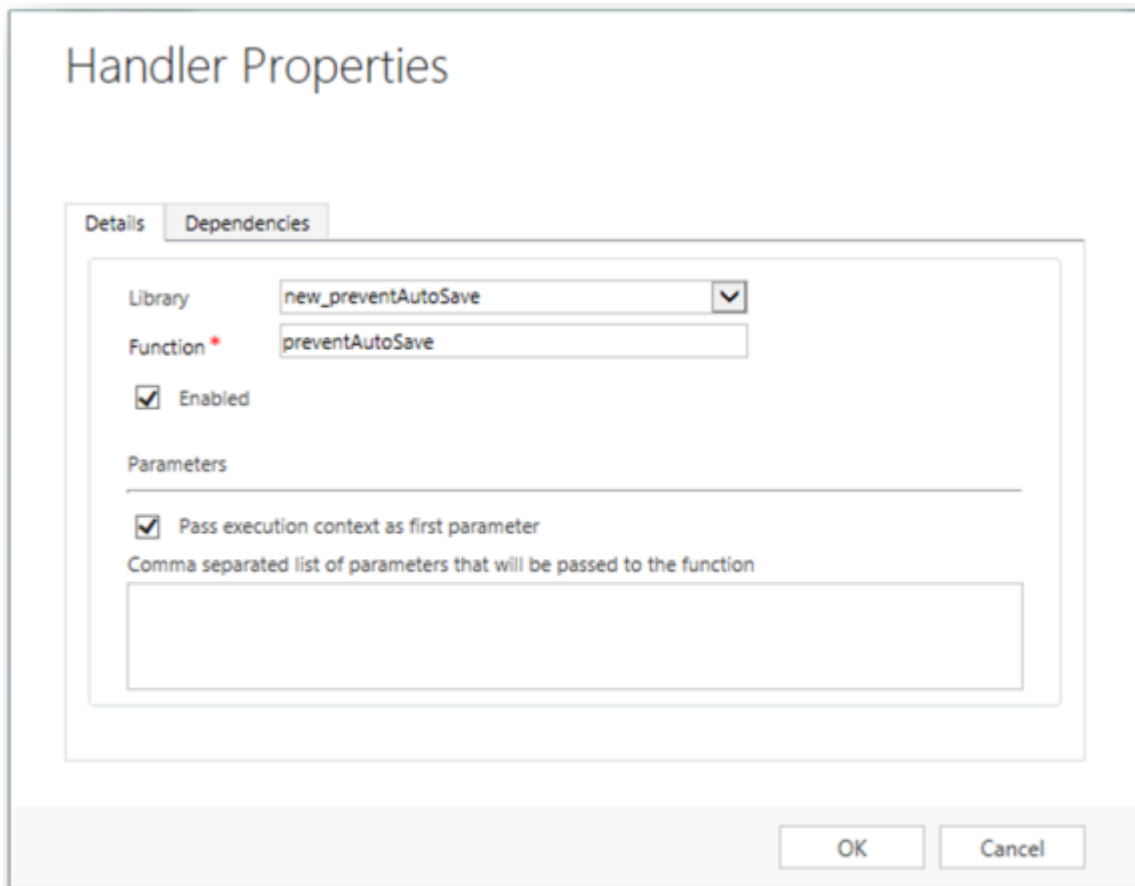
      g.   Click **OK** to close the **Handler Properties** dialog.

      h.   If there are any other event handlers for the **OnSave** event, use the green arrows to move this one to the top.

7.   Click **OK** to close the **Form Properties** dialog.

8.   Click **Save and Close** to close the form.

9.   In the solution explorer, click **Publish All Customizations**.

See Also

Create and design forms
Use the form editor
Design considerations for main forms
Main form presentations
Optimize form performance
Update your forms

Update your forms

Applies To: CRM 2016 on-prem, CRM Online

The ability to merge main forms facilitates the upgrade process. This topic explains how you can merge existing forms to use the new layout optimized for this release.

Merging main forms to use the new layout

You only need to merge forms for [Updated entities](#) that you have customized. You do not need to do this right away, but you will need to do it sometime before the next major release of Microsoft Dynamics CRM.

When you view one of the updated forms using the form editor, you will see a **Merge Forms** button in the **Upgrade** group in the **Home** tab. Use this button and select one of your existing forms and choose **Add**.

At the bottom of the form, you will find the visual elements of the form you selected have been appended to the bottom of the current form. The only difference is that the header and footer elements from the old form will be added as separate tabs containing a section with the contents of each element.

What you can't see so easily is that all the form script event handlers are also brought in and merged with the new form. There is a limit to the number of event handlers that can be merged. The merge process supports up to 50 event handlers. If the total number of event handlers exceeds 50, the action will be canceled. You will need to remove some event handlers from the form you want to merge before you can merge it.

Once the new forms are merged, you need to move any of the form elements from the old form into the new form until all the added elements are gone. Remove any form elements you don't need.

If your original form has any security roles assigned to it, be sure to apply the same security roles to the new form.

When you are finished, activate the new main form and deactivate the old one.

Activate or deactivate a main form

1. In the solution explorer, expand the entities node and select the entity with the main form you want to activate or deactivate.

2. Select **Forms** to view the forms list.

   If you do not see the form you are looking for, check that the **All Forms** view is selected.

3. Select the view and, in the toolbar, choose either **Activate** or **Deactivate**.

 Note

You must have at least one active main form for each entity. If you try to deactivate the only active main form, you will see an error message.

4. You must publish customizations before these settings take effect.

See Also

Create and edit mobile forms for CRM for phones express

Applies To: CRM 2016 on-prem, CRM Online

Microsoft Dynamics CRM for phones express uses a form that is optimized for use with a phone. While editing the form, you select which fields you want to display the order in which you want them to appear. You can make certain fields read-only, but can't use form scripting in the CRM for phones express forms.

CRM for phones express is the previous version of the phone app for Microsoft Dynamics CRM. The latest version of the phone app, Microsoft Dynamics CRM for phones, provides the same full-featured experience as the Microsoft Dynamics CRM for tablets app. For information about customizing CRM for phones and tablets, see Customize CRM for phones and tablets.

When you have multiple forms, you need to adjust the form order and assign appropriate security roles to ensure your users see the forms tailored for their needs.

In this topic

View the mobile express form

The first step in customizing the mobile form is to understand what it looks like. Start the CRM for phones express app on your phone and sign in to your organization.

From there, locate the entity that has the form you want to edit and open an existing record or create a new one.

As you can see, the form is simply a list of fields.

Note

Only the fields that contain data display.

To edit the data, click the **Edit** icon at the bottom of the form. The position of the field labels shifts to provide more space for editing. All fields are now displayed. If you scroll down, you can see a list of all the related entities as defined by their entity relationship definitions.

Create a mobile express form

If you need more than one mobile form, create a new one in the same manner you would create any other type of form. If you create more than one form, you need to set the form order and security roles for the form. Users can't switch forms in the CRM for phones express app; they'll see the first form in the form order that their security roles allow them to see. For an example, see Multiple forms.

1. Go to **Settings** > **Customizations**. Choose **Customize the System**.
2. Expand the **Entities** node and select the entity you want to create a new mobile form for.
3. Expand the entity and select the **Forms** node.
4. Choose **New** and select **Mobile – Express**.

   If you don't see this option, the entity is not enabled for CRM for phones express. You can change this for some entities. See Enable or disable entity options for more information.
5. Choose **File > Save As**, type in a **Name** and **Description**, and then choose **OK**.

   You don't have to give your mobile express form a unique name, but you should give it a meaningful name so you can differentiate it from other mobile express forms in the list. This is important when you set the form order.
6. You can now edit the form or choose **Save and Close** to close it. More information: Edit a mobile express form
7.
   a. In the list of forms for an entity, choose **Form Order** and select **Mobile - Express**.
   b. In the **Form Order** dialog box, select a form and use the green arrows to move the form up or down in the form order.

      This is where you will be glad you gave your new mobile form a unique name.
   c. Choose **OK** to close the **Form Order** dialog box.

Edit a mobile express form

Unlike other entity forms, you can't create new attributes or entity relationships in the mobile express form editor. However, you can always edit the mobile express form within the default solution.

1. In the default solution, using the solution explorer, expand the **Entities** node and select the entity with the mobile form you want to edit.
2. In the form list, choose a form with the **Form Type** column set to **Mobile - Express**.

With such a simple form, the tasks related to customizing this form are:

- Choose what fields to include in the form.

- Choose where to position the fields.

- Decide whether to make certain fields read-only.

- Publish customizations when you are done. See [Publishing customizations](#) for more information.
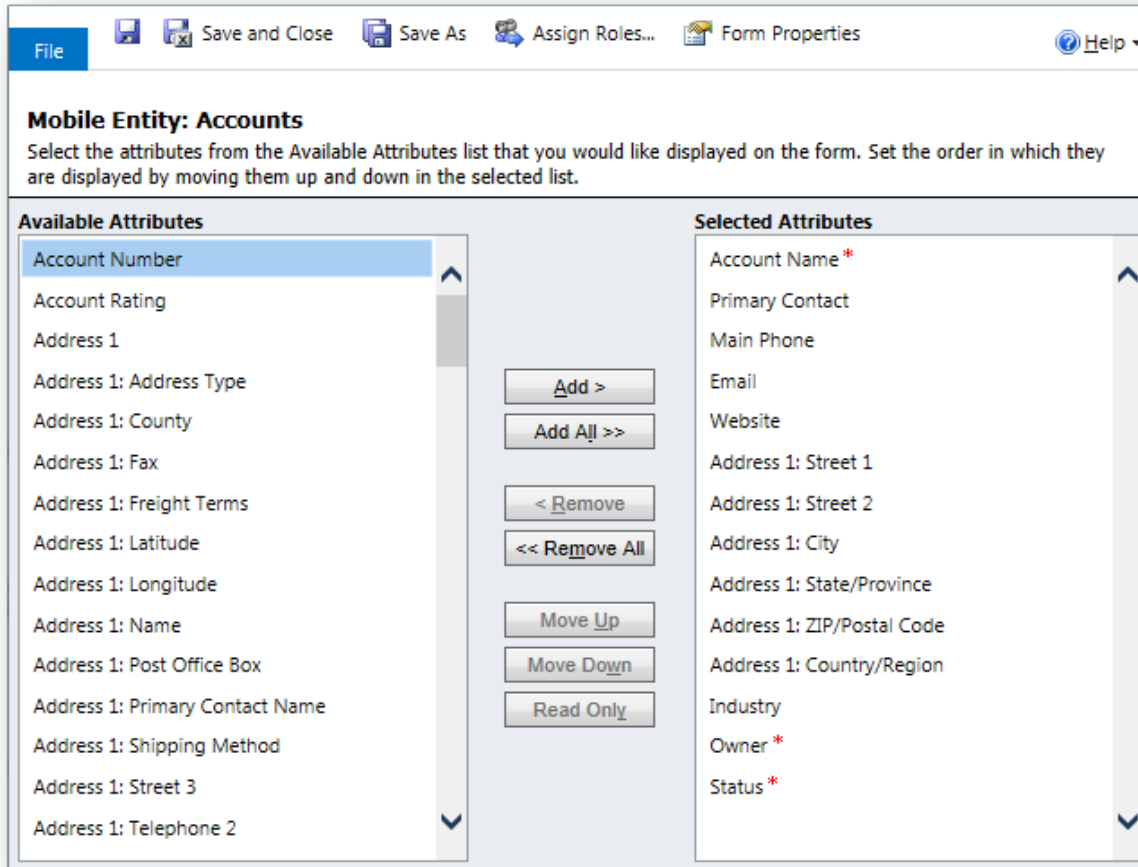
By default, all fields that are business or system required are included in the form and can't be removed. If you set a required field as read-only, users can't edit that field. If a user creates a new record, a read-only field won't display, but the user can still save the record without this data. When a user edits this same record in the web app or CRM for phones and tablets apps, the user will have to provide this value before saving any changes.

See Also

[Create and design forms](#)
[Use the form editor](#)
[Create and edit quick create forms](#)

[Create and edit quick view forms](#)

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Create and edit quick create forms

Applies To: CRM 2016 on-prem, CRM Online

In Microsoft Dynamics CRM, quick create forms appear when you click the **Create** button in the navigation bar or when you choose **+ New** when creating a new record from a lookup or sub-grid. With quick create forms, you can have a streamlined data entry experience with full support for logic defined by form scripts and business rules.

The mobile apps use quick create forms for creating new records. If an entity already has a quick create form configured for it, the mobile apps use that form. If an entity doesn't have a configured quick create form, CRM generates a quick create form for creating records in the mobile apps based on the main form definition.

In This Topic

[Entities with quick create forms](#)
[Create a quick create form](#)
[Edit a quick create form](#)

Entities with quick create forms

By default only the following system entities have quick create forms.

Account	Campaign Response	Case	Competitor
Contact	Lead	Opportunity	

Although you can create quick create forms for System Activity entities, they do not support quick create forms. Any of the other [Updated entities](#) and any custom entities can be enabled to support these forms by selecting **Allow Quick Create** in the entity definition and creating a quick create form for them. More information: [Enable or disable entity options](#)

You can enable custom activity entities to support quick create forms, and you can create quick create forms for those entities. However, the quick create form for custom activity entities will not be used when people click the **Create** button on the nav bar. These quick create forms can be used only when people add a new record for a subgrid that displays that specific custom activity entity.

Create a quick create form

Although you can define multiple quick create forms, only one quick create form can be used by everyone. The form everyone will use is set using the form order. Quick create forms cannot be assigned to security roles and they do not provide the capability for the user to switch forms.

Note

The entity must have the **Allow Quick Create** option enabled for the quick create form to be displayed. More information: Enable or disable entity options

To create a quick create form

1. Go to **Settings** > **Customizations**.

2. Choose **Customizations**, then choose **Customize the System**.

3. In the solutions explorer, expand the entity that you want and select **Forms**.

4. Select **New** > **Quick Create Form** from the tool bar.

5. Drag any fields from the **Field Explorer** into the sections in the form.

6. When you are finished, click or tap **Save and Close**.

7. Publish customizations to see the new form in the application.

Edit a quick create form

While quick create forms support form scripts and business rules, their purpose is different from main forms and they don't support all the capabilities of main forms. Quick create forms always have one section with three columns. You can't add additional sections or columns.

The following controls cannot be added to quick create forms:

*   Sub-grids

*   Quick View Forms

*   Web resources

*   IFRAMEs

*   Notes

*   Bing Maps

If you add a composite field to a quick create form, it will be displayed as separate fields.

To edit a quick create form

1. Go to **Settings** > **Customizations**.

2. Choose **Customizations**, then choose **Customize the System**.

3. In the solutions explorer, expand the entity that you want and select **Forms**.

4. In the form list, double-click or tap a form where the **Form Type** is **Quick Create**.

5. Drag any fields from the **Field Explorer** into the sections in the form.

    See Configure event handlers for information about editing event handlers for form scripts.

6. When you are finished, click or tap **Save and Close**.

7. Publish customizations to see the modified form in the application.

See Also

Video: Microsoft Dynamics CRM Customization New Features - Quick Create Forms
Video: Microsoft Dynamics CRM Customization New Features - Quick Forms
Create and design forms
Use the form editor
Create and edit mobile forms for CRM for phones express
Create and edit quick view forms

Create and edit quick view forms

Applies To: CRM 2016 on-prem, CRM Online

In Microsoft Dynamics CRM, a quick view form can be added to another form as a quick view control. It provides a template to view information about a related entity record within a form for another entity record. This means you do not need to navigate to a different record to see the information you need to do your work.

Quick view controls are associated with a lookup field that is included in a form. If the lookup field value is not set, the quick view control will not be visible. Data in quick view controls cannot be edited and quick view forms do not support form scripts.

Because quick view forms are viewed using a quick view control in a form, they do not include header, footer, or navigation areas. Security roles cannot be assigned to quick view forms and they cannot be activated or deactivated.

In This Topic

Create a quick view form

Edit a quick view form

Add a quick view control to a main form

Create a quick view form

You create quick view forms using the form editor in a manner similar to the way you create other forms. Quick view forms are read-only. Use them to create forms that are for reading purposes only.

1. In the default solution, using the solution explorer, expand the **Entities** node and select the entity you want to create a new quick view form for.

2. Expand the entity and select the **Forms** node.

3. Choose **New** and select **Quick View Form**. This will open the form editor.

4. In the form editor, choose **Form Properties** in the **Form** group of the **Home** tab.

5. In the **Form Properties** dialog box, enter a **Form Name** and **Description** to differentiate this quick view form from any others and close the **Form Properties** dialog box.

6. Edit the form to add the fields you want. More information: Edit a quick view form

◆ **Important**

If you add a field and choose **Field Requirement** > **Business Required** and then save it, you will not be able to delete the field.

7. To save the form and close the form editor, on the **Home** tab, **Save** group, choose **Save and Close**.

Edit a quick view form

Quick view forms have a simplified layout because they are designed to be viewed within a form section. Only one single column tab is available. You can add only additional single column sections, fields, subgrids, and spacers. More information: Use the form editor

📝 **Note**

You cannot delete a field that is **Business Required**. You will receive this message if you try to delete the field: "The field you are trying to remove is required by the system or business." If you do not want the field in the form you have to delete the entire form and then recreate it.

When you edit a quick view form, you must publish your changes before they will be visible in the application.

Add a quick view control to a main form

Quick view forms can only be added to a main form where a lookup field exists that targets the entity of the quick view form.

1. In an entity main form, choose **Quick View Form** in the **Control** group of the **Insert** tab.

2. In the **Quick View Control Properties** dialog box, set the properties described in Quick view control properties.

3. Choose **OK** to close the **Quick View Control Properties** dialog box.

See Also

Create and design interactive forms for the interactive service hub

Applies To: CRM 2016 on-prem, CRM Online

Improve your users' productivity with the new interactive forms. The interactive forms have a new user experience that saves users some clicks and helps them maintain context while working on related records.

These forms are specially introduced for use in the interactive service hub, which is designed and optimized for customer service scenarios.

◆ Important

For Microsoft Dynamics CRM Online organizations, the interactive forms feature is only available if you've installed the CRM Online 2016 Update. For on-premises CRM organizations, this feature is only available if you've updated to CRM 2016. Interested in getting this feature? Find your CRM administrator or support person.

In This Topic

Supported entities

Enable entities for interactive experience

Types of forms

Assign form order

Supported entities

Interactive forms are supported only for entities that are enabled for the interactive experience.

By default, the following entities are enabled for the interactive experience, and have the interactive forms created out-of-the box:

- Account

- Contact

- Case

- Out-of-the-box activities (Phone, task, email, appointment, and social activity)

- Social Profile

- Queue Item

- Knowledge Article

 Note

Apart from these entities, you can also create or customize interactive dashboards. More information: Configure interactive experience dashboards

You can see the interactive forms for each entity in their list of forms in the solution explorer in the Customization area. The form type of interactive forms is Main InteractionCentric.

As a customizer, you can customize these forms in a way that it is easier for the users in your organization to find or enter information efficiently. You can create more interactive forms for these entities.

You can enable any new custom entity or custom activity for the interactive experience, and then create interactive forms for it.

 Important

- All customization tasks for the interactive service hub must be done in the Microsoft Dynamics CRM web application.

- You can't enable out-of-the-box entities other than the ones listed about for the interactive experience.

Enable entities for interactive experience

You can enable interactive experience only for custom entities or activities. You can't enable existing default (out-of-the-box) entities for interactive experience.

1. Go to **Settings** > **Customizations**.
2. Click **Customize the System** to open the default solution.
3. Under **Components**, expand the **Entities** node, and select the entity you want to enable for the interactive experience.
4. Select the **Enable for interactive experience** check box.

Types of forms

The following table describes the types of forms in that are used rendering data in the interactive service hub:

Form Type	Description
Main InteractionCentric (also referred to as Main Form – Service Console)	These forms provide the main user interface for interacting with entity data. More information: [Design considerations for main forms](#) 🖉 **Note** These forms are only for use in the interactive service hub. You can't use these in the Microsoft Dynamics CRM web application, Microsoft Dynamics CRM for Outlook and Microsoft Dynamics CRM for tablets.
Card Form	These forms are used in the interactive dashboards to show the entity data in the streams of interactive dashboards. More information: [Create and edit a card form](#) 🖉 **Note** These forms are only for use in the interactive service hub. You can't use these in the Microsoft Dynamics CRM web application, Microsoft Dynamics CRM for Outlook and Microsoft Dynamics CRM for tablets.
Quick Create	These forms provide a basic form optimized for creating new records. More information: [Create and edit quick create forms](#) The interactive service hub uses the same quick create form that's used for the web application and uses the same customization experience. However, the forms are presented in the interactive service hub paradigm.
Quick View	These forms appear within the main form to display additional data for a record that is referenced by a lookup field in the form. There are also quick view forms created out-of-the-box for use in the reference panel to show records of related entity. When you open a record of the related entity at the runtime, it opens in a horizontal tab on top of the pane.

Form Type	Description
	Quick view forms are shared between the CRM web application and the interactive service hub. If the quick view form contains sub-grids, the sub-grids will appear in the CRM web application at the runtime, but they won't appear in the interactive service hub reference panel.

Assign form order

When you have multiple main, quick create or mobile forms for an entity you can assign a form order. The form order determines which of the available forms will be shown by default. More information:Assign form order

See Also

Create and design forms
Use the Main - Interactive experience form and its components
Create and edit quick create forms
Create and edit quick view forms

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Use the Main - Interactive experience form and its components

Applies To: CRM 2016 on-prem, CRM Online

The interactive forms have a new user experience that saves users some clicks and helps them maintain context while working on related records. You can see the interactive forms listed in the list of other forms in the solution explorer in the Customization area. The form type of interactive forms is *Main - Interactive experience*.

This topic explains how to edit a Main - Interactive experience form, and add or change various elements of the form.

In This Topic

Open the form editor

Publish the changes for use in the interactive service hub

Form editor user interface

Form properties

Visibility options

Open the form editor

To edit a form or to add or change elements, use the form editor.

If you create any new solution components in the process of editing the form, the names of the components will use the solution publisher customization prefix for the default solution and these components will only be included in the default solution. If you want any new solution components to be included in a specific unmanaged solution, open the form editor through that unmanaged solution.

Access the form editor through the default solution

1. Go to **Settings** > **Customizations**.

2. Click **Customize the System** to open the default solution.

3. Under **Components**, expand **Entities**, expand the entity you want, and then select **Forms**.

4. In the list of forms, open the form of type **Main - Interactive experience**.

Access the form editor for an unmanaged solution

1. Go to **Settings** > **Customizations**.

2. Click **Solutions**.

3. Double-click the unmanaged solution you want to work with.

Locate the entity with the form you want to edit. If the entity isn't there, you'll need to add it.

Add an entity to an unmanaged solution

a. Select the **Entities** node and, in the toolbar above the list, click **Add Existing**.

b. In the **Select Solution Components** dialog box, with the **Component Type** selector set to **Entity**, select the entity you want to add and click **OK**.

c. If the **Missing Required Components** dialog box appears, you can click **No, do not include required components** if you don't intend to export this unmanaged solution to another organization. If you don't want to include missing required components at this time, you can add them later. You'll receive notification again if you export this solution in the future.

4. In the solution explorer expand the entity with the form you want to edit and select **Forms**.

5. In the list of forms, open the form of type **Main - Interactive experience**.

Publish the changes for use in the interactive service hub

Certain customizations that make changes to the user interface require that they be published before people can use them in the application. To publish your customization, in the solution explorer, click **Publish All Customizations**.

With Microsoft Dynamics CRM 2016 Update 0.1 or later, you can improve performance for that first user by clicking the **Prepare Client Customizations** button after publishing your customizations. This prompts CRM to prepare the metadata package right then instead of waiting for the first user to start the interactive service hub. More information: [Customization concepts](#)

◆ **Important**

Preparing client customizations may take some time. If you see a message that the browser page has become unresponsive, wait for the page to become responsive, and don't kill it.

Form editor user interface

The form editor displays commands in two tabs: **Home** and **Insert**. More information: [Home tab](#), [Insert tab](#)
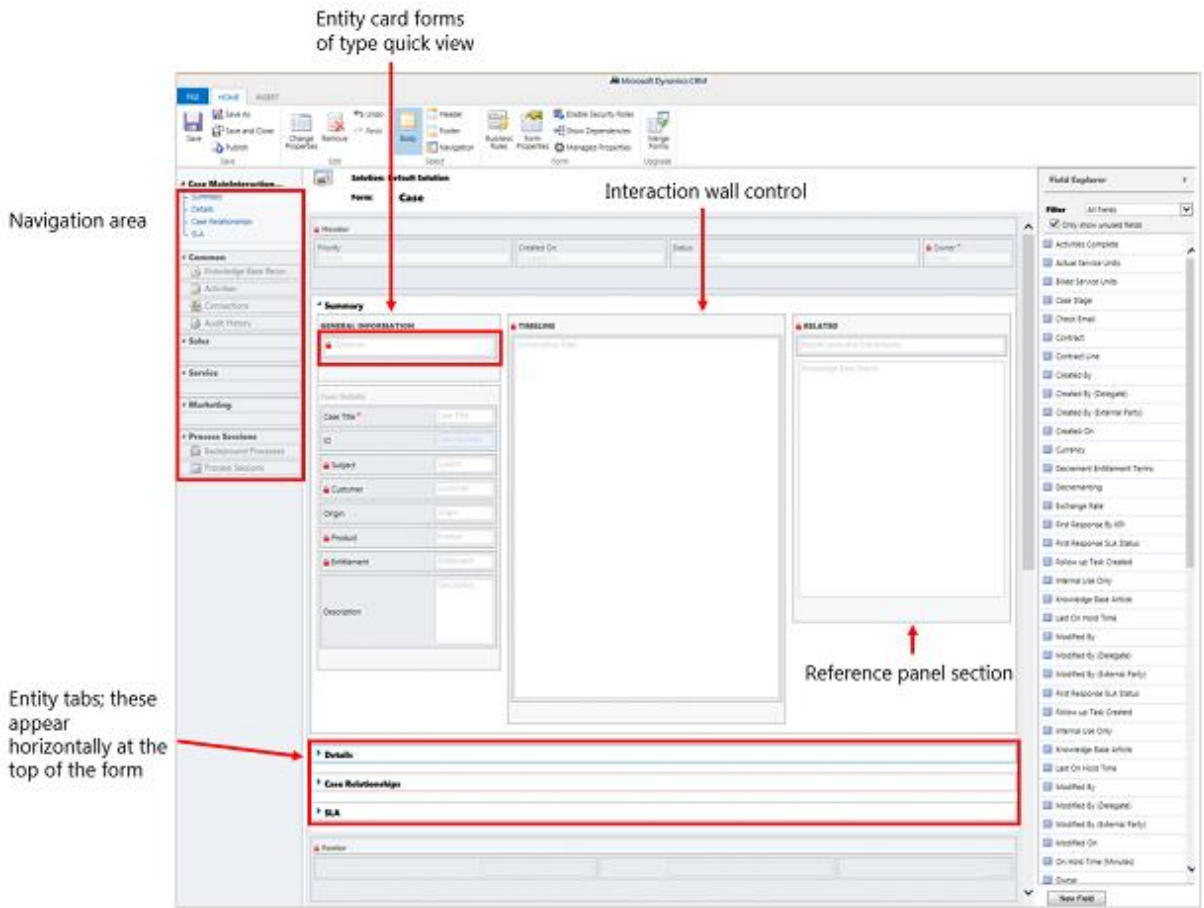
The form editor is divided into three areas: **Navigation**, **Body**, and **Explorer**.

Navigation

Located on the left side, use the navigation area to control access to related entities or to add links to URLs to be displayed in the main pane of the form. To edit navigation you must first select the **Navigation** command in the **Select** group of the **Home** tab.

Interactive forms provide navigation options through the navigation bar, but use the same data in the navigation area to control what navigation options are available. More information: Edit Navigation

Body

Located in the center, use the body area to control the layout of the form. You can select and drag form elements to position them. Double-clicking on an element will open the properties for the element.

• By default, for the Case, Contact, and Account interactive forms, the first section under the **Summary** tab shows the account or contact card form of type **Quick View**. For custom entities that are enabled for interactive experience, this section is not available by default. You can insert a new section and a quick view form in it. The card form shows a maximum of five fields. Other than fields, it isn't possible to show other controls

in the Blue tile even if the quick view form contains it.

Note

To preserve the card format (as shown in the following image), we recommend that you do not move the quick view form to any other section on the form.
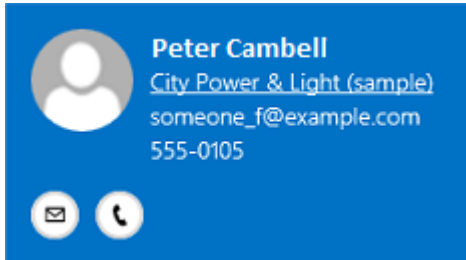
More information: <u>Create and edit quick view forms</u>

- To add a field, select it from the **Field Explorer** and drag it into a section.

- To add an element that's not a field, select where you want to place it and use the appropriate command from the **Insert** tab add it.

- To remove an element, select it and use the **Remove** command in the **Edit** group of the **Home** tab.

- To edit the **Header** or **Footer** for the form you must first select the corresponding command in the **Select** group of the **Home** tab. The fields in the header and footer are shown below the customer card (the Blue tile) in the runtime.

Explorer

Located on the right side, the content of the explorer area depends on the context.

When you select **Body**, **Header**, or **Footer** in the **Select** group of the **Home** tab, you'll see the **Field Explorer**. Use the **Field Explorer** to drag fields you want to display into a section in the form or within the header or footer. You can include the same field multiple times in a form. Use the **New Field** button as a shortcut to create a new field.

When you select **Navigation** in the **Select** group of the **Home** tab you'll see the **Relationship Explorer**. Drag any of the relationships into one of the groups within the navigation area. You cannot add the same relationship twice. Relationships are available based on how they are configured. If you configure a relationship to not display, it won't display in the **Relationship Explorer**. For information about how to configure default display options for relationships, see <u>Navigation pane item for primary entity</u>.

You can use the **New 1:N** and **New N:N buttons** as a shortcut to add new entity relationships.

Home tab

The **Home** tab displays the commands listed in the following table.

Group	Command	Description
Save	**Save (Ctrl+S)**	Save the form.
	Save As	Create a copy of this form with a different name.
	Save and Close	Save the form and close the form editor.
	Publish	Publish the form. More information: Publishing customizations
Edit	**Change properties**	Change properties of the selected item in the body. See the following sections depending on the selected item: • Tab properties • Section properties • Common field properties • Special field properties • Sub-grid properties • Quick view control properties
	Remove	Remove the selected item.
	Undo (Ctrl+Z)	Undo the previous action.
	Redo (Ctrl+Y)	Redo the previous action.
Select	**Body**	Edit the main body of the form.
	Header	Edit the form header.
	Footer	Edit the form footer.
	Navigation	Edit the form navigation. More information: Edit Navigation
Form	**Business Rules**	View, edit, or create new business rules with the Business Rules explorer. 📝 **Note** For the interactive forms, only the "Entity" and "All Forms" scope is supported. More information: Create and edit

Group	Command	Description
		[business rules](#)
	Form Properties	More information: [Form properties](#)
	Enable Security Roles	Use this to set which security roles will have access to the forms. More information: [Control access to forms](#) ◆ **Important** If you create a new form, only the System Administrator and System Customizer security roles will have access to the form. You must assign access to other security roles before people in your organization can use it.
	Show Dependencies	See which solution components depend on this form and which solution components are required by this form. More information: [Solution dependencies](#)
	Managed Properties	The only managed property is **Customizable**. Setting this to false means the form won't be customizable after you included it in a solution, export that solution as a managed solution, and import that managed solution into a different organization. More information: [Managed properties](#)

Insert tab

The **Insert** tab displays the commands in the following table:

Group	Command	Description
	Section	Add a section to a selected tab. You can include a section with one to four columns. You can also insert a Reference panel in the interactive forms. Reference panel is also added as a section to the Main - Interactive experience form. By default the Reference panel section is added to the Case, Account, Contact and custom entity forms. More information:Section properties
3 Tabs	**Three Columns**	Insert a three-column tab with equal widths. More information: Tab properties
	Three Columns	Insert a three-column tab with a wider middle column.
2 Tabs	**Two Columns**	Insert a two-column tab with a wider right column.
	Two Columns	Insert a two-column tab with a wider left column.
	Two Columns	Insert a two-column tab with equal width columns.
1 Tab	**One Column**	Insert a one-column tab.
Control	**Sub-Grid**	Format a sub-grid and insert it into the form. More information: Sub-grid properties
	Spacer	Insert an empty space.
	Quick View Form	Insert a Quick View Form. More information: Quick view control properties
	Web Resource	Insert a web resource to embed content from other locations in one page. More information: Quick view control properties
	Interaction Wall	Insert an interaction wall control (timeline) in the form. This control shows the timeline of activities related to the entity on a form.

Group	Command	Description
		More information: Interaction Wall
	Knowledge Base Search	Insert a search control that users can use to search knowledge articles. More information: Add the Knowledge Base Search control to Microsoft Dynamics CRM forms

 Note

The following components aren't supported in the interactive forms:

- Bing Maps
- Yammerr
- Activity Feeds

Form properties

The properties of the form are listed in the following table.

Tab	Property	Description
Events	**Form Libraries**	Manage which JavaScript web resources are available in the form and the order in which they will be loaded.
	Event Handers	Configure which JavaScript functions from the Form Libraries will run for the **OnLoad** and **OnSave** form events and the order in which they'll be run.
Display	**Form Name**	Enter a name that will be meaningful to people. This name will be shown to people when they use the form. If they can use multiple forms configured for the entity they will use this name to differentiate between available forms.
	Description	Enter a description that explains how this form is different from other main forms. This description is only shown in the list of forms for an entity in the solution explorer.
Parameters	**Parameters**	Each form can be opened with code using a URL. The URL may also contain data that can be passed to the form

Tab	Property	Description
		using a query string that is appended to the URL. Query strings look like this example: `?p_firstName=Jim&p_lastName=Daly` As a security measure, forms don't accept any unknown query string parameters. Use this parameters list to specify parameters this form should accept to support code that will pass data to the forms using a query string. The name and type of data will be checked and the form won't open if invalid query string parameters are passed to it. For more information see the topic [Open Forms, Views, Dialogs and Reports with a URL](#) in the Microsoft Dynamics CRM SDK.
Non-Event Dependencies	**Dependent Fields**	Each event handler has a similar **Dependent Fields** property so that any fields that are needed by the script can be registered. Anyone who tries to remove the dependent fields will not be able to. Some scripts operate on the form but aren't configured in an event handler. Scripts that are initiated from the command bar don't have a place where dependent fields can be registered. This form property provides a place for dependent fields for those scripts to be registered.

Visibility options

Several types of form elements have the option to be shown or hidden by default. Tabs, sections, and fields all provide this option. Using form scripts or business rules, the visibility of these elements can be controlled to create a dynamic form to provide a user interface that adapts to conditions in the form.

 Note

Hiding form elements is not a recommended way to enforce security. There are several ways people can view all the elements and data in the form when elements are hidden.

Rather than designing forms that depend on scripts to control visibility of options, consider whether a business process flow, a dialog, or switching to a different form may be better suited to meet your requirements. If you do use scripts, make sure that any element that might be hidden is hidden by

default. Only show it with scripts when your logic calls for it. This way it isn't displayed in presentations that don't support scripts.

Tab properties

In the body of the form tabs provide a way to organize fields. Each tab that you create appears horizontally at the top of an entity form in the interactive service hub. In the runtime, additional tabs open as a flyout.

Tabs have a label that can be displayed. If the label is displayed tabs can be expanded or collapsed to show or hide their content by choosing the label.

Tabs contain up to three columns and the width of each column can be set to a percentage of the total with. When you create a new tab, each column is pre-populated with a section.

The following table shows properties that may be set for tabs in the form.

Tab	Property	Description
Display	**Name**	**Required**: The unique name for the tab that is used when referencing it in scripts. The name can contain only alphanumeric characters and underscores.
	Label	**Required**: The localizable label for the tab visible to users.
	Visibility	Specify whether the tab should be visible by default in the runtime.
Formatting	**Layout**	Tabs may have up to three columns. Use these options to set

Tab	Property	Description
		the number of tabs and what percentage of the total width they should fill.

Section properties

A section occupies the space available in a tab column. Sections have a label that can be displayed.

Sections can have up to four columns and includes options for displaying how labels for fields in the section are displayed.

A new type of section called "reference panel" can also be added. A reference panel is a single column section. You can insert sub grids, quick view control, or a Knowledge Base Search control inside a reference panel section. Each control that you added in the reference panel appears as a vertical tab within the reference panel at the runtime. You can drag and drop the various controls within the reference panel section. The default tab at the runtime is the first control added in the reference panel. The other tabs appear in the order in which they are added in the form editor. To delete a tab, use the Delete key on your keyboard.

When you insert a reference panel, by default it's added as a last section in the tab. You can add only one reference panel per form.

◆ **Important**

By default, the reference panel section is locked in the out-of-the-box forms: Case, Account, and Contact. To remove it or change it, you must unlock it.

Headers and footers are similar to sections but can't be removed. If they don't contain anything they aren't shown.

Tab	Property	Description
Display	**Name**	**Required**: The unique name for the section that is used when referencing it in scripts. The name can contain only alphanumeric characters and underscores.
	Label	**Required**: The localizable label for the section visible to users.
	Show the label of this section on the form	Sections are frequently used without labels to control formatting of the fields within them.
	Visibility	Showing the section is optional and can be controlled using scripts. More information:

Tab	Property	Description
		Visibility options
	Lock the section on the form	This will prevent the section from accidentally being removed and prevents people from removing the contents. Removing a section will not only remove the section, but also any fields within it. Someone wanting to remove this section would need to change this setting before removing it.
Formatting	**Layout Height**	Set the layout height in terms of number of rows.

Interaction Wall

The interaction wall (or timeline) shows related activities for a specific entity.

The following types of activities are supported: Task, appointment, phone call, email, social activity, custom activity.

The interaction wall also shows notes and system posts. It shows those activities that have their **Regarding** field set to the entity you're viewing. For notes, the **Regarding** field isn't shown to the user; It is implicit when created from the interaction wall.

Each activity that's shown in the interaction wall will have the same quick actions that are available on the activity's command bar.

Note

It is not possible to create a new custom activity by using the ➕ action on the interaction wall.

Common field properties

Fields display controls people use to view or edit data in an entity record. Fields can be formatted to occupy up to four columns within a section.

The following table describes properties that all fields have. Certain types of fields have special properties. These are described in Special field properties.

Tab	Property	Description
Display	**Label**	**Required**: By default the label will match the display name of the field. You can override that name for the form by entering a different label here.

Tab	Property	Description
Display label on the form	You can choose not to display the label at all.	
Field is read-only	You can specify that the field is not editable. Using form scripts, you can change this to enable or disable editing based on criteria evaluated in the script.	
Lock the field on the form	This prevents the field from being removed from the form accidentally. This also prevents any configuration you have applied to the field, such as event handlers, from being cleared if the field is removed. To remove this field, a customizer would need to clear this setting first.	
Visible by default	Showing the field is optional and can be controlled using scripts. More information: Visibility options	
Formatting	**Select the number of columns the control occupies**	When the section containing the fields has more than one column you can set the field to occupy up to the number of columns that the section has.
Details	**Display Name**, **Name**, and **Description**	These read-only fields are for reference. Click the **Edit** button for convenient access to the field definition if you want to edit it. Each instance of a field in the form has a name property so that they can be referenced in form scripts, but this name is managed by the application. The first instance of the field is the name of the field specified when it was created. More information: Create and edit fields For each additional time that a field is included in a form, the name appends a number starting with 1 to the end. So if the field name is "new_cost," the first instance is "new_cost," the

Tab	Property	Description
		second is "new_cost," and so on for each instance of the field in the form. ✎ **Note** The field **Description** value provides tooltip text for the field when people place their cursor over it.
Events	**Form Libraries**	Specify any JavaScript web resources that will be used in the field **OnChange** event handler. See the SDK Form Events Reference : Field OnChange Event
	Event Handlers	Configure the functions from the form libraries that should be called for the field **OnChange** event. More information: Configure event handlers
Business Rules	**Business Rules**	View and manage any business rules that reference this field. More information: Create and edit business rules

Special field properties

All fields have the properties listed in Common field properties, but certain fields have additional properties.

Lookup field properties

Two sections on the Display tab have relevant for lookup fields.

Field Properties

Modify this field's properties.

Display	Formatting	Details	Events	Business Rules

Label

Specify the label for this field in forms.

Label * `Entitlement`

☑ Display label on the form

Field Behavior

Specify field-level behavior

☐ Field is read-only

☐ Turn off automatic resolutions in the field ⓘ

☐ Disable most recently used items for this field

Locking

Specify whether to lock this field on the form.

☐ Lock the field on the form

Visibility

Specify the default visibility of this control.

☑ Visible by default

Related Records Filtering

☐ Only show records where:

`Contact (Cases)`

Contains

`Contact (Entitlements)`

☑ Allow users to turn off filter

Additional Properties

☑ Display Search Box in lookup dialog

Default View `Entitlement Lookup View` ▾

View Selector `Off` ▾
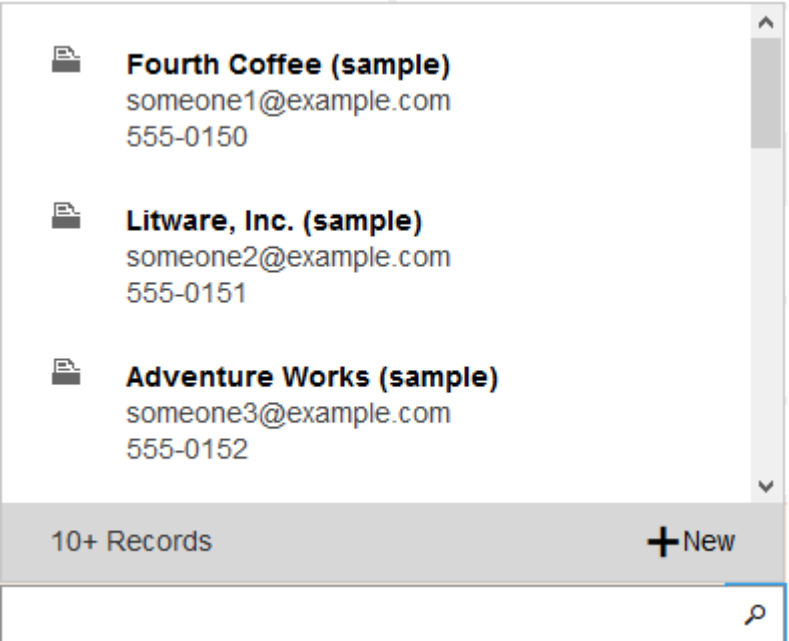
System Views
  All Entitlements
  Entitlement Lookup View

📝 Note

The options described in the table below are available only for single-entity lookup fields.

Section	Property	Description
Related Records Filtering	**Only show records where**	When this is enabled, the records that display when users search for a record will have additional filtering applied. This helps provide more relevant searches when setting the value of the lookup. By default, this is turned off. The relationship combinations that are possible when you filter related records are listed in the following table. _(see table below)_ The first list is populated with all the potential relationships you can use to filter this lookup. Click one. The second list is then populated with all relationships that connect the related entity (selected in first list) to the target entity. Click one. Select the **Allow users to turn off filter** check box to give users the option to turn off the filter you define here. When users click the **Look Up More Records** option while setting the value for a lookup, they see this dialog box.

First list relationship	Second list relationship	Available?
N:1	1:N	Yes
N:1	N:1	Yes
N:1	N:N	Yes
1:N	1:N	Yes
1:N	N:1	No
1:N	N:N	No
N:N	1:N	Yes
N:N	N:1	No
N:N	N:N	No

Section	Property	Description
		  If you've selected the **Allow users to turn off filter** option while configuring the lookup field, users will see the check box to turn off the filter. This makes it possible for them to see a wider range of records. If you want to make sure that users only see a limited range of records defined by this filter, clear the **Allow users to turn off filter**check box.
Additional Properties	Display Search Box in lookup	You can choose not to display the search box in the lookup dialog.

Section	Property	Description
	dialog	
	Default View	This view iis used to filter the results of the inline search and set the default view shown in the lookup dialog when users click the **Look Up More Records** option. The default view also controls which fields are included in the inline lookup. For lookups that only allow selection of a single entity type, the fields displayed in the inline lookup are set to be the first two fields included in the default view. In this example, **Main Phone** and **Email** are the first two columns in the default view configured for an account lookup. For system lookups that allow for multiple entity types, the first two columns of the entity lookup view are shown.
	View Selector	You can choose from three options: • **Off**: Don't allow users to choose a different view. • **Show All Views**: All views are available. • **Show Selected Views**: When you choose this option you can use the Ctrl key and your cursor to choose which views to show. The Lookup view for the entity can't be de-selected.

Two option field properties

On the formatting tab, two option fields have the following formatting options

- **Two radio buttons**: Two labeled controls with labels. Only one may be selected.
- **Checkbox**: A single check box to set the true value, otherwise false.
- **List**: A drop-down list containing both values.

Multiple lines of text field properties

Multiple lines of text and single line of text fields that use the **Text Area** format have a **Row Layout** property. With this property you can specify a value for **Number of Rows** or select **Automatically expand to use available space**. This property is available in the **Formatting** tab.

Sub-grid properties

You can configure a sub-grid to display a list of records or a chart. Select **Show Chart Only** on the **Display** tab to show a chart instead of a list.

Tab	Property	Description
Display	**Tab Icon**	Click an icon that will be used for the tab. The icons are added as web resources in Microsoft Dynamics CRM. This option is only available when you're adding a sub-grid to a reference panel.
	Name	**Required**: The unique name for the sub-grid that is used when referencing it in scripts. The name can contain only alphanumeric characters and underscores.
	Label	**Required**: The localizable label for the sub-grid visible to users.
	Display label on the Form	Whether the label should be displayed on the form. This is required if you enable **Display Search Box**.
	Records	Click from two options: - **Only Related Records**: The sub-grid displays only records related to the current record. - **All Record Types**: Sub-grid will display records filtered only by the default view or, if the view selector is enabled, any views the user clicks. The option you click affects the

Tab	Property	Description
		behavior of the show list control. More information: [Show list behavior](#)
	Entity	Depending on the option you click for **Records**, this list displays either: • **Only Related Records**: A list of entities that are related to this entity with the name of the lookup field on that entity which defines the relationship in parentheses. • **All Record Types**: A list of all entities.
	Default View	Click the view that will be applied by default. If you don't enable any other views using the **View Selector** property. This will be the only view. Use the **Edit** button to open the default view for editing. Use the **New** button to create a new view to use for this sub-grid.
	Display Search Box	Display the search box. When this option is chosen the **Display Label on the Form** option is required.
	View Selector	You have three options: • **Off**: Only the default view can be used. • **Show All Views**: Allow people to click any view. • **Show Selected Views**: Use the Ctrl key with your cursor to select which of the available views to show.
Formatting	**Layout**	**Select the number of columns the control occupies**. When the section containing the sub-grid has more than one

Tab	Property	Description
		column you can set the field to occupy up to the number of columns that the section has.
	Row Layout	**Number of Rows** will determine how many records are shown on a page of a sub-grid.
		If **Automatically expand to use available space** is chosen the form will allow space for two records and will expand the space as the number of records increases. If the number exceeds the **Number of Rows**, people can navigate to additional pages to view the records.
		If **Automatically expand to use available space** is not chosen, the form will provide space for the number of records defined by **Number of Rows** and people can navigate to additional pages to view any additional records.

Show list behavior

When displaying a list in forms, each sub-grid displays the **Open View** button 🖽 in the top right corner when the entity is also displayed as one of the entities included in the navigation area of the form editor. Click this button to open the view. The behavior changes depending on the option chosen for the **Records** property.

When you select **Only Related Records**, the view opens using one of the associated views in the same window. To return to the form, use the back button or click the current record primary name value in the navigation bar.

When you select **All Record Types**, the view opens in a new window.

Add record behavior

When displaying a list in forms, each sub-grid displays the **Add record** button ➕ in the top right side of the sub-grid. Click this button to add a record. This behavior changes depending on the option chosen for the **Records** property and if the lookup is for activity records.

When you select **Only Related Records**, the default behavior is the behavior to add existing records. People see an in-line lookup to search for an existing record first. This helps prevent creating duplicate records. If they can't find an existing record, they can click the **New** option. When a new record is created, any of the field mappings defined in the relationship are applied. More information: Map entity fields

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When you select **All Record Types** the default behavior is to add a new record. The quick create form is shown if the target entity has one. If not, the default entity main form is shown.

If the sub-grid displays activities, people will first need to click the type of activity and then they will see the "add new record" behavior.

Delete record behavior

When you select a record in a sub-grid, the **Delete** button 🗑 appears on the right side of the row. The behavior of this delete action is different depending on the type of relationship with the current entity.

When the sub-grid uses a 1:N (one-to-many) relationship, the normal record delete behavior is to show a confirmation dialog before deleting the record.

When the sub-grid uses a N:N (many-to-many) relationship, the record in the relationship (or intersect) entity relating to two records is deleted without a confirmation and the record will no longer be displayed in the sub-grid. But the record that was displayed is not deleted.

Quick view control properties

A quick view control displays data from a record that is selected in a lookup on the form. The data displayed in the control is defined using a quick view form. The data displayed is not editable, but when the primary field is included in the quick view form, it becomes a link to open the related record. The out-of-the-box quick view forms specifically created for the reference panel are also used to show records of related entity. More information: [Create and edit quick view forms](#)

Property	Description
Tab icon	Select an icon to use for the vertical tabs. You can use images as web resources. This option is available only when you're inserting a quick view control to a Reference Panel section.
Name	**Required**: The unique name for the quick view form that is used when referencing it in scripts.
Label	**Required**: A label to display for the quick view form.
Display label on the Form	Displays the label on the form.
Lookup Field	Click one of the lookup fields included in the form.
Related entity	This value depends on the **Lookup Field** you click. It is usually the primary entity for the 1:N entity relationship for the lookup.
	If the entity includes a **Potential Customer** lookup that can accept either an account or contact, in the **Quick View Form** field you can click a quick view form for both account and contact by changing this value and then choosing another quick view form.
Quick View Form	If the **Related entity** has any quick view forms you can select them here. Otherwise, click **New** to create one.

Property	Description
	Click **Edit** to change the selected quick view form.

Web resource properties

You can add or edit web resources on a form to make it more appealing or useful to users.

 Note

- You can only add web resources of type HTML to a form of type Main - Interactive experience. JavaScript web resources can be added by using the **Form Properties** button in the **Form** group on the **Home** tab. More information: Form properties

- You can't add a web resource in a form header or footer.

For step-by-step instructions, see Add or edit a form web resource.

Tab	Property	Description
General	**web resource**	**Required**: The HTML web resource that you want.
Name	**Required**: A unique name for the field. The name can contain only alphanumeric characters and underscores.	
Label	**Required**: A label to display for the web resource.	
Visible by default	Showing the web resource is optional and can be controlled using scripts. More information: Visibility options	
Custom Parameter	A custom value to pass as the **data** query string parameter. More information: Pass parameters to web resources	
Restrict cross-frame scripting, where supported.	When pages exist on different domains you may want to prevent them from accessing the content of your form pages. Web resources are always in the same domain, so this should not be an issue with web resources.	
Pass record object-type code and unique identifiers as parameters	Data about the organization, user, and the record can be passed to the web resource so it	

Tab	Property	Description
	can adapt to organization settings. More information: [Pass parameters to web resources](#)	
Formatting	**Select the number of columns the control occupies**	When the section containing the web resource has more than one column you can set the field to occupy up to the number of columns that the section has.
Select the number of rows the control occupies	You can control the height of the web resource by specifying a number of rows.	
Automatically expand to use available space	You can allow the web resource height to expand to available space.	
Select the scrolling type for the IFRAME	An HTML web resource is added to the form using an IFRAME. • **As Necessary**: Show scrollbars when the size of the web resource is larger than the available. • **Always**: Always show scrollbars. • **Never**: Never show scrollbars.	
Display border	Display a border around the web resource.	
Dependencies	**Dependent fields**	A web resource may interact with fields in the form using script. If a field is removed from the form the script in the web resource may break. Add any fields referenced by scripts in the web resource to the **Dependent fields** so that they cannot be removed accidentally.

Pass parameters to web resources

An HTML web resource can accept parameters to be passed as query string parameters.

Information about the record can be passed by enabling the **Pass record object-type code and unique identifiers as parameters** option. If information is typed into the **Custom Parameter(data)** field it will be passed using the data parameter. The values passed are:

Parameter	Description
data	This parameter is only passed when text is provided for **Custom Parameter(data)**.
orglcid	The Organization default language LCID.
orgname	The name of the organization.
userlcid	The user's preferred language LCID
type	The entity type code. This value can be different for custom entities in different organizations. Use entity type name instead.
typename	The entity type name.
id	The id value of the record. This parameter has no value until the entity record is saved.

Any other parameters are not allowed and the web resource will not open if other parameters are used. If you need to pass multiple values, the data parameter can be overloaded to include more parameters within it. See the SDK [Sample: Pass Multiple Values to a Web Resource Through the Data Parameter](#)

IFRAME properties

You can add IFRAMEs to a form to integrate content from another website within a form.

📝 Note

- You can't add an IFRAME in a form header or footer.
- Microsoft Dynamics CRM forms are not designed to be displayed within IFRAMEs.

Tab	Property	Description
General	**Name**	**Required**: A unique name for the IFRAME. The name can contain only alphanumeric characters and underscores.
	URL	**Required**: The URL for the page to display in the IFRAME. 🔹 **Important** - For Microsoft Dynamics CRM Online, use a URL with HTTPS protocol. - For Microsoft Dynamics

Tab	Property	Description
	CRM on-premises, if CRM domain is HTTPS, use a URL with HTTPS protocol. If CRM domain is HTTP, use a URL with HTTP protocol.	
Pass record object-type code and unique identifiers as parameters	Data about the organization, user, and the record can be passed to the IFRAME. More information: Pass parameters to IFRAMES	
Label	**Required**: A label to display for the IFRAME.	
Display label on the Form	Whether the label should be displayed.	
Restrict cross-frame scripting, where supported	It is considered a security risk to allow pages from a different web site to interact with the Microsoft Dynamics CRM application using scripts. Use this option to restrict cross frame scripting for pages you do not have control over. More information: Select Whether to Restrict Cross-Frame Scripting	
Visible by default	Showing the IFRAME is optional and can be controlled using scripts. More information: Visibility options	
Formatting	**Select the number of columns the control occupies**	When the section containing the IFRAME has more than one column you can set the field to occupy up to the number of columns that the section has.
Select the number of rows the control occupies	You can control the height of the IFRAME by specifying a number of rows the control occupies.	
Automatically expand to use available space	Instead of setting the height by a number of rows, you can allow the IFRAME height to expand to available space.	

Tab	Property	Description
Select the scrolling type for the IFRAME	You have three options: • **As Necessary**: Show scrollbars when the size of the IFRAME is larger than the available space. • **Always**: Always show scrollbars. • **Never**: Never show scrollbars.	
Display border	Display a border around the IFRAME.	
Dependencies	**Dependent fields**	An IFRAME may interact with fields in the form using script. If a field is removed from the form the script in the IFRAME may break. Add any fields referenced by scripts in the IFRAMES to the **Dependent fields** so that they cannot be removed accidentally.

Pass parameters to IFRAMES

Information about the record can be passed by enabling the **Pass record object-type code and unique identifiers as parameters** option. The values passed are:

Parameter	Description
orglcid	The Organization default language LCID.
orgname	The name of the organization.
userlcid	The user's preferred language LCID
type	The entity type code. This value can be different for custom entities in different organizations. Use **typename** instead.
typename	The entity type name.
id	The id value of the record. this parameter has no value until the entity record is saved.

Edit Navigation

Navigation within the form allows people to view lists of related records. Each entity relationship has properties to control whether it should be shown. More information: Navigation pane item for primary entity

Any entity relationships that are configured to be displayed can be overridden within the form editor.

For step-by-step instructions, see Add or edit form navigation for related entities

To enable editing navigation you must first select **Navigation** from the **Select** group on the **Home** tab.

In the **Relationship Explorer** you can filter by 1:N (one-to-many) or N:N (many-to-many) relationships, or view all available relationships. The **Only show unused relationships checkbox** is disabled and selected. So you can only add each relationship one time.

To add a relationship from the **Relationship Explorer** just double-click it and it will be added below the currently selected relationship in the navigation area. Double-click a relationship in the navigation area and you can change the label on the **Display** tab. On the **Name** tab, you can see information about the relationship. Use the **Edit** button to open the definition of the entity.

There are five groups in the navigation area. You can drag them to reposition them and double-click them to change the label, but you can't remove them. These groups are displayed only when there is something in them. If you don't want a group to appear, just don't add anything to it.

Configure event handlers

Form event handlers can be configured for the following areas in a form.

Element	Event	Description
Form	**OnLoad**	Occurs when the form loads.
OnSave	Occurs when data is saved.	
Tab	**TabStateChange**	Occurs when the tab is expanded or collapsed.
Field	**OnChange**	Occurs when data in the field changes and the control loses focus.

An event handler consists of a reference to a JavaScript web resource and a function defined within that web resource that will execute when the event occurs. Each element can have up to 50 separate event handlers configured.

◆ Important

Configuring an event handler incorrectly can result in script errors that may cause the form to fail to load or function correctly. If you are not the developer of the script, make sure you understand exactly what configuration options the script requires.

Be sure to only configure a script event handler using a library that comes from a source you trust. Scripts can be used to perform any action a user might perform and a poorly written script can significantly damage the performance of a form.

After you configure an event handler, always test it to verify it's working correctly.

To configure an event handler

1. In the form editor, select the element with the event you want to configure a handler for.

2. On the Home tab, in the **Edit** group, click **Change Properties** or simply double-click the element.

3. In the element properties dialog box, select the **Events** tab.

4. Expand the **Form Libraries** area. If the library containing the function you want to set as the event handler isn't already listed, add the library.

5.
   a. In the **Form Libraries** section of the **Event List**, click **Add**.

   b. Locate the JavaScript web resource in the list of available web resources. Select it and click **Add**.

      If the JavaScript web resource you need doesn't exist, click **New** to create a new web resource form.

   c.
      i. In the web resource form set the properties as listed in the following table.

Property	Value
Name	**Required**. Type the name of the web resource.
Display Name	**Required**. Type the name to be displayed in the list of web resources.
Description	Optional. Type a description of the web resource.
Type	**Required**. Select **Script (JScript)**.
Language	Optional. Click one of the languages available for your organization.

      ii. If you have been provided with a script, we highly recommend that you use the **Browse** button to locate the file and upload it.

         Alternatively, you can click the **Text Editor** button and paste or type the contents of the script in the **Edit Content** dialog box.

         ☑ **Note**

         Because this simple text editor doesn't provide any features to check the correctness of the script, we recommend that you use a separate application like Microsoft Visual Studio to edit scripts and then upload them.

      iii. Click **Save** and close the web resource dialog box. The web resource you created is now selected in the **Look Up Record** dialog box.

      iv.   Click **Add** to close the dialog box.

6. In the **Event Handlers** section, select the event you want to set an event handler for.

7. Click **Add** to open the **Handler Properties** dialog box.

8. On the **Details** tab, click the appropriate library and type the name of the function that should be executed for the event.

9. By default, the event handler is enabled. Clear the **Enabled** check box if you don't want to enable this event.

   Some functions require an execution context to be passed to the function. If this is required, select **Pass execution context as the first parameter**.

   Some functions can accept a set of parameters to control the behavior of a function. If these are required, enter them in the **Comma separated list of parameters that will be passed to the function**.

10. On the **Dependencies** tab, add any fields that the script depends on into the **Dependent Fields** area.

11. Click **OK** to close the **Handler Properties** dialog.

12. When the event handler is entered you may adjust the order in which the function will be executed relative to any other functions by using the green arrows to move it up or down.

13. Click **OK** to close the element properties dialog.

14. Click **Save** to save your changes. Click **Publish** to publish the form.

 Note

While the user interface (UI) lets you adjust the order in which the scripts are loaded by using the up and down green arrows, the scripts are actually not loaded sequentially. More information: MSDN: Manage library dependencies

See Also

Create and design interactive forms for the interactive service hub
Create and edit quick create forms
Create and edit quick view forms

Create and edit a card form

In Microsoft Dynamics CRM, a card form is used to present data in a stream in the interactive dashboards.

For each entity that needs to be shown in the views or queues in the interactive dashboard streams, a card form must be created.

This card provides a template to show how the entity data will be presented in the stream.

In This Topic

Create a card form

You create forms using the form editor in a manner similar to how you create or edit other forms. Card forms are read-only in runtime. Use them to create forms that are for reading purposes only.

🖾 Note

All out-of-the-box entities that are enabled for the interactive experience already have an out-of-the-box card form created. You can change this default form, or you can create a new form if needed.

1. In the default solution, using the solution explorer, expand the **Entities** node and select the entity you want to create a new quick view form for.
2. Expand the entity and select the **Forms** node.
3. Click **New** and select **Card Form** to open the form editor.

   The form has sections added to it by default. You can't add more sections, or remove or move existing sections from the form.

   The first section of the form is a color strip. A color strip can include any field that has the color definition association with it, and is of the type Option Set. You can add only one field to this section.

🖾 Note

You can only add four fields to the header and footer and body.

4. In the form editor, click **Form Properties** in the **Form** group of the **Home** tab.
5. In the **Form Properties** dialog box, enter a **Form Name** and **Description** to differentiate this card form from any others and close the **Form Properties** dialog box.
6. Edit the form to add the fields you want. More information: Edit a card form

◆ Important

If you add a field and click **Field Requirement** > **Business Required** and then save it, you will not be able to delete the field.

7. To save the form and close the form editor, on the **Home** tab, **Save** group, click **Save and Close**.

Edit a card form

Card forms have a simplified layout because they are designed to be viewed within a stream in a dashboard. Only one single-column tab is available. You can add fields or remove fields from the form.

When you edit a card form, you need to publish your changes before they will be visible in the application.

◆ **Important**

After publishing the changes in the web application, the configuration changes must be downloaded in the interactive service hub before they are visible in the application.

See Also

Create and design interactive forms for the interactive service hub
Use the Main - Interactive experience form and its components

Create and edit views

Applies To: CRM 2016 on-prem, CRM Online

In Microsoft Dynamics CRM, use views to define how a list of records for a specific entity is displayed in the application. A view defines:

- The columns to display

- How wide each column should be

- How the list of records should be sorted by default

- What default filters should be applied to restrict which records will appear in the list

A drop-down list of views is frequently displayed in the application so that people have options for different views of entity data.

The records that are visible in individual views are displayed in a list, sometimes called a grid, which frequently provides options so that people can change the default sorting, column widths, and filters to more easily see the data that's important to them. Views also define the data source for charts that are used in the application.

In This Topic

Types of views
Accessing view definitions
Specify default views
Create and edit views
Choose and configure columns

Types of views

There are three types of views, *personal*, *system*, and *public* views.

Personal views

You and anyone else who has at least User level access to actions for the Saved View entity can also create personal views. As system administrator, you can modify the access level for each action in the security role to control the depth to which people can create, read, write, delete, assign, or share personal views.

Personal views are owned by individuals and, because of their default User level access, they are visible only to that person or anyone else they choose to share their personal views with. You can create personal views by saving a query that you define by using Advanced Find or by using the **Save Filters as New Views** and **Save Filters to Current View** options in the list of views. These views are typically included at the bottom in lists of system or public views that are available in the application. While you can create a new personal view based on a system or public view, you cannot create a system or public view based on a personal view.

This topic is about how system administrators and system customizers work with system and public views. For more information about personal views, see Help & Training: Create, edit, or save an Advanced Find search.

System views

As a system administrator or system customizer, you can edit system views. System views are special views the application depends on, which exist for system entities or are automatically created when you create custom entities. These views have specific purposes and some additional capabilities.

System Views	Description
Quick Find	The default view used when searches are performed using **Quick Find**. This view also defines which fields are searched when using search capabilities of **Quick Find** and **Lookup** views.
Advanced Find	The default view used to display results when using **Advanced Find**. This view also defines the columns used by default when new custom public views or personal views are created without defining a view to use as a template.
Associated	The default view that lists the related entities for a record.

System Views	Description
Lookup	The view you see when you select a record to set for a lookup field.

These views are not shown in the view selector and you can't use them in sublists in a form or as a list in a dashboard. You cannot delete or deactivate these views. More information: [Remove views](#)

System views are owned by the organization so that everyone can see them. For example, everyone has organization-level access to read records for the View (savedquery) entity. These views are associated with specific entities and are visible within the solution explorer. You can include these views in solutions because they are associated with the entity.

Public views

Public views are general purpose views that you can customize as you see fit. These views are available in the view selector and you can use them in sub-grids in a form or as a list in a dashboard. Some public views exist by default for system entities and for any custom entity. For example, when you create a new custom entity, it will have the following combination of public and system views.

Name	Type
Active *<entity plural name>*	Public
Inactive *<entity plural name>*	Public
Quick Find Active *<entity plural name>*	Quick Find
<entity name> **Advanced Find View**	Advanced Find
<entity name> **Associated View**	Associated
<entity name> **Lookup View**	Lookup

You can create custom public views. You can delete any custom public views you create in an unmanaged solution. You cannot delete any system-defined public views. Custom public views added by importing a managed solution may have managed properties set that can prevent them from being deleted, except by uninstalling the managed solution.

Accessing view definitions

There are several ways you can access view definitions if you are a system administrator or customizer. On any list view for an entity, in the command bar you will find the following commands after you click or tap the ellipsis (•••) button:

- **View**: Opens the definition of the current view in the default solution.

- **New System View**: Opens a new window to create a new view for the current entity in the default solution.

- **Customize Entity**: Takes you to the definition of the current entity in the default solution where you can then select **Views**.

- **System Views**: Opens the same window as **Customize Entity**, except with **Views** selected.

Alternatively, you can navigate to the view definitions in the default solution by using the following steps:

Open a view

1. Go to **Settings** > **Customizations**.
2. Click **Customize the System**.
3. Under **Components**, expand **Entities**, and then expand the entity you want.
4. Click **Views**.
5. Double-click the view you want to open.

This list of views has four filters you can use to find the views you want more easily:

- **All Active Views**
- **Active Public Views**
- **Inactive Public Views**
- **Active System-Defined Views**

If the entity that the view is associated with is part of an unmanaged solution, you can still create or edit views for that entity in the default solution. System views are associated with an entity and are not available as separate solution components. Unlike fields, views do not use a customization prefix in a unique name that should be consistent in a solution, so you do not need to create views in the context of a solution.

Specify default views

Unless someone has 'pinned' a different view as their personal default, they will see the default view that you specify. You can set any of the public views as the default view for an entity.

Set the default view for an entity

1. Navigate to **Views** as described in [Accessing view definitions](#).
2. Select a Public view.
3. On the menu bar, click **More Actions** > **Set Default**.
4. Click **Publish All Customizations**.

Create and edit views

You can create custom public views by editing existing views and saving them with a different name or by creating a new view.

Also see [Help & Training: Create or edit a public view for an entity](#).

Create a new view

1. As described in [Accessing view definitions](#), from a list view for the entity, on the command bar, select **New System View**.

2. In the **View Properties** dialog box, provide a **Name** and optionally a **Description** for the view.

3. After you close the properties dialog you can do the following:

   - [Choose and configure columns](#).
   - [Edit filter criteria](#).
   - [Configure sorting](#).

4. When you are finished, click **Save and Close**.

5. Click **Publish All Customizations**.

Edit a view

1. Go to **Settings** > **Customizations**.

2. Click **Customize the System**.

3. Under **Components**, expand **Entities**, and then expand the entity you want.

4. Click **Views**.

5. Double-click the view you want to edit.

6. To change the **Name** or the **Description** for the view, click **View Properties**.

7. Do the following:

   - [Choose and configure columns](#).
   - [Edit filter criteria](#).
   - [Configure sorting](#).

8. When you are finished, click **Save and Close**.

9. Click **Publish All Customizations**.

Create a new view from an existing view

Follow the procedure to edit a view, except instead of choosing **Save and Close**, click**Save As** and enter a new **Name** and **Description** for the view.

Choose and configure columns

Along with the filter criteria, the columns visible in a view are very important to the value provided by the view. When you [Create and edit views](#) you can perform the following tasks with columns:

- [Add columns](#)

- [Remove columns](#)

- [Change column width](#)

- [Move a column](#)

- [Enable or disable presence for a column](#)

- [Add find columns](#)

Add columns

You can include columns from the current entity or any of the related entities that have a 1:N entity relationship with the current entity.

For example, perhaps you want to display the owner of a user-owned entity in a column. You can choose the **Owner** field of the current entity to display the name of the owner. This will appear as a link to open the **User** record for the person who is the owner. In this case, you also have the option to [Enable or disable presence for a column](#).

If you want to display the phone number for the owner of the record, you must select **Owning User (User)** from the **Record type** drop-down and then select the **Main Phone** field.

Add columns to views

1. While [Create and edit views](#) click **Add Columns** and the **Add Columns** dialog box appears.

2. Select the **Record type** if you want to include fields from related entities.

3. You can select multiple fields, even from related entities.

4. When you have selected the fields you want, click **OK** to close the **Add Columns** dialog box.

As you add columns, you will increase the width of the view. If the width of the view exceeds the space available to show it in the page, horizontal scrollbars will allow people to scroll and see the hidden columns.

 Tip

If your view filters on data for a certain field so that only records with a certain value are shown, don't include that column in the view. For example, if you are only showing active records, don't include the status column in the view. Instead, name the view to indicate that all the records shown in the view are active.

 Note

When you add columns to Lookup views for updated entities, only the first three columns will be displayed.

Remove columns

1. While [Create and edit views](), choose the column you want to remove.
2. In the **Common Tasks** area, click **Remove**.
3. In the confirmation message, click **OK**.

Change column width

1. While [Create and edit views](), choose the column you want to change.
2. In the **Common Tasks** area, click **Change Properties**.
3. In the **Change Column Properties** dialog box, choose an option to set the column width, and then click **OK**.

Move a column

1. While [Create and edit views](), choose the column you want to move.
2. In the **Common Tasks** area, use the arrows to move the column left or right.

Enable or disable presence for a column

When the following conditions are true, people can a see a Microsoft Lync online presence control in lists that shows if the person is available and allows people to interact with them by IM:

- People use Internet Explorer.
- People have the Lync application installed.
- People have Microsoft ActiveX enabled in Internet Explorer.
- Your organization has enabled presence for the system in the system settings.

🔷 **Important**

Lync has been rebranded as Skype for Business. Currently, you'll still see references to "Lync" in Microsoft Dynamics CRM, but CRM will work with Skype for Business.

The presence control and the setting to enable it are available only for columns that display primary fields for email-enabled entities (users, contacts, opportunities, leads, or custom entities).

Enable or disable Lync presence for a column

1. While Create and edit views, choose the column you want to change.

2. In the **Common Tasks** area, click **Change Properties**.

3. In the **Change Column Properties** dialog box, select or deselect **Enable presence for this column**, and then click **OK**.

Add find columns

Find columns are the columns searched by the application when people use the **search for records** text box displayed for lists or whenever there is the ability to search for records for an entity in the application, such as when people are searching for a record for a lookup field.

1. Open a **Quick Find** view as described in Create and edit views.

2. Click **Add Find Columns** to open the dialog box.

3. Select the fields that contain the data that you want to search for.

4. Click **OK** to close the **Add Find Columns** dialog box.

Edit filter criteria

Along with the columns displayed in the view, the filter criteria that are applied to a view are a critical part of the value provided by the view.

1. While Create and edit views, click **Edit Filter Criteria**.

2. The dialog shows a user interface similar to **Advanced Find**. You can use **AND** and **OR** clauses to specify and group criteria.

3. Click **OK** to close the **Edit Filter Criteria** dialog box.

More information: Help & Training: Create, edit, or save an Advanced Find search

Configure sorting

1. While Create and edit views, click **Configure Sorting**.

2. In the **Configure Sort Order** dialog box, in the **Sort By** list, select the column you want to sort, then click **Ascending Order** or **Descending Order**.

3. Click **OK** to close the **Configure Sort Order** dialog box.

Remove views

Sometimes you have a view that you don't want people to see. Depending on the type of view, you can either delete it or deactivate it.

Delete a view

You can delete any custom public view. Use the steps in [Accessing view definitions](#) to find the view you want to delete and use the ✕ **Delete** command. Once you verify that you really want to delete it, the view will be permanently deleted.

If you don't want to delete the view permanently, you can deactivate it instead.

Deactivate or activate views

You cannot delete or deactivate any [System views](#), including public views the system created. You can deactivate any public view, including public views the system created

Deactivate or activate a public view

1. Navigate to **System Views** as described in [Accessing view definitions](#).

2. Select a public view. To see inactive views, use the **Inactive Public Views** view.

3. On the menu bar, click **More Actions**, and then click either **Deactivate** or **Activate**.

4. Click **Publish All Customizations**.

Dependencies

Views are dependent on the fields that they display. The fields are required components for a view. If you have a custom field that is included in a view, you will not be able to delete that field while it is included in the definition of a view. Because views are usually presented as a list, other solution components are usually not dependent on a specific view. A chart may use a view as a data source, but it can use any of the views for an entity.

View the solution components with dependencies on views

1. Navigate to **System Views** as described in [Accessing view definitions](#).

2. Select a view.

3. On the menu bar, click **More Actions** > **Show Dependencies**.

Managed properties

If you create a custom public view that you want to include in a managed solution that you will distribute, you have the option to limit the ability of anyone who is installing your solution from customizing the view.

By default, most views have their **Customizable** managed property set to true so that people can customize them. Unless you have a very good reason to change this, we recommend you allow people to customize views you create.

Set managed properties for a view

1. Navigate to **System Views** as described in <u>Accessing view definitions</u>.

2. Select a custom public view.

3. On the menu bar, click **More Actions** > **Managed properties**.

4. Set the **Customizable** option to **True** or **False**.

See Also

<u>Customize your CRM system</u>
<u>What's new for administrators and customizers in Microsoft Dynamics CRM 2016 and CRM Online</u>
<u>Getting started with customization</u>
<u>Referenced topic '6f0b8ac1-f70a-452e-b71a-2a8438f7d3ce' is not in the TOC.</u>
<u>Create and edit metadata</u>
<u>Create and design forms</u>
<u>Customize CRM for phones and tablets</u>
<u>Create and edit processes</u>
<u>Create and edit business rules</u>
<u>Help & Training: Create or edit a public view for an entity</u>
<u>Help & Training: Create, edit, or save an Advanced Find search</u>

Create and edit dashboards

Applies To: Dynamics CRM 2016, Dynamics CRM Online

There are two types of dashboards, user dashboards and system dashboards. Any user can create a dashboard visible only to them in their work area such as Sales, Service, or Marketing. An admin or customizer creates or customizes system dashboards that, when published, are visible to everyone in the organization. A user can choose to set their user dashboard as their default dashboard and override the system dashboard. This topic focuses on system dashboards.

For additional information on creating system or user dashboards, see <u>Help & Training: Work with, create, or customize dashboards</u>.

In This Topic

<u>Create a new dashboard</u>
<u>Edit an existing dashboard</u>

Create a new dashboard

1. Go to **Settings** > **Customizations**.
2. Click **Customize the System** > **Components** > **Dashboards**.
3. Click **New**, choose a layout, and then click **Create**.
4. In the **Dashboard: New** dialog box enter a name for the dashboard.
5. Select one of the component areas and then select the icon for a chart or a list.
   You can have up to six components in the dashboard.
6. For example, to add a chart, in the **Add Component** dialog box, select values for **Record Type**, **View**, and **Chart**, and then select **Add** to add the chart to the dashboard.
7. When you are finished adding components to your dashboard, select **Save** and then **Publish**.

Edit an existing dashboard

1. Go to **Settings** > **Customizations**..
2. Click **Customize the System** > **Components** > **Dashboards**.
3. Open (double-click) a dashboard, select one of the component areas, and then click **Edit Component**.
4. In the **Set Properties** dialog box, make your changes. When you're done, click **Set**.
   For details on setting properties, see [Set properties for a chart or list included in a dashboard](#).
5. When you've completed your changes be sure to save them, and then publish them.

Additional system dashboards tasks you can perform include:

- Remove a list or chart from a dashboard
- Add a list or chart to a dashboard
- Set the default dashboard
- Use security roles to make a dashboard visible to just certain roles

To learn how to do these and other system dashboard tasks see "eBook: System Dashboards" at: [Help & Training: Work with, create, or customize dashboards](#).

See Also
[Customize your CRM system](#)

Configure interactive experience dashboards

Applies To: CRM 2016 on-prem, CRM Online

The Microsoft Dynamics CRM interactive service hub brings you a modern, intuitive, and interactive experience for managing your customer service operations. It's loaded with capabilities, interactive dashboards, and redesigned forms that pull together key information, so customer service representatives can focus on what's important to them and get things done faster. For service reps, the interactive experience dashboards will become a one-stop workplace to see their workload information and take actions. The dashboards are fully configurable, security-role based and deliver workload information across multiple streams in real time. The customer service reps will no longer need to page through the application looking for particular cases; they'll be able to act on a case right from the dashboard. While end users will access these dashboards using the interactive service hub URL, as an administrator or customizer, you'll do all of your configuration work in the CRM web application user interface. You won't have to write code.

◆ **Important**

This feature was introduced in CRM Online 2016 Update and CRM 2016 (on-premises).

Interested in getting this feature? Find your CRM administrator or support person.

In This Topic

Interactive experience dashboards overview
Configure entities, fields, and security roles for the interactive dashboards
Configure interactive experience dashboards
Configure dashboard colors

Interactive experience dashboards overview

The interactive experience dashboards come in two forms: multi-stream and single-stream. In addition, multi-stream dashboards can be home page or entity-specific dashboards. The entity-specific dashboards are configured in a different part of the user interface and partially preloaded with the entity-specific configuration information.

The multi-stream dashboards display data in real time over multiple data streams. There's no limit on how many streams you can configure on the dashboard. The data in a stream can be based only on one entity, but, each stream can be based on a different entity. In the entity-specific dashboards, all streams are based on the same entity. The data flows from various views or queues, such as **My Activities**, **My Cases**, or **Cases in the Banking Queue**. The multi-stream home page dashboards typically target Tier 1 customer support, where service representatives handle many support cases at the same time. However, entity-specific dashboards can be also suitable for Tier 2 support that focuses on more complex cases. In the multi-stream dashboard, you can easily switch from a standard view to the tile view. The interactive tiles are an aggregated view of the data across the views or queues. For example, you can configure a tile based on the **My Active Cases** view that currently contains ten active cases. The tile will display the number 10. A service representative can click a tile to drill down to see the actual records and navigate to a specific case.

The single-stream dashboards display real-time data over one stream based on an entity view or queue. The tiles are positioned on the right side of the dashboards and are always shown. The single-stream dashboards are typically helpful to Tier 2 service leads or managers, who monitor fewer, but more complex or escalated cases.

Multi-stream and single-stream dashboards contain interactive charts that provide a count of relevant records, such as cases by priority or by status. These charts also act as visual filters. The visual filters (interactive charts) are based on multiple entities and in the single-stream dashboards, the entity in the data stream defines the visual filter entity. If you click the **High Priority Cases** circle in the **Cases by Priority** chart, the dashboard will refresh, to show you only high priority cases. With charts and tiles the service reps will be able to see the changes and patterns in data, and act quickly to address the issues that interest them most.

Service reps can apply additional filtering with global filter and timeframe filter. The global filter works at a field level on all charts, and also on streams and tiles that are based on the filter entity (you specify the filter entity when you configure the visual filters). For example, the reps can apply a global filter to show them only escalated cases and the cases that are marked "Request". The timeframe filter will allow service reps to display cases in a specified period of time. Filtering helps to remove the clutter on the screen and show only the work items that the user wants to focus on. However, if the service rep wants to see the entire unfiltered workload, they can easily clear a particular filter or all filters. You can configure specific colors in some charts and streams for the option set fields (not all charts can be shown in color). For example, you can show high priority cases in red and low priority cases in yellow. The reps will be able to sort the data in the streams based on different criteria tied to a particular entity field, such as the priority, status, or the date the record was created or modified. More information: Configure dashboard colors

✍ Note

The interactive dashboards are solution aware and can be exported and then imported into a different environment as a solution. However, the queues that the streams and tiles are based on aren't solution aware. Before importing the dashboard solution into the target system, the queues have to be manually created in the target system in **Settings** > **Service Management** > **Queues**. After you create the queues, import the dashboard solution to the target system, and then edit the streams or tiles that are based on the queues to assign the newly created queues appropriately.

 The illustrations in this topic show multi-stream and single-stream dashboards with the header pane. Below the header you see visual filters and streams. In the single-stream dashboard, you also see tiles. For each dashboard type, you can choose from several different layouts that are also shown. The dashboard header contains the following controls and clickable icons, from left to right: dashboard picker, refresh, visual filter icon, global filter icon, and timeframe filter.

Multi-stream dashboard standard view

In the multi-stream dashboard, you see a row of visual filters at the top with the data streams below them.
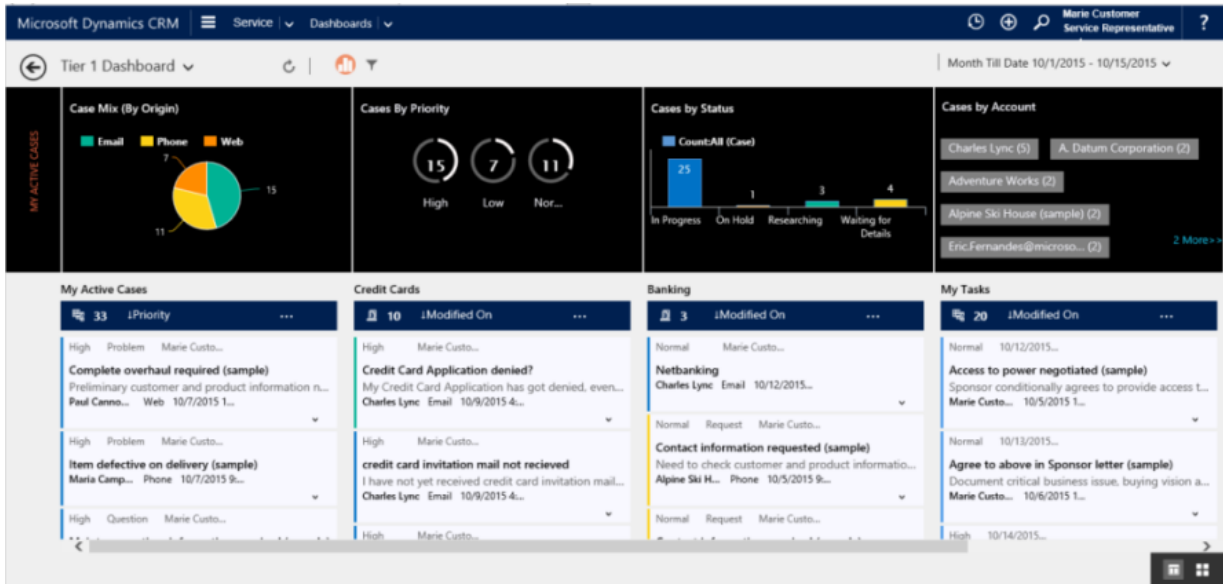
Multi-stream dashboard tile view

The same dashboard, only in the tile view.
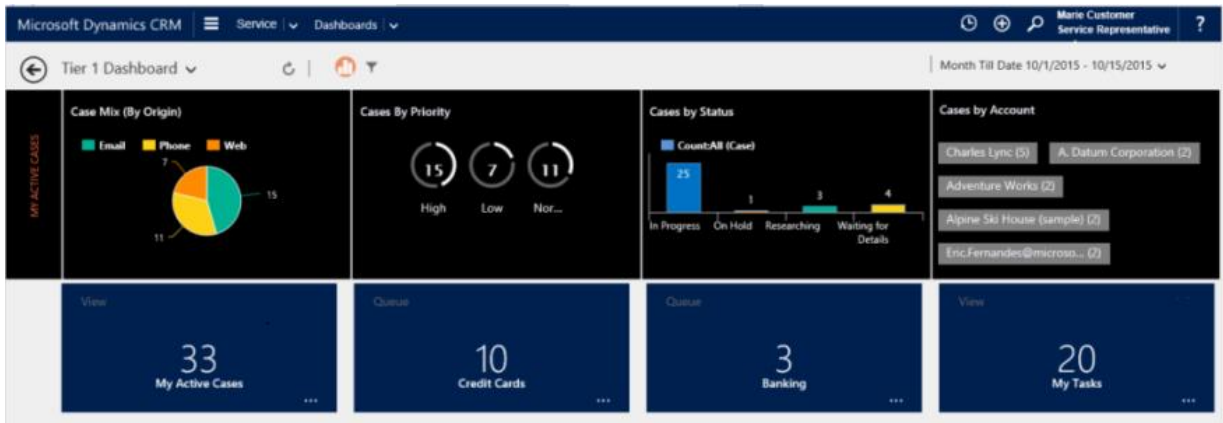
Multi-stream dashboard layouts

For multi-stream dashboards, you can choose from four different layouts.
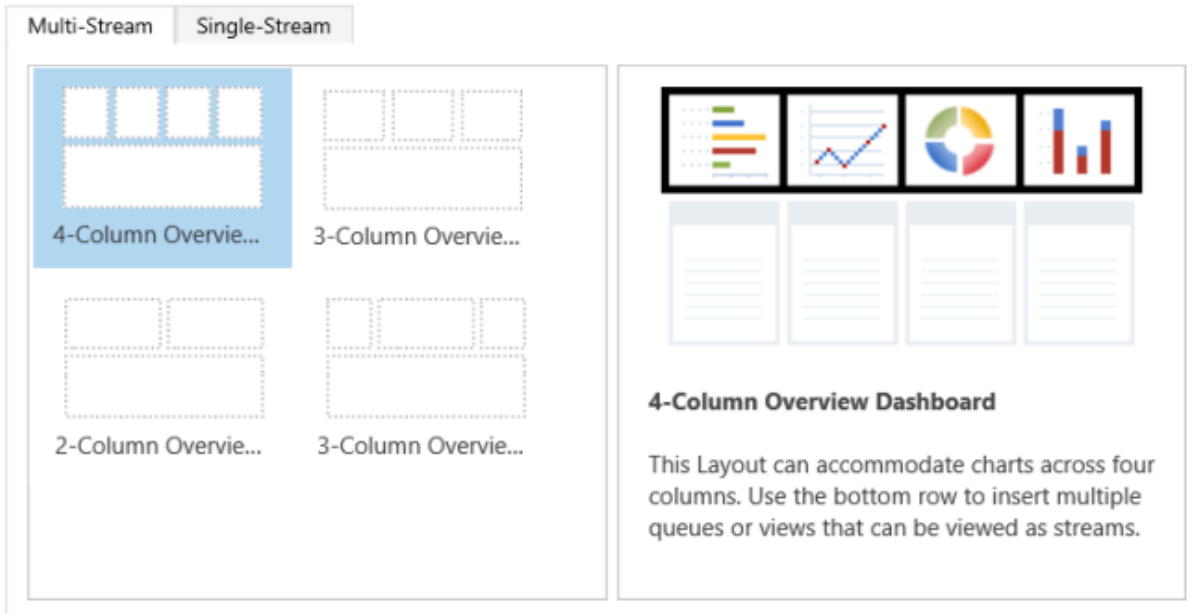
Multi-stream entity-specific dashboard

The entity-specific dashboard for the **Case** entity is shown here.
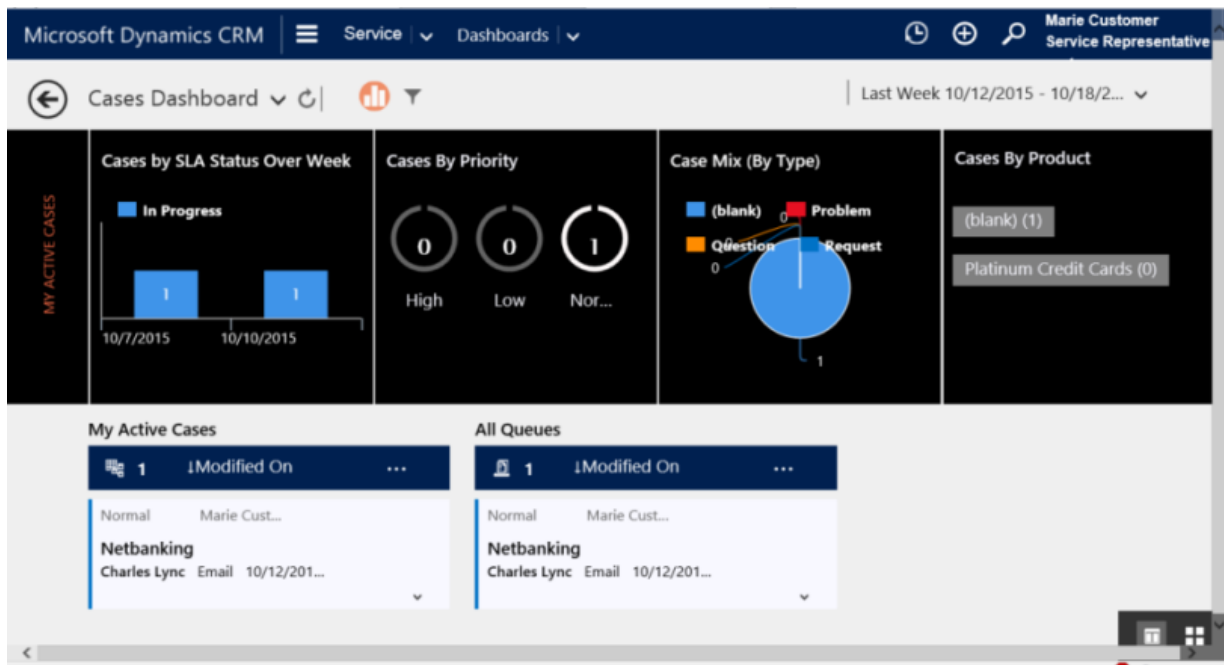
Single-stream dashboard

The single-stream dashboard contains the data stream on the left and visual filters and tiles on the right.
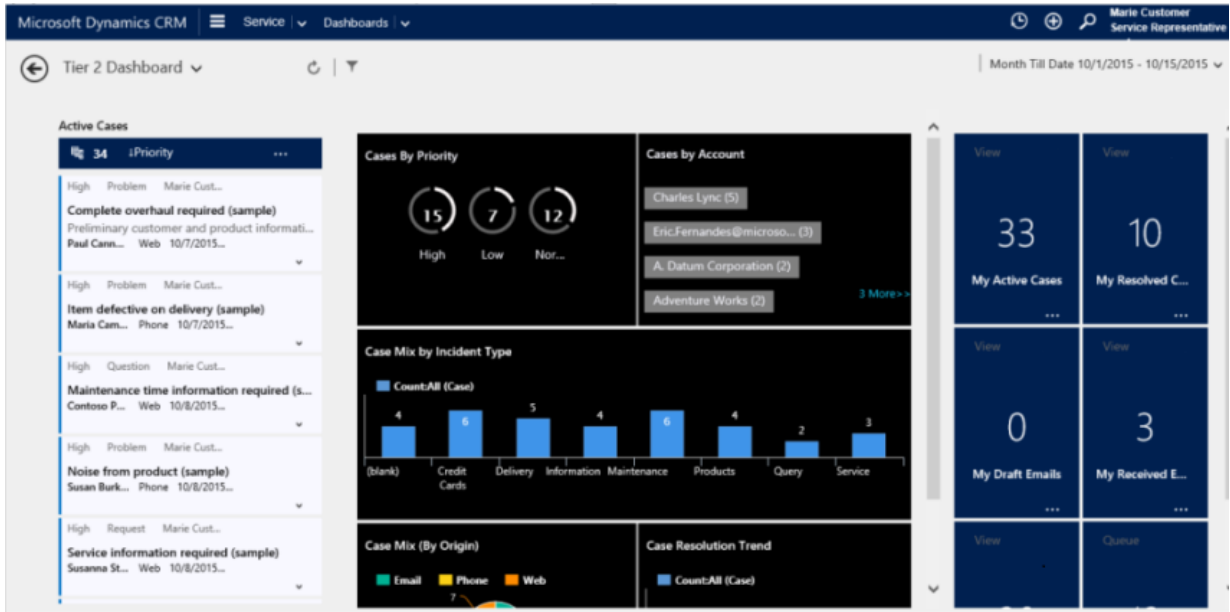
Single-stream dashboard layouts

For single-stream dashboards, you can choose from four different layouts.

Configure entities, fields, and security roles for the interactive dashboards

When you configure interactive dashboards, your first task is to enable entities, fields, and security roles for the interactive experience.

Enable entities

You can create interactive dashboards for entities that are enabled for the interactive experience. You can also enable custom entities and custom activities for the interactive dashboards.

Out of the box, the following system entities are enabled for interactive dashboards:

- **Case**

- **Contact**

- **Account**

- **Social Profile**

- **Queue Item**

- **Knowledge Article**

- Activities: **Email**, **Phone Call**, **Task**, **Appointment**, **Social Activity**

The following procedure describes how to enable a custom entity for the interactive experience:

1. Go to **Settings** > **Customizations**.
2. Click **Customize the System**.
3. Under **Components**, expand **Entities**, and then expand the entity you want to enable.
4. On the **General** tab, select the **Enable for interactive experience** check box. Click **Save and Close**.
5. Click **Publish** for your changes to take effect.
6. Click **Prepare Client Customizations**.
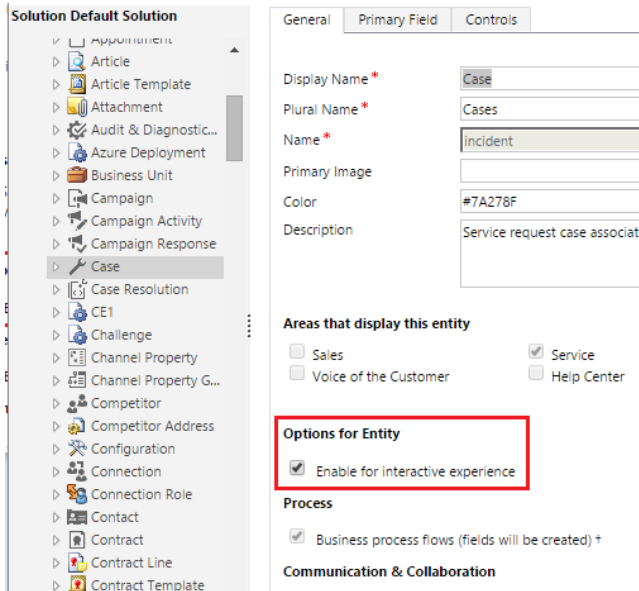
Configure fields

For a field to appear in the global filter and be included in the data stream sort, you have to set two flags, as shown in the example below for the **IsEscalated** field of the **Case** entity.
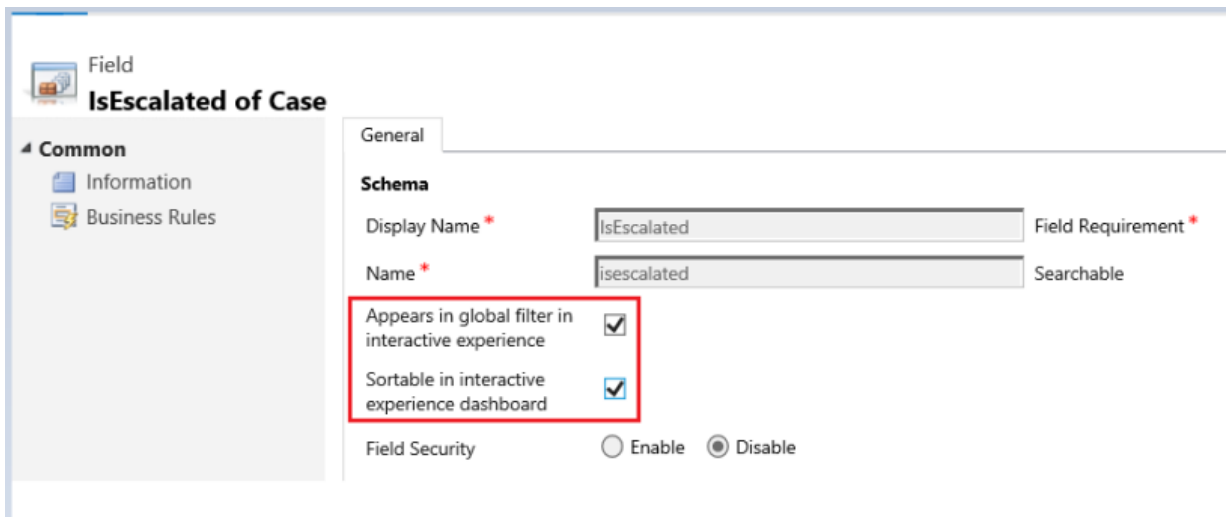
Configure global filter fields

For a field to appear in the global filter, you have to set the **Appears in global filter in interactive experience** flag for this field. The fields that you configure will appear in the global filter flyout window

when the global filter icon is clicked on the dashboard header. In the flyout window, the service reps can select the fields on which they want to filter globally, in charts, and also in streams and tiles that are based on the filter entity. For more information about the filter entity see the "Configure multi-stream interactive dashboard" section later in this topic.

The global filter flyout window is shown here.
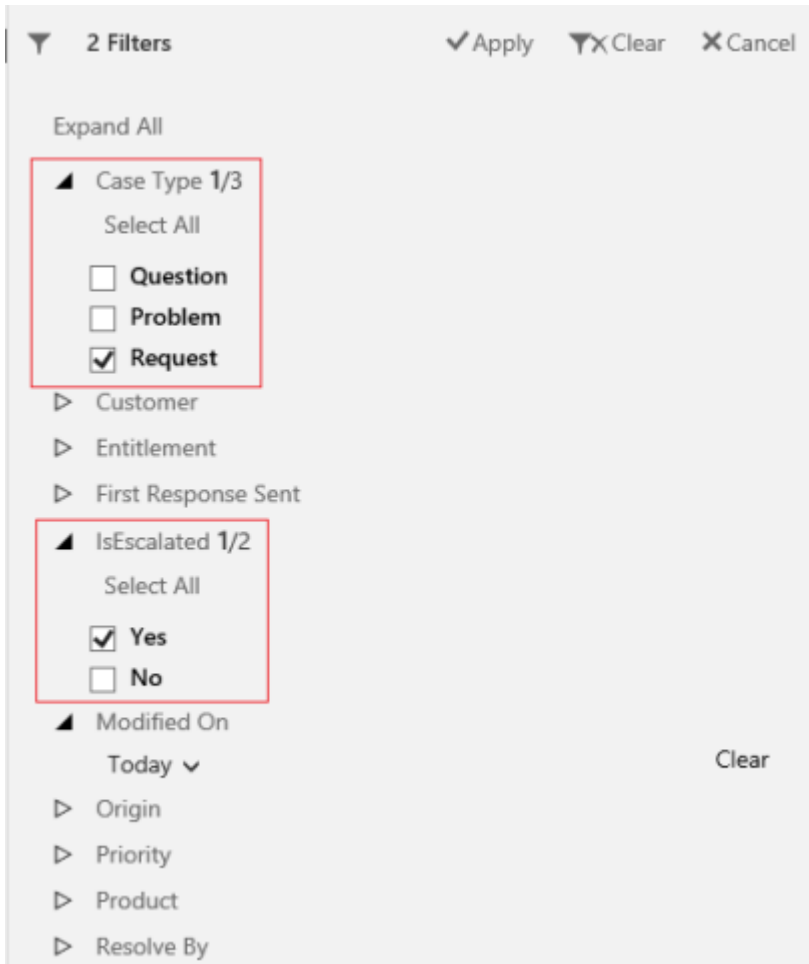
Note

When you configure a visual filter (interactive chart) based on the fields like priority or status, a best practice is to also enable these fields (priority, status) to appear in the global filter.

The following procedure provides the steps for setting the global filter flag:

1. Go to **Settings** > **Customizations**.

2. Click **Customize the System**.

3. Under **Components**, expand **Entities**, and then expand the entity you want.

4. In the navigation pane, click **Fields** and in the grid, double-click the field you want to enable.

5. In the **General** tab, select the **Appears in global filter in interactive experience** check box. Click **Save and Close**.

6. Click **Publish** for your changes to take effect.

7. Click **Prepare Client Customizations**.

Configure sortable fields

For a field to be used in sorting stream data, you have to set the **Sortable in interactive experience dashboard** flag for this field. The fields that you configure for sorting will appear in the drop-down list in the **Edit Property** flyout dialog when the user clicks **More (…)** on the stream header. The following illustration shows the flyout dialog with the list of the available fields for sorting, in the **Sort By** drop-down list. The default sort is always set on the **Modified On** field.
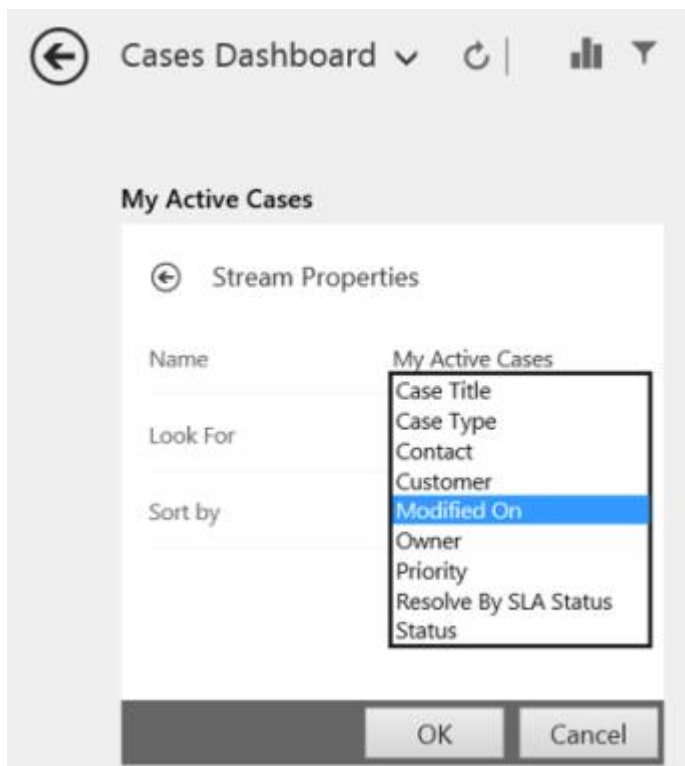
The following procedure provides the steps for setting the sort flag:

1. Go to **Settings** > **Customizations**.
2. Click **Customize the System**.
3. Under **Components**, expand **Entities**, and then expand the entity you want.
4. In the navigation pane, click **Fields** and in the grid, double-click the field you want to enable.
5. In the **General** tab, select the **Sortable in interactive experience dashboard** check box. Click **Save and Close**.
6. Click **Publish** for your changes to take effect.
7. Click **Prepare Client Customizations**.

Enable security roles

Select and enable security roles that will be able to view the interactive dashboards.
The following procedure provides the steps to enable the security roles for the interactive experience:

1. Go to **Settings** > **Customizations**.
2. Click **Customize the System**.
3. Under **Components**, click **Dashboards**.
4. In the grid, select the interactive dashboard you want and click **Enable Security Roles** on the task bar.
5. In the **Assign Security Roles** dialog, select the **Display only to these selected security roles** option and select the roles that you want to enable for the interactive service hub dashboards. Click **OK**.
6. Click **Publish** for your changes to take effect.
7. Click **Prepare Client Customizations**.
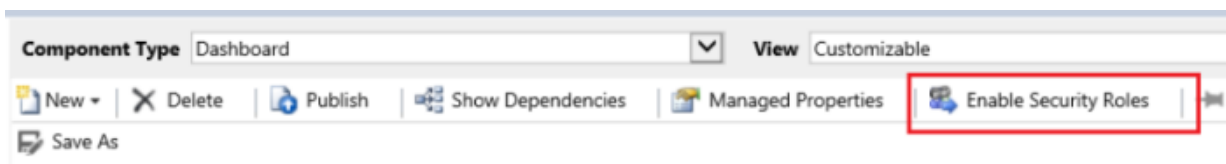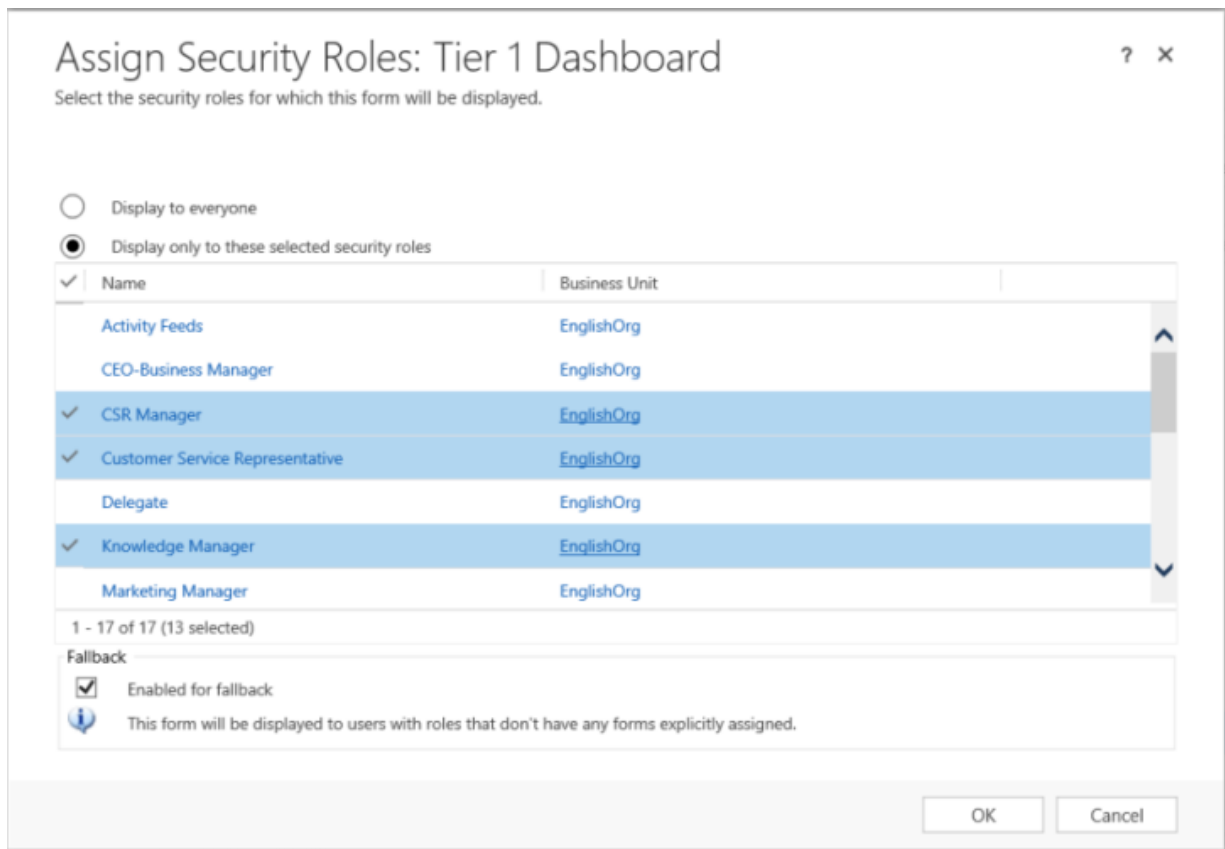
Configure interactive experience dashboards

The following sections describe how to configure various types of the interactive dashboards.

Configure a multi-stream interactive dashboard using the 4-column layout

1. Go to **Settings** > **Customizations**.
2. Click **Customize the System**.
3. Under **Components**, click **Dashboards**.
4. In the grid, click **New**, and select **Interactive experience dashboard** in the drop-down list, as shown here.
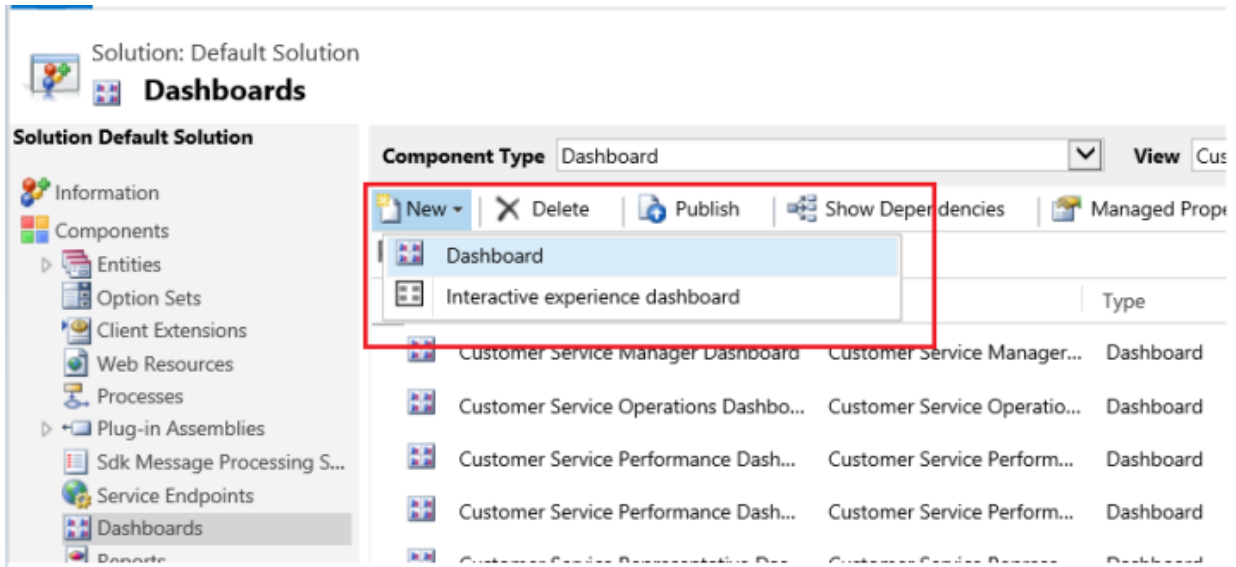
5. Choose the layout and click **Create**.

6. When the dashboard form opens, fill in the filtering information at the top of form, as shown here.

Filter Entity: The visual filters (interactive charts) and global filter attributes are based on this entity.

Entity View: The visual filters (interactive charts) are based on this view.

Filter By: The field that the time frame filter applies to.

Time Frame: The default time frame filter value for the **Filter By** field.

After you have specified the filtering information, start adding components for the charts and the data streams. To add a component, simply click on the element in the center of the chart or stream, and when the dialog appears, enter the required information, as shown in the following illustrations.

Add the **Cases By Priority** doughnut chart.
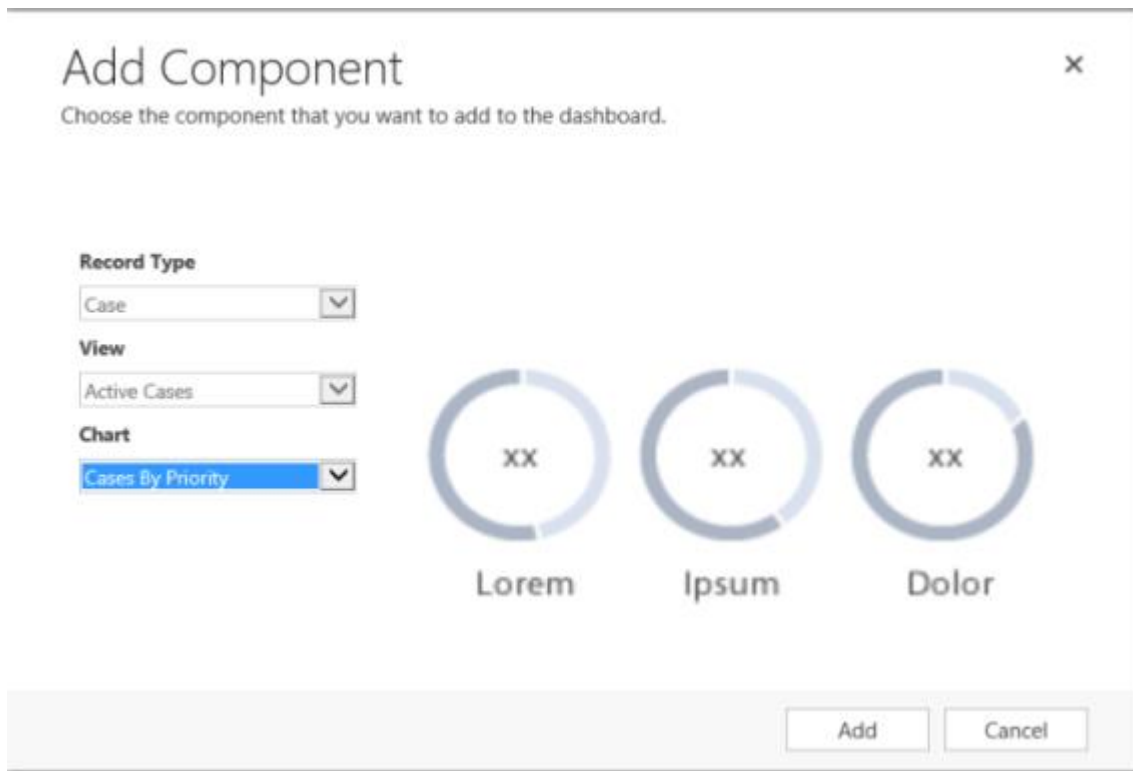
Some charts, such as bar charts or pie charts, render showing the data stored in the system. The doughnut charts and tag charts load as static images and don't show the preview of the actual data.

✎ Note

The charts configured for the visual filters can use the fields of the **Filter** entity as well as related entities. When you use charts based on related entity fields, the customer service representatives can filter charts using these related entity fields. The fields that are based on the related entity usually have the following format in the chart configuration window: "field name (entity name)", such as the **Modified By (Delegate)** field. To create multi-entity charts, you must add fields of a related entity to any of the views, and then use these fields while creating charts.
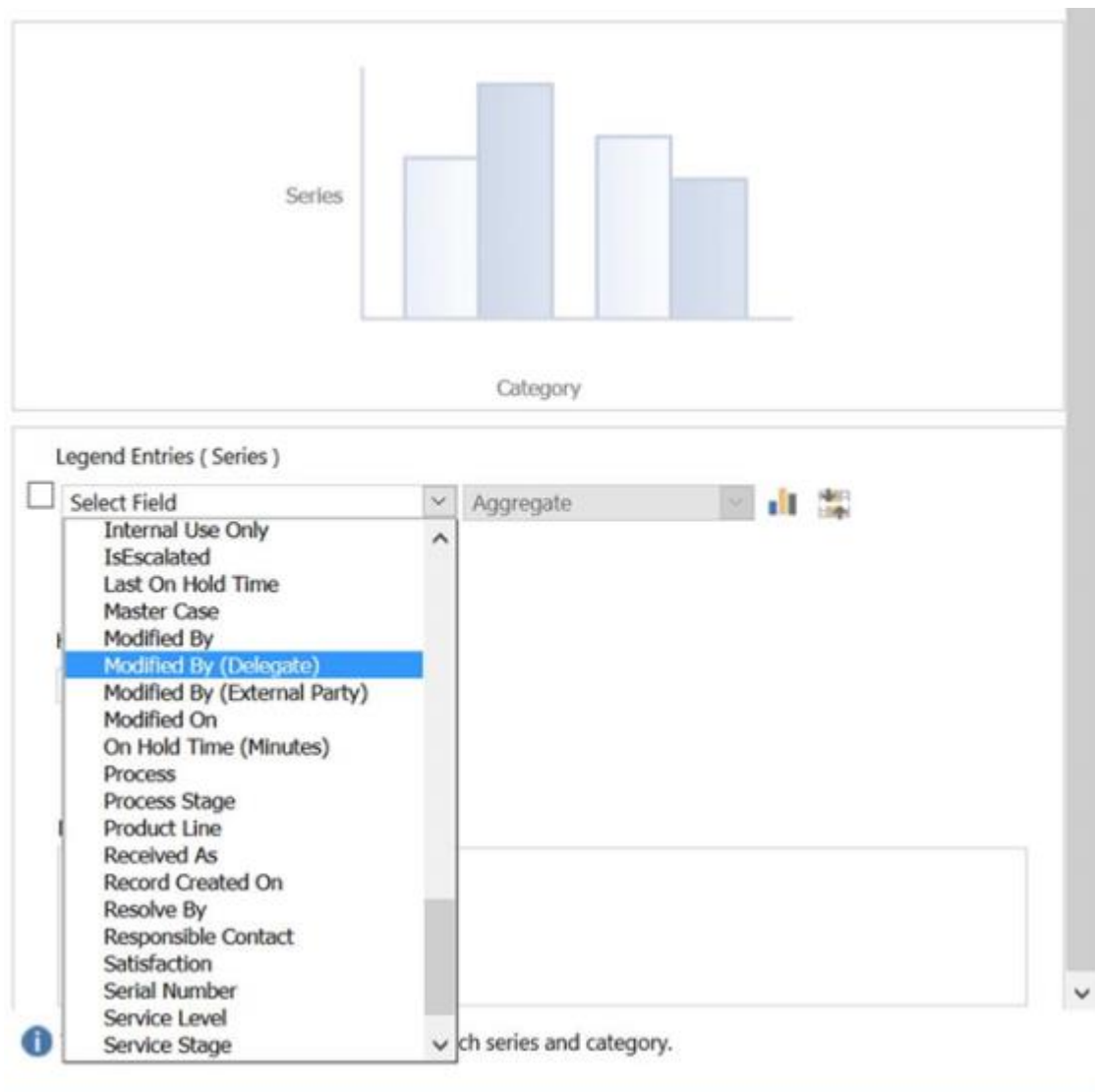
Next, let's configure the streams. Just like with adding components in the charts, click the element inside the stream panel. When the dialog appears, select View or Queue depending on what element you want the stream to use. Enter the required information, as shown in the following illustrations.

📝 Note

The Queue option is available in the dialog box only for queue-enabled entities. For entity dashboards, if the entity is not queue enabled, you won't see the Queue option in the dialog box. You can only use the View option in the stream of dashboards for entities that are not queue enabled.

Configure the stream for the **Items available to work on** as shown here.

The following illustration is an example of the chart panel, left to right: doughnut chart, tag chart, and bar chart.

This illustration is an example of the stream panel with several streams:
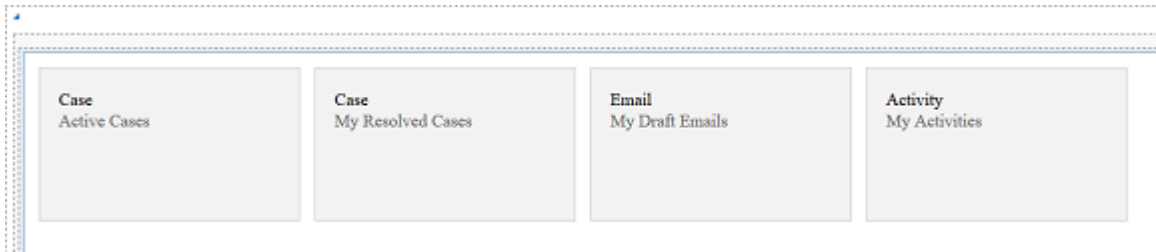
After you have completed configuring the dashboard, save it and publish the customizations for your changes to take effect. Also, make sure to click **Prepare Client Customizations**.

Edit or delete individual streams of an existing dashboard

In previous releases, if you wanted to change one of the streams of an existing dashboard, you had to delete all the streams from the dashboard, and add the ones you wanted. With Microsoft Dynamics CRM 2016 Service Pack 1 and Microsoft Dynamics CRM Online 2016 Update 1, you can now edit individual streams of an existing dashboard.

1. Go to **Settings** > **Customizations**.

2. Click **Customize the System**.

3. Under **Components**, click **Dashboards**.
   -OR-

   If you want to edit the stream of an entity dashboard, then under **Components**, expand **Entities** and click the entity you want. Click **Dashboards** under the entity, in the navigation pane.

4. In the grid, click the name of the interactive dashboard that you want to edit to open it.

5. Click the stream that you want to edit to select it, and then click **Edit Component**.

6. Depending on whether you want to add a view or queue to the stream, select the view or queue details for the stream, and then click **Set**.

7. Click **Save**.

You can also delete an individual stream from a dashboard. To do this, select the stream, and then on the command bar, click **Delete**.

Configure an entity-specific dashboard

An entity-specific dashboard is a multi-stream dashboard. Configuring this dashboard is similar to configuring a home page multi-stream dashboard, but you do it in the different place in the UI and there are other minor differences. For example, instead of selecting an entity, some fields in the entity-specific dashboard are preset to the entity for which you are creating the dashboard.

1. Go to **Settings** > **Customizations**.

2. Click **Customize the System**.

3. Under **Components**, expand **Entities** and click the entity you want. Click **Dashboards** under the entity, in the navigation pane.

4. In the grid, click **New**, and select **Interactive experience dashboard** in the drop-down list.

5. Choose the layout and click **Create**.

6. When the dashboard form opens, the **Filter Entity** is preset to the entity for which you are creating the dashboard. The **Entity View** drop-down list contains the available views for the entity. Select the view and fill in the rest of the required information on the page.

The rest of the setup is very similar to the home page multi-stream dashboard setup described in the previous section.

Configure a single-stream dashboard

Configuring a single-stream dashboard is similar to the multi-stream dashboard. All UI navigation steps are the same as for the multi-stream dashboard. You can choose a layout that includes tiles or the layout that doesn't include tiles. If the tiles are included, they are always displayed on the dashboard. To configure a tile, you click on the icon in the center of the tile. When the **Add Tile** window opens, fill in the required data. The following illustration is an example of the tile setup.

Configure dashboard colors
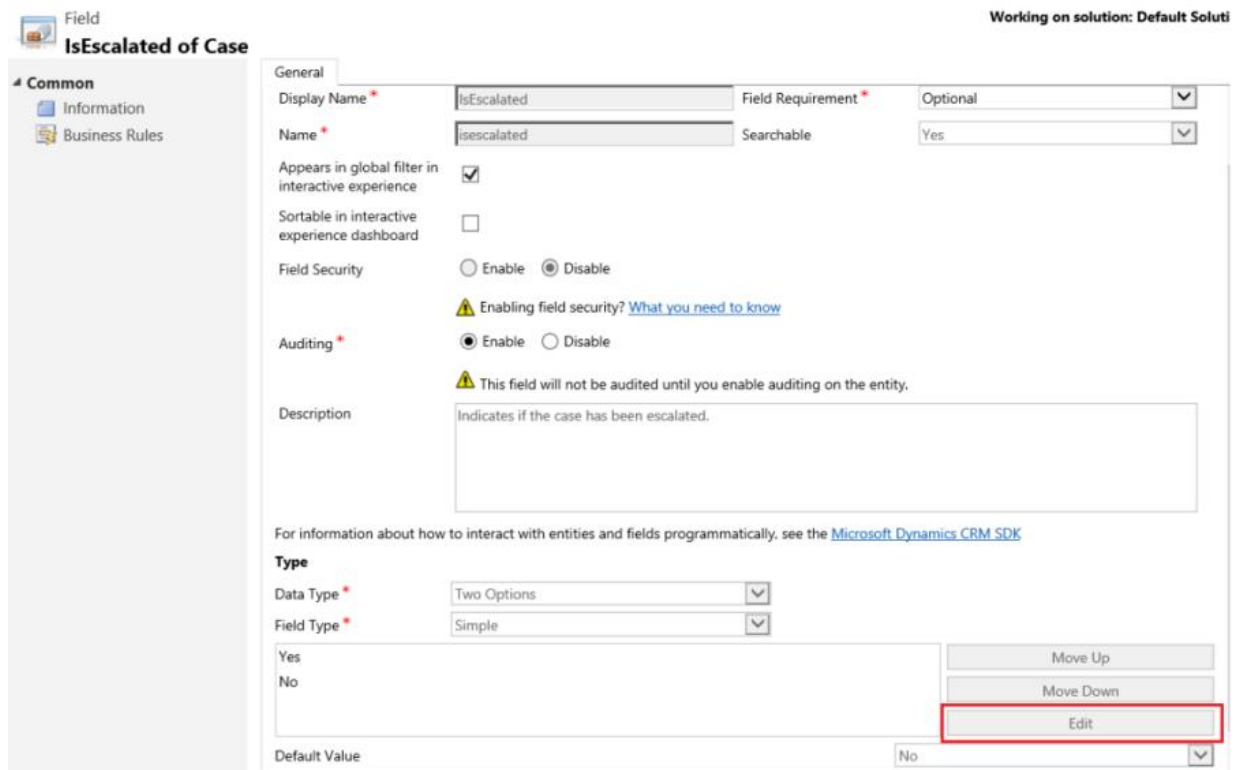
For all **Option Set** and **Two Options** type fields, such as the **Case Type**, **IsEscalated** or **Priority** of the **Case** entity, you can configure a particular color that will appear in the charts and streams for specific field values. For example, high priority cases can be shown in red, medium priority cases in blue, and low priority cases in green in the interactive charts. In the streams, there will be a thin vertical line in color next to the work item description.

The color coding isn't available for the tag charts and doughnut charts. These charts appear on the dashboard in white, gray, and black shades.
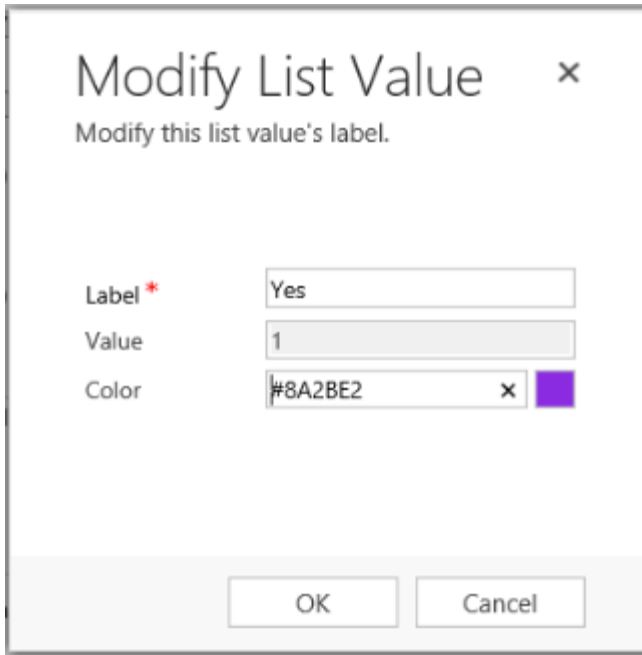
1. Go to **Settings** > **Customizations**.

2. Click **Customize the System**.

3. Under **Components**, expand **Entities**, and then expand the entity you want.

4. In the navigation pane, click **Fields**. In the grid, double-click the field that you want to configure the color for.

5. In the **General** tab, in the **Type** sub-area, select **Yes** and click **Edit**.

6. When the **Modify List Value** dialog appears, set the new value in the **Color** text box. Click **OK**. Click **Save and Close**.

7. Click **Publish** for your changes to take effect.

   In the following example, we're changing the color for the **IsEscalated** field. Use the **Edit** button to open the **Modify List Value** dialog box.

When the **Modify List Value** dialog box opens, choose the color

See Also

Help & Training: The new interactive experience for customer service
Create and design interactive forms for the interactive service hub
Customize your CRM system
Create and edit dashboards
Create or edit a chart

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Create and edit processes

Applies To: CRM 2016 on-prem, CRM Online

Defining and enforcing consistent business processes is one of the main reasons people use Microsoft Dynamics CRM. Processes are a group of features that you can use to define and enforce consistent processes for your organization. These consistent processes help make sure people using the system can focus on their work and not on remembering to perform a set of manual steps. Processes can be simple or complex and can change over time.

Processes are designed to be used by people who aren't developers. The rules that are defined in processes contain similar logic that a developer may apply using code, but you don't need to call in a developer each time you want to change the rules. However, you do need to have a clear understanding of the logic in the rules and understand the capabilities of each type of process. You still need to apply processes carefully and test the results to make sure you get what you want.

The following table provides an overview of when to use each category of process.

Process category	Description
Workflow	Use workflows to automate business processes behind the scenes. Workflows are typically initiated by system events so the user doesn't need to be aware that they are running, but they can also be configured for people to manually initiate them. Workflows can operate in the background (asynchronously) or in real-time (synchronously). These are referred to separately as background workflows or real-time workflows.
Dialogs	Use dialogs to create a user interface that will guide people through a script for customer interaction or a wizard to perform complex actions consistently.
Actions	Use actions to expand the vocabulary available for developers to express business processes. With core verbs like Create, Update, Delete, and Assign provided by the system, a Action uses those core verbs to create more expressive verbs like Approve, Escalate, Route, or Schedule. If the definition of a business process changes, someone who isn't a developer can edit the Action so the code doesn't need to be changed.
Business Process Flows	Use business process flows to define the steps in which people should enter data to achieve an outcome. Business process flows add a control to the top of a form that show people what data they need to enter to move forward to the next stage and ultimately to completion of a business process. A business process flow can span multiple entities.

 Note

Business process flows are different from other types of processes. All processes use the same underlying technology and information about them is stored in the **Process** entity. Business process flows have a different configuration experience and behavior compared to other types of processes. More information: Business process flows

In This Topic
Who can create processes?

Who can create processes?

Only System Administrators, System Customizers or users with the CEO-Business Manager security roles can create processes that apply to the whole organization. Other people with the following security roles can create processes with limited access level. For example, people with the User access level can create workflows for their own use with records they own.

While people may be able to create business process flow, real-time workflow, or action processes, they'll need to have the **Activate Business Process Flows** or **Activate Real-time Processes** privileges to activate them.

The following table shows the access level of processes based on default security roles.

Security role	Access level
CEO-Business Manager	Organization
System Administrator	Organization
System Customizer	Organization
Vice President of Marketing	Parent: Child Business Units
Vice President of Sales	Parent: Child Business Units
CSR Manager	Business Unit
Marketing Manager	Business Unit
Sales Manager	Business Unit
Schedule Manager	Business Unit
Customer Service Representative	User
Marketing Professional	User
Salesperson	User
Scheduler	User

Where are processes located?

There are two paths to navigate to processes in CRM:

Settings**>**Processes

This path is easiest to access and allows you to use views defined for the **Process** entity, including any custom views.

Settings**>**Customizations**>**Customize the System**>**Components**>**Processes

This path provides convenient access when you are doing other customization work in the Customization tools.

Individual business process flows can also be edited using the **Edit Process** button in the command bar for the form where the business process flow is active.

What can processes do?

Business process flows are different from the other types of processes. More information: <u>What can business process flows do?</u>

Processes are user-owned, just like accounts and contacts. The actions that can be performed by the process sometimes depend on the privileges of the person who owns the process and sometimes based on the context of the person who is initiating the workflow.

Processes can check conditions, apply branching logic, and perform actions. They perform these actions in a series of steps. Business process flows contain stages and control advancement to stages, but they don't provide any of the other capabilities. The following table describes the available steps in workflow, dialog, and action processes. For more detail see the topics for each type of process.

Step	Process type	Description
Stage	Workflow, Dialog, Action	Stages make the workflow logic easier to read, and explain the workflow logic. However, stages don't affect the logic or behavior of workflows. If a process has stages, all the steps in the process must be contained with a stage.
Check Condition	Workflow, Dialog, Action	A logical "if-<condition> then" statement. You can check values for the record that the workflow is running on, any of the records linked to that record in an N:1 relationship, or any records created by earlier steps. Based on these values you can define additional steps when the condition is **true**.
Conditional Branch	Workflow, Dialog, Action	A logical "else-if-then" statement, the editor uses the text "Otherwise, if <condition> then:" Select a check condition you have previously defined and you can add a conditional branch to define additional steps when the check condition returns **false**.

Step	Process type	Description
Default Action	Workflow, Dialog, Action	A logical "else" statement. the editor uses the text "Otherwise:" Select a check condition, conditional branch, wait condition, or parallel wait branch that you have previously defined and you can use a default action to define steps for all cases that don't match the criteria defined in condition or branch elements.
Wait Condition	Background Workflow Only	Enables a background workflow to pause itself until the criteria defined by the condition have been met. The workflow starts again automatically when the criteria in the wait condition have been met.
Parallel Wait Branch	Background Workflow Only	Defines an alternative wait condition for a background workflow with a corresponding set of additional steps that are performed only when the initial criterion is met. You can use parallel wait branches to create time limits in your workflow logic. They help prevent the workflow from waiting indefinitely until the criteria defined in a wait condition have been met.
Assign Value	Dialog, Action	Sets a value to a variable or output parameter in the process.
Create Record	Workflow, Dialog, Action	Creates a new record for an entity and assigns values to attributes.
Update Record	Workflow, Dialog, Action	You can update the record that the workflow is running on, any of the records linked to that record in an N:1 relationship, or any records created by earlier steps.
Assign Record	Workflow, Dialog, Action	You can assign the record that the workflow is running on, any of the records linked to that record with an N:1 relationship, or any records created by earlier

Step	Process type	Description
		steps.
Send Email	Workflow, Dialog, Action	Sends an email. You can choose to create a new email message or use an email template configured for the entity of the record that the workflow is running on or any entities that have an N:1 relationship with the entity, or the entity for any records created by earlier steps.
Start Child Workflow	Workflow, Dialog, Action	Starts a workflow process that has been configured as a child workflow.
Change Status	Workflow, Dialog, Action	Changes the status of the record that the process is running on, any of the records linked to that record with an N:1 relationship, or any records created by earlier steps.
Stop Workflow/Stop Dialog	Workflow, Dialog, Action	Stops the current workflow, dialog, or action. You can set a status of either **Succeeded** or **Canceled** and specify a status message.
Page	Dialog	A container for prompt and response steps in a dialog.
Prompt and Response	Dialog	Displays a prompt in a dialog page and may provide a field to capture data from a response.
Query CRM Data	Dialog	Defines a query that returns data to provide options for a response in a prompt and response step of a dialog.
Link Child Dialog	Dialog	Starts a dialog process that has been configured as a child dialog.
Custom Step	Workflow, Dialog, Action	Provides extensions to the logical elements available by default in CRM. Steps can include conditions, actions, other steps, or a combination of these elements. Developers can create custom workflow steps. By default, there are no custom

Step	Process type	Description
		steps available in CRM. For more information for developers, see the Microsoft Dynamics CRM SDK topic MSDN: Custom workflow activities (workflow assemblies).

Are processes active when they're imported?

Processes operate after they are activated. Generally, when you import a solution that will create a new process in your organization, the state of that process in your organization depends on the state of the process when the solution was created. This is true for all solutions that were exported from a Microsoft Dynamics CRM 2013 or Microsoft Dynamics CRM Online organization after the Microsoft Dynamics CRM Online Fall '13 release. If the solution was created using a Microsoft Dynamics CRM 2011 or Microsoft Dynamics CRM Online organization before Microsoft Dynamics CRM Online Fall '13, the solution will be activated when you install the solution.

Sometimes you must re-install a solution or install an update to a solution that contains processes. In this case, the state of the process in your organization won't change.

See Also
Actions
Business process flows
Workflow processes
Dialogs
Monitor and manage processes
Actions
Create and edit business rules

Workflow processes

Applies To: CRM 2016 on-prem, CRM Online

Workflows automate business processes without a user interface. People usually use workflow processes to initiate automation that doesn't require any user interaction.

Each workflow process is associated with a single entity. When configuring workflows you have four major areas to consider:

- When to start them?

- Should they run as a real-time workflow or a background workflow?

- What actions should they perform?

- Under what conditions should actions be performed?

This topic introduces how to find workflow processes and will describe when to start them and if they should run as real time or background. For information about the actions they should perform, and the conditions, see Configure workflow steps.

In This Topic

Where do you customize workflow processes?

Workflow properties

Security context of workflow processes

Activate a workflow

Where do you customize workflow processes?

You can see the workflows in your organization by viewing the **Processes** node in the **Default Solution** and filtering on processes that have the **Category Workflow**.
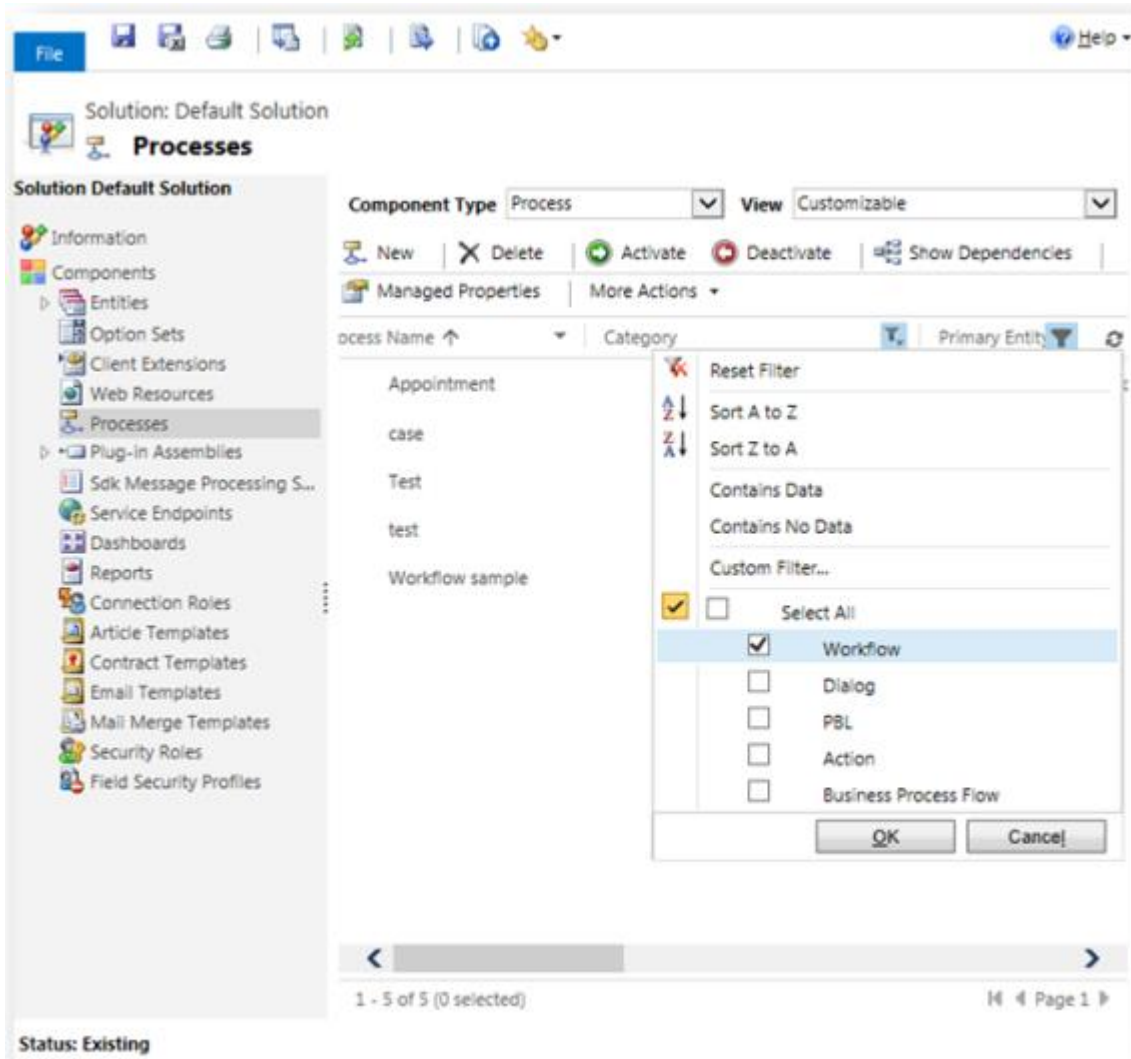
You can create or modify workflows using the web application. Developers can create workflows using information in the [Microsoft Dynamics CRM SDK](#) and solutions you purchase may include workflows that you may modify.

Workflow properties

In the solution explorer, select **Processes** and click **New**.

When you create a workflow the **Create Process** dialog requires that you set three properties that all processes have:

Create Process

Define a new process, or create one from an existing template. You can create four kinds of processes: business process flows, actions, dialogs, and workflows.

Process name: *

Category: * [Workflow ▾]   Entity: * [Account ▾]

☑ Run this workflow in the background (recommended)

Type: ⦿ New blank process
        ◯ New process from an existing template (select from list):

Template Name ↑	Primary Entity	Owner

No process template records are available in this view.

‹ [   ] ›

0 - 0 of 0 (0 selected) |◁ ◁ Page 1 ▷

[Properties]

[OK]   [Cancel]

Process Name

The name of the workflow process does not need to be unique, but if you expect you will have a lot of workflows, you may want to use a naming convention to clearly differentiate your processes. You may want to apply standard prefixes to the name of the workflow. The prefix may describe the function of the workflow or the department within the company. This will help you group similar items in the list of workflows.

Category

This property establishes that this is a workflow process.

Entity

Each workflow process must be set to a single entity. You can't change the entity after the workflow process is created.
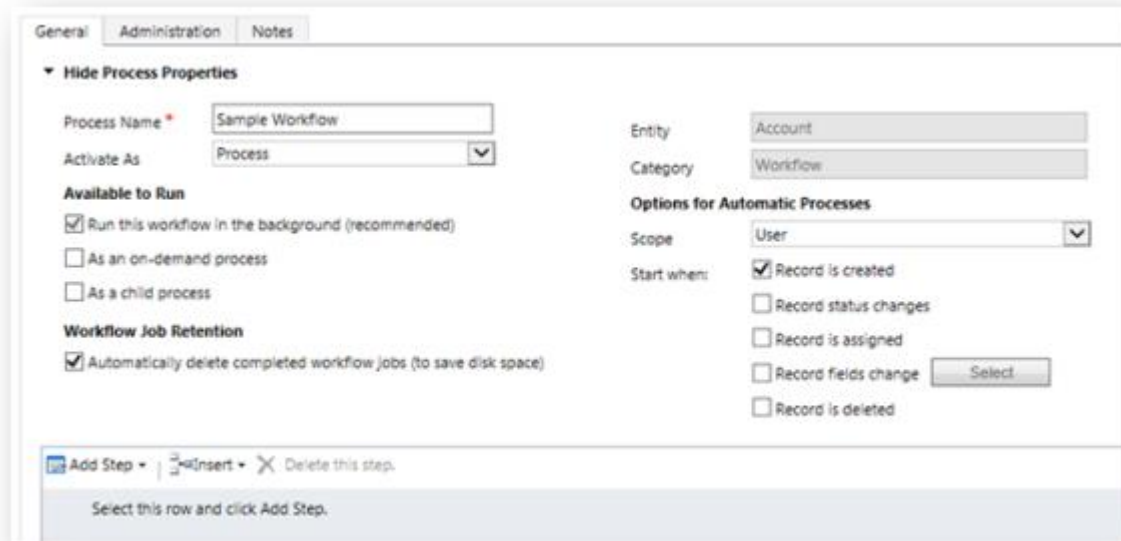
Run this workflow in the background (recommended)

This option appears when you select workflow as the category. This setting determines whether the workflow is a real-time or background workflow. Real-time workflows run immediately (synchronously) and background workflows run asynchronously. The configuration options available depend on your choice for this setting. Background workflows allow for wait conditions that are not available for real-time workflows. As long as you don't use those wait conditions, at a later time you can convert background workflows to real-time workflows and real-time workflows to background workflows. For more information about wait

conditions, see <u>Setting conditions for workflow actions</u>.

You also have the **Type** option to specify whether to build a new workflow from scratch or choose to start from an existing template. When you choose **New process from an existing template (select from list)** you can choose from the available Workflows processes that were previously saved as a process template.

After you create the Workflow or if you edit an existing one, you will have the following additional properties:

Activate As

> You can choose **Process template** to create an advanced starting point for other templates. If you choose this option, after you activate the workflow it will not be applied but instead it will be available to select in the **Create Process** dialog if you select **Type**: **New process from an existing template (select from list)**

> Process templates are convenient when you have a number of similar workflow processes and want to define them without duplicating the same logic.

> ### ✎ Note

> Editing a process template does not change the behaviors of any other workflow processes previously created using it as a template. A new workflow created using a template is a copy of the content in the template.

Available to Run

> This section contains options that describe how the workflow is available to be run.

> Run this Workflow in the background (recommended)

>> This check box reflects the option you selected when you created the workflow. This option is disabled, but you can change it from the **Actions** menu by choosing either **Convert to a real-time workflow** or **Convert to a background workflow**.

> As an on-demand process

>> Choose this option if you want to allow users to run this workflow from the **Run Workflow**

command.

As a child process

Choose this option if you want to allow the workflow to be available to be started from another workflow.

Workflow Job Retention

This section contains an option to delete a workflow after the workflow execution has completed .

Automatically delete completed workflow jobs (to save disk space)

Choose this option, if you want a completed workflow job to be automatically deleted.

 Note

The workflow jobs are not deleted immediately upon completion, but soon after, through a batch process.

Scope

For user-owned entities, options are **Organization**, **Parent: Child Business Units**, **Business Unit**, or **User**. For Organization-owned entities the only option is **Organization**.

If scope is **Organization**, then the workflow logic can be applied to any record in the organization. Otherwise, the workflow can only be applied to a subset of records that fall within the scope.

 Note

The default scope value is **User**. Make sure you verify that the scope value is appropriate before you activate the workflow.

Start When

Use the options in this section to specify when a workflow should start automatically. You can configure a real-time workflow to be run before certain events. This is a very powerful capability because the workflow can stop the action before it occurs. More information: Using real-time workflows. The options are:

- **Record is created**

- **Record status changes**

- **Record is assigned**

- **Record fields change**

- **Record is deleted**

 Note

Keep in mind that the actions and conditions you define for the workflow are not aware of when the workflow is run. For example, if you define a workflow to update the record, this action can't be performed by a real-time workflow before the record is created. A record that doesn't exist cannot be updated. Similarly, a background workflow can't update a record that has been deleted, even though you could define this action for the workflow. If you configure a workflow to perform an action that can't be performed, it will fail and the entire workflow will fail.

Execute As

 This option is only available if you unselected the **Run this workflow in the background (recommended)** option when you created the workflow or if you later converted a background workflow to be a real-time workflow.

Security context of workflow processes

When a background workflow is configured as an on-demand process and is started by a user using the **Run Workflow** command, the actions that the workflow can perform are limited to those the user could perform based on the privileges and access levels defined by the security role(s) set for their user account.

When a background workflow starts based on an event the workflow operates in the context of the person who owns it, usually the person who created the workflow.

For real-time workflows you have the **Execute As** option and you can choose whether the workflow should apply the security context of the owner of the workflow or the user who made changes to the record. If your workflow includes actions which all users would not be able to perform based on security constraints, you should choose to have the workflow run as the owner of the workflow.

Activate a workflow

Workflows can only be edited while they are deactivated. Before a workflow can be used manually or be applied due to events it has to be activated. Before a workflow can be activated it must contain at least one step. For information on configuring steps, see Configure workflow steps

A workflow can only be activated or deactivated by the workflow owner or by someone with the **Act on Behalf of Another User** privilege such as the system administrator. The reason for this is that a malicious user could modify someone's workflow without them being aware of the change. You can reassign a workflow you own by changing the owner. This field is on the **Administration** tab. If you are not the system administrator and you need to edit a workflow that is owned by another user, you need them to deactivate it and assign it to you. After you finish editing the workflow, you can to assign it back to them so they can activate it.

Real-time workflows require that the user have the **Activate Real-time Processes** privilege. Because real-time workflows have a greater risk of affecting system performance, only people who can evaluate the potential risk should be given this privilege.

Workflows are saved when they are activated, so it is not necessary to save them before activating them.

See Also

Create and edit processes
Configure workflow steps
Monitor and manage processes
Best practices for workflow processes

Configure workflow steps

Applies To: CRM 2016 on-prem, CRM Online

When configuring workflows you have four major areas to consider:

- When to start them?

- Should they run as a real-time workflow or a background workflow?

- What actions should they perform?

- Under what conditions actions should be performed?

The topic Workflow processes introduced how to find workflow processes, when to start them, and if they should run as real time or background. This topic focuses on specifying what actions workflows can perform and specifying conditions to perform those actions.

In This Topic

Workflow stages and steps
Actions that workflow processes can perform
Setting conditions for workflow actions
Using real-time workflows

Workflow stages and steps

When you design workflows you have the option to contain the logic you want to perform in stages and steps.

Stages

    Stages make the workflow logic easier to read, and explain the workflow logic. However, stages do not affect the logic or behavior of workflows. If a process has stages, all the steps within the process must be contained with a stage.

Steps

    Steps are a unit of business logic within a workflow. Steps can include conditions, actions, other steps, or a combination of these elements.

Actions that workflow processes can perform

Workflow processes can perform the actions listed in the following table.

Action	Description
Create Record	Creates a new record for an entity and assigns values you choose to attributes.
Update Record	You can update the record that the workflow is running on, any of the records linked to that record in an N:1 relationships, or any records created by earlier steps.

Action	Description
Assign Record	You can assign the record that the workflow is running on, any of the records linked to that record with an N:1 relationship, or any records created by earlier steps.
Send Email	Sends an email. You can choose to create a new email message or use an email template configured for the entity of the record that the workflow is running on or any entities that have an N:1 relationship with the entity, or the entity for any records created by earlier steps.
Start Child Workflow	Starts a workflow process that has been configured as a child workflow.
Change Status	Changes the status of the record that the process is running on, any of the records linked to that record with an N:1 relationship, or any records created by earlier steps.
Stop Workflow	Stops the current workflow. You can set a status of either **Succeeded** or **Cancelled** and specify a status message.
	When real-time workflows are configured for an event, stopping a workflow with a status of cancelled will prevent the event action from completing. See Using real-time workflows for more information.
Custom Step	Developers can create custom workflow steps that define actions. There are no custom steps available in Microsoft Dynamics CRM by default.

Setting record values

When you create a record you can set values for the record. When you update a record you can set, append, increment, decrement, multiply, or clear values.

When you click **Set Properties**, a dialog opens showing you the default form for the entity.

At the bottom of the dialog you can see a list of additional fields not present in the form.

For any field, you can set a static value and that will be set by the workflow.

On the right side of the dialog the **Form Assistant** gives you the ability to set or append dynamic values from the context of the current record. This includes values from related records that can be accessed from the N:1 (many-to-one) relationships for the entity.

The options available in the **Form Assistant** depend on the field you have selected in the form. When you set a dynamic value, you will see a yellow placeholder known as a 'slug' that shows where the dynamic data will be included. If you want to remove the value, just select the slug and delete it. For text fields, you can use a combination of static and dynamic data.

With dynamic values you don't know for certain that a field or related entity has the value you want to set. You can actually set a number of fields to try and set the value and sort them in order using the green arrows. If the first field doesn't have data, the second field will be tried and so on. If none of the fields have data, you can specify a default value to be used.

Setting conditions for workflow actions

The actions that you will apply often depend on conditions. Workflow processes provide several ways to set conditions and create branching logic to get the results you want. You can check values of the record that the workflow process is running against, any of the records linked to that record with an N:1 relationship, or values within the process itself

Condition Type	Description
Check Condition	A logical "if-<condition> then" statement. You can check values for the record that the workflow is running on, any of the records linked to that record in an N:1 relationships, or any records created by earlier steps. Based on these values you can define additional steps when the condition is true. In the "if-<condition> then" statement, you can use the following operators: **Equals**, **Does Not Equal**, **Contains Data**, **Does Not Contain Data**, **Under** and **Not Under**. ☑ **Note** The **Under** and **Not Under** are hierarchical operators. They can only be used on the entities that have a hierarchical relationship defined. If you're trying to use these operators on the entities that don't have the hierarchical relationship defined, you'll see the error message: "You're using a hierarchical operator on an entity that doesn't have a hierarchical relationship defined. Either make the entity hierarchical (by marking a relationship as hierarchical) or use a different operator." For more information about hierarchical relationships, see [Query and visualize hierarchical data](#). A screenshot that follows the table is an example of the definition of the workflow process that uses the **Under** and **Not Under** hierarchical operators.
Conditional Branch	A logical "else-if-then" statement, the editor uses the text "Otherwise, if <condition> then:"

Condition Type	Description
	Select a check condition you have previously defined and you can add a conditional branch to define additional steps when the check condition returns false.
Default Action	A logical "else" statement. the editor uses the text "Otherwise:"
	Select a check condition, conditional branch, wait condition, or parallel wait branch that you have previously defined and you can use a default action to define steps for all cases that do not match the criteria defined in condition or branch elements.
Wait Condition	Enables a background workflow to pause itself until the criteria defined by the condition have been met. The workflow starts again automatically when the criteria in the wait condition have been met.
	Real-time workflows cannot use wait conditions.
Parallel Wait Branch	Defines an alternative wait condition for a background workflow with a corresponding set of additional steps that are performed only when the initial criterion is met. You can use parallel wait branches to create time limits in your workflow logic. They help prevent the workflow from waiting indefinitely until the criteria defined in a wait condition have been met.
Custom Step	Developers can create custom workflow steps that define conditions. There are no custom steps available in Microsoft Dynamics CRM by default.

The following screenshot contains an example of the workflow process definition with the **Under** and **Not Under** hierarchical operators. In our example, we apply two different discounts to two groups of accounts. In **Add Step**, we selected the **Check Condition** to specify the **if-then** condition containing the **Under** or **Not Under** operators. The first **if-then** condition applies to all accounts that are **Under** the Alpine Ski House account. These accounts receive a 10% discount on purchased good and services. The second **if-then** condition applies to all accounts that are **Not Under** the Alpine Ski House account and they receive a 5% discount. Then, we selected **Update Record** to define the action to be performed based on the condition.
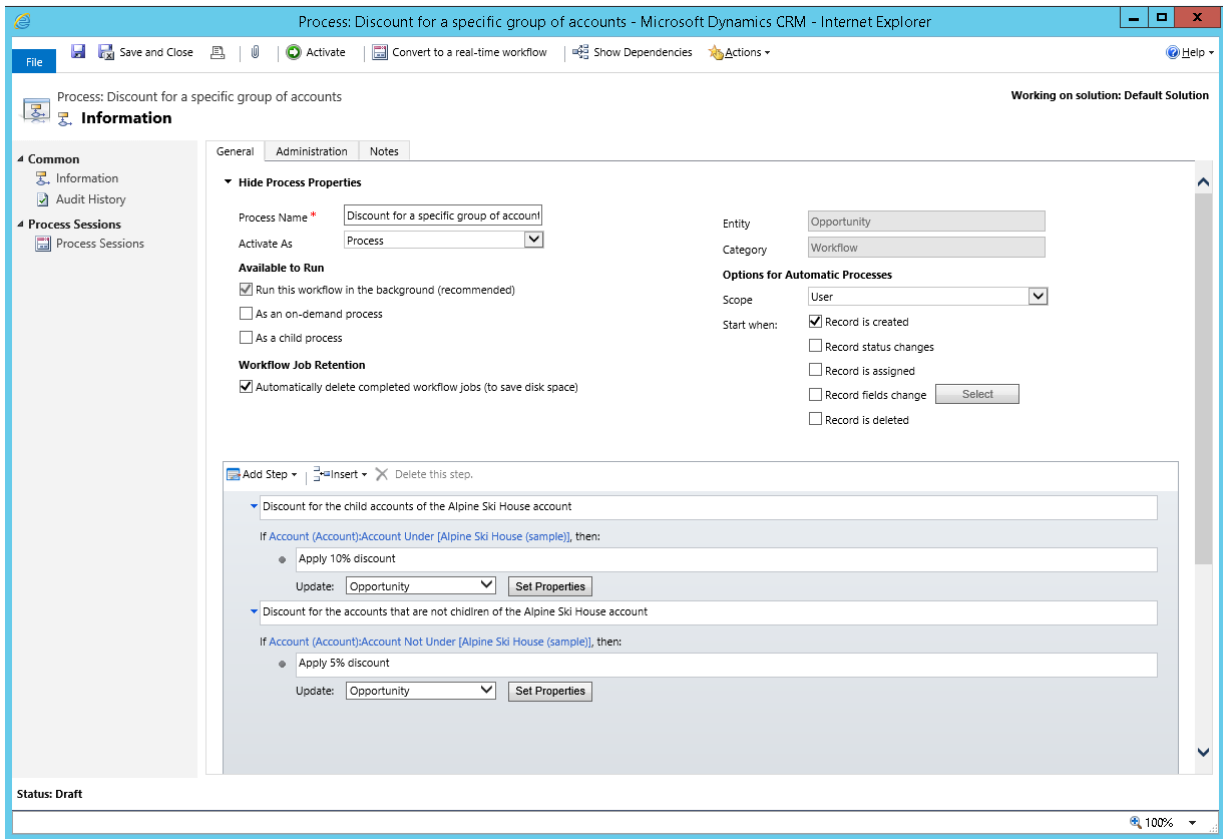
Using real-time workflows

With Microsoft Dynamics CRM, you can configure real-time workflows but you should use them with care. Background workflows are generally recommended because they allow the system to apply them as resources on the server are available. This helps smooth out the work the server has to do and help maintain the best performance for everyone using the system. The drawback is that actions defined by background workflows are not immediate. You can't predict when they will be applied, but generally it will take a few minutes. For most automation of business processes this is fine because people using the system don't need to be consciously aware that the process is running.

Use real-time workflows when a business process requires someone to immediately see the results of the process or if you want the ability to cancel an operation. For example, you may want to set certain default values for a record the first time it's saved, or you want to make sure that some records are not deleted.

Converting between real-time and background workflows

You can change a real-time workflow into a background workflow by choosing **Convert to a background workflow** on the toolbar.

You can change a background workflow into a real-time workflow by choosing **Convert to a real-time workflow** on the toolbar. If the background workflow uses a wait conditions it will become invalid and you won't be able to activate it until you remove the wait condition.

Initiating real-time workflows before or after status changes

When you configure **Options for Automatic Processes** for real-time workflows, the **Start When** options for the status changes event let you select **After** or **Before** for when status changes. The default option is **After**.

When you select **Before** you are saying that you want the logic in the workflow to be applied before data changing the status is saved. This provides you with the ability to check the values before other logic has been applied after the operation and prevent further logic from being performed. For example, you may have additional logic in a plug-in or custom workflow action which could initiate actions on another system. By stopping further processing you can avoid cases where external systems are affected. Applying real-time workflows before this event also means that other workflow or plug-in actions in Microsoft Dynamics CRM that may have saved data don't need to be "rolled back" when the operation is canceled.

Using the Stop Workflow action with real-time workflows

When you apply a **Stop Workflow** action in a workflow you have the option to specify a status condition that can be either **Succeeded** or **Canceled**. When you set the status to canceled, you prevent the operation. An error message containing the text from the stop action status message will be displayed to the user with the heading **Business Process Error**.

See Also

[Create and edit processes](#)
[Workflow processes](#)
[Monitor and manage processes](#)
[Best practices for workflow processes](#)

Best practices for workflow processes

Applies To: CRM 2016 on-prem, CRM Online
This topic contains best practices for creating and managing workflow processes.

In This Topic

[Avoid infinite loops](#)
[Use workflow templates](#)
[Use child workflows](#)
[Keep fewer logs](#)
[Use Notes to keep track of changes](#)

Avoid infinite loops

It's possible to create logic in a workflow that initiates an infinite loop, which consumes server resources and affects performance. The typical situation where an infinite loop might occur is if you have a workflow configured to start when an attribute is updated and then updates that attribute in the logic of the workflow. The update action triggers the same workflow that updates the record and triggers the workflow again and again.

Microsoft Dynamics CRM includes logic to detect and stop infinite loops. If a workflow process is run more than a certain number of times on a specific record in a short period of time, the process fails with the following error: **This workflow job was canceled because the workflow that started it included an infinite loop. Correct the workflow logic and try again**. For Microsoft Dynamics CRM Online the limit of times is 16. For on-premises deployments of CRM, the limit is 8.

Use workflow templates

If you have workflows that are similar and you anticipate creating more workflows that follow the same pattern, save your workflow as a workflow template. This way, the next time you need to create a similar workflow, create the workflow using the template and avoid entering all the conditions and actions from scratch.

In the **Create Process** dialog, choose **New process from an existing template (select from list)**.

Use child workflows

If you apply the same logic in different workflows or in conditional branches, define that logic as a child workflow so you don't have to replicate that logic manually in each workflow or conditional branch. This helps make your workflows easier to maintain. Instead of examining many workflows that may apply the same logic, you can just update one workflow.

Keep fewer logs

 To save disk space, clear the **Keep logs for workflow jobs that encounter errors** check box if you don't need to keep this data.

Use Notes to keep track of changes

When you edit workflows you should use the Notes tab and type what you did and why you did it. This allows someone else to understand the changes you made.

See Also

Create and edit processes
Workflow processes
Configure workflow steps
Monitor and manage processes

Dialogs

Applies To: CRM 2016 on-prem, CRM Online

Dialogs are a type of process in Microsoft Dynamics CRM that displays the input forms and the data that a user needs at each step while interacting with a customer or following a complex procedure. A dialog can have branching logic that is based on input from the person stepping through a case, phone call, or other customer interaction.

Dialogs are frequently used in call centers to provide scripts that allow customer facing staff to apply consistent interactions with customers. You can also use dialogs to provide a kind of "wizard" user interface to allow people to perform complex procedures consistently.

Dialogs provide:

- Consistent customer interactions and interactive user tasks.

- Consistent information entry into your organization's database.

- A way for people in your organization to focus on growing your business, instead of performing repetitive tasks.

Dialogs display a series of screens based on the responses you enter to the prompts on each screen. The dialog can provide a different set of screens based on the responses you enter. After the dialog is complete, the data is saved and can be reviewed later.

Unlike workflow processes, a dialog can only be applied to one record at a time.

Where do I customize dialog processes?

You can see the dialogs in your organization by navigating to **Settings** > **Processes** and filtering on processes in the **Dialog** category.

You can also see the dialogs in your organization by viewing the **Processes** node in the default solution and filtering on processes in the **Dialog** category.

Dialog properties

Every dialog must have the following properties set:

Name

   The name of the dialog process doesn't need to be unique, but if you expect you'll have a lot of dialogs, you may want to use a naming convention to clearly differentiate your processes. You may want to apply standard prefixes to the name of the dialog. The prefix may describe the function of the workflow or the department within the company. This will help you group similar items in the list of dialogs.

Entity

   Each dialog process must be set to a single entity. You can't change the entity after the dialog is created.

Category

   This property establishes that this is a Dialog process.

Unlike workflow processes, dialogs do not have scope. They are available to the entire organization. If a user runs a dialog that creates or updates record, the user must have privileges to perform those

actions outside the dialog. Each dialog will create a Dialog session record and the user must have privileges to create and update those records.

Activating dialogs

Before you can use a dialog, you have to activate it. A dialog can only be activated or deactivated by the dialog owner. You can reassign a dialog by changing the owner. You can do this on the **Administration** tab.

Dialogs can only be edited while they are deactivated. If you need to edit a dialog that is owned by another user, have them deactivate it and assign it to you.

See Also

Configure dialog processes
Actions
Business process flows
Workflow processes

Configure dialog processes

Applies To: CRM 2016 on-prem, CRM Online

Dialogs provide a user interface to people who use them. You need to be familiar with what is possible within this user interface as you configure dialogs to meet your business requirements.

In This Topic

Dialog components
Steps available for dialogs
Link child dialog

Dialog components

It is helpful to see what a dialog looks like to people using them before you start configuring your first one. When you open a dialog process to use it you will see a window like the one shown in the following screenshot:

Sample Dialog
First Page

This is Prompt Text
This is the Default Value of a Single Line Response

This is the Prompt Text For the Second Prompt and Response.
8/20/2013

Tip

This is Tip Text

Comments can be added here.

Help   Summary   Next   Cancel
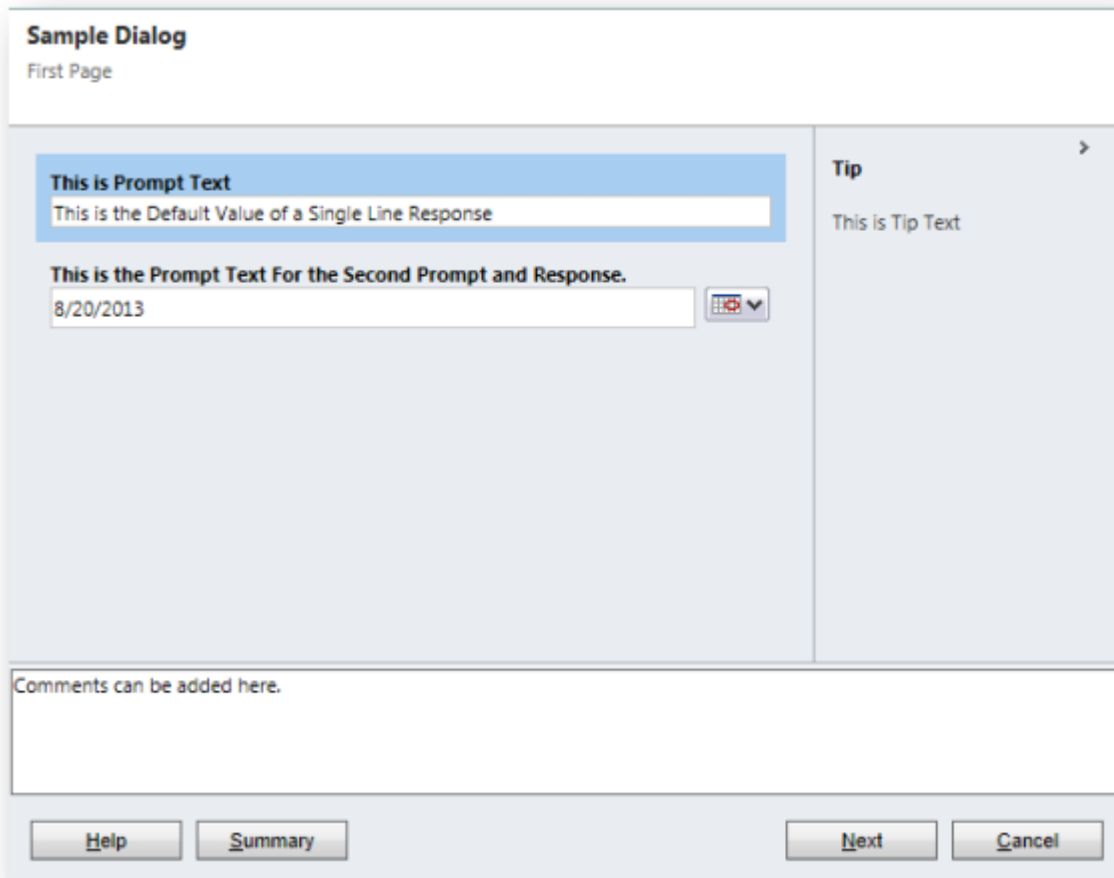
A dialog will have the following components:

- **Header**: Includes the name of the Dialog and the name of the current page.

- **Prompt and Response**: Shows each of the prompts and responses added to the page. The prompts tell the user what to do or say, and the responses provide a place to enter data that could be used to set a value in a CRM record or just to control the flow of the dialog. Responses are optional.

- **Tip**: Provides additional detail not included in the prompt. The tip shown changes depending on which prompt has focus.

- **Comments**: Use comments to capture information that will remain available as you progress through the dialog. You might want to type notes in this comments section to provide additional detail not captured in the responses.

- **Help**: Opens the Microsoft Dynamics CRM application help topic for dialogs.

- **Summary**: Opens the dialog session. The Dialog session displays the data captured by the dialog. While you are using a dialog, the session will show the data set for previous pages.

- **Previous**: After the first page of the dialog you can use this button to go to previous pages.

- **Next**: Advances to the next dialog page.

- **Finish**: After the last dialog page, this button will close the dialog with a status of completed.

- **Cancel**: Closes the dialog with a status of cancelled. It is not possible to resume a cancelled dialog.

To configure a dialog after it is created you will view a page like the following screen that contains data from a **Page** containing a **Prompt and Response**.

Like other processes, you can change the name, activate as a process template and configure the process to run as either an on-demand process or a child process. If you leave both of the **Available To Run** options unchecked when you activate the dialog, it will be set as an on-demand process.

Input Arguments are only used for processes that are configured to be used as a child process. For more information see Link child dialog.

Use **Variables** to set values that are stored within the dialog process. Variables are useful when a process gathers data through the course of several pages and this data may be used to perform calculations. For example, a dialog might be used to calculate a standard rating value based on the answers to several questions.

Steps available for dialogs

Most of the steps available for dialogs are the same as those common for processes with the exception of **Page**, **Prompt and Response**, **Link Child Dialog**, and **Query CRM Data**. See Workflow stages and steps for details about other steps.

Prompt and response

Page is a container for **Prompt and Response** steps. You must include a **Page** before you can add a **Prompt and Response**.

The **Prompt and Response** step properties are the most important parts of the dialog. You must add at least one prompt and response step before the dialog can be activated.

💡 **Tip**

Don't add too many Prompt and Response steps to a single page because it will require the user to scroll down the page. It is better to add additional pages so that people can click through the pages without scrolling.

After you add a prompt and response, click **Set Properties** to open the **Define Prompt and Response** dialog.

A **Prompt and Response** step has the following properties:

Statement Label

The statement label should provide an appropriate heading for the Prompt Text. The **Statement Label** is visible in the dialog session when viewing the summary during or after the dialog is completed.

Prompt Text

Prompt Text may represent something the person using the dialog should say to the customer or it could include instructions about how to complete a step of a complex procedure.

Tip Text

Tip text provides additional information to support the Prompt Text.

Response Type

Choose one of the following Response Types:

None

You can add a prompt without a response.

Single Line

A single line can represent a text, integer or float data by setting the **Data Type**.

Option Set (Radio Buttons)

- The results are presented as a set of Radio buttons. Use this option when there are just a small number of options to choose from.

- The data selected can be set to either text, integer or float data by setting the **Data Type**.

- You can choose to define static values or query CRM Data to provide a list of options. See [Query CRM Data](#) for more information.

Options Set (Picklist)

This is exactly like **Option Set (Radio Buttons)**, except that the options are displayed as a list. Use this option when there are very many options to choose from.

Multiple Lines (Text Only)

Provides an area to type text with multiple lines.

Date and Time

Provides a control to set a date and a time.

Date Only

Provides a control to set a date.

Lookup

This option will present one of the lookup fields used in the application. When you select this option the following fields appear and you must provide values for them:

- **Reference Entity** : An entity that contains the lookup you want to use

- **Reference Field**: The specific lookup in the reference entity that you want to use.

💡 Tip

If you want to have a list for an entity that has no many-to-one entity relationships, you can create a custom entity and then create a one-to-many relationship between it and the entity that you want to appear in the list. Since this custom entity has no other purpose than to allow this lookup, make sure to configure it so that it is not visible in the application and set the entity description to indicate the purpose of the entity.

Data Type

When you select a **Response Type** of **Single Line**, **Option Set (radio buttons)**, or **Option Set (picklist)**, you can choose to have the data set in the control be expressed using one of the following data types:

- **Text**

- **Integer**

- **Float**

When you select a **Response Type** of **Lookup**, the **Data Type** field is replaced by the **Reference Entity** field.

Log Response

When you choose to not log responses you will still be able to access the responses as variables within your dialog, but the data in the response will not be saved with the dialog session. This is a security feature. Consider if you have a dialog that requires some personal information to be entered and processed. If the response is not logged it will not be saved with the dialog session record that contains the data in the dialog summary.

Default Value

Use default value to set a value to indicate that the data in the response was not provided or represents a very common response which would only need to be edited if it was different.

Query CRM Data

If your dialog depends on the ability to display some data that is retrieved from CRM you should add a **Query CRM Data** step before you need to view this data as either of the Option Set response types.

When you define a query you are shown a screen based on the **Advanced Find** page. You can define a new query or use one of the existing views. When any of the queries requires setting a specific value, that value is considered a variable. For example, you can create a query that shows all the Case records where a specific Account is the Customer. For the query to work, you must specify an Account Record to be the placeholder. Then, when you select the Modify Query Variables tab you will see the FetchXML representation of the query with a variable generated where you had specified a specific Account in your query.

You need to use the Form Assistant to set a slug to represent the Account record that is the context of a Dialog defined for the account entity.
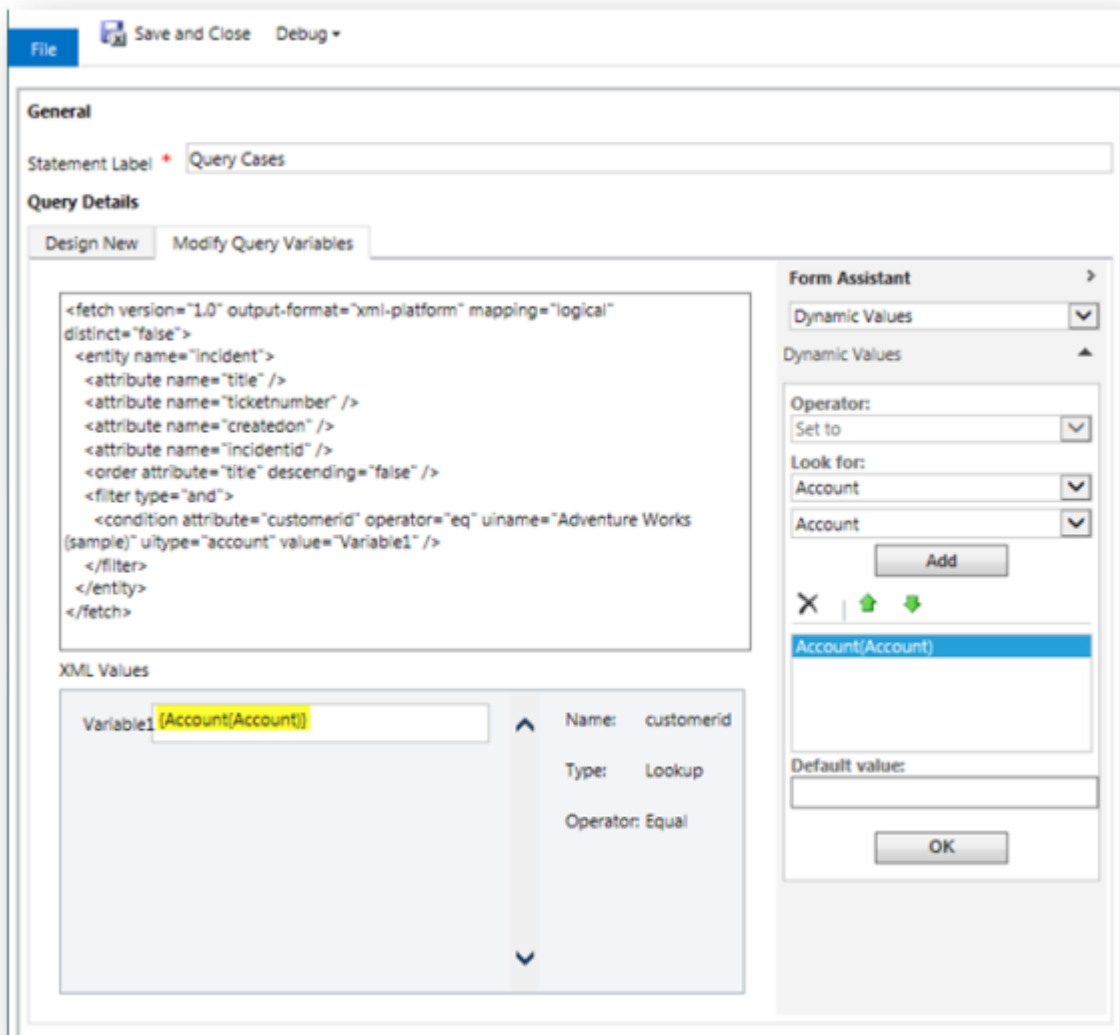
After you have done this you can Save and Close the Query. If you click the **Design New** tab at this point, your dynamic value set for this query will be removed and you will need to add it back again.

You can have a query with variables and not use a dynamic value, but then the results shown will be the same with every dialog.

Using query variables

Once you have defined a query variable you will typically use in a response using the Options Set (picklist) Response Type. You can specify which of the columns in the query you want to display and some text to separate the values that are displayed on the list.

The result is that in the dialog people can select from the results.

Link child dialog

In the same way you might use child workflows, you can also define child dialogs to create re-usable dialogs that you can re-use from other dialogs. If the child dialog has any input parameters, when you call the child dialog you need to map any available variables or responses to the input variables defined for the child dialog.

Setting input arguments for a child process

If you attempt to enter Input arguments for a process configured as an on-demand process, you will be prompted to change the **Available to Run** value to **As a Child process**. After you enter Input arguments, you will not be able to set the process to be an on-demand process until all the input arguments have been removed.

Input arguments can be of the following types:

- Single Line of Text

- Whole Number

- Floating Point Number

- Date and Time

- Date Only

- Lookup

With each type, you can set a default value to be used if the calling dialog doesn't provide data to the input argument.

See Also

[Dialogs](#)
[Actions](#)

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Actions

Applies To: CRM 2016 on-prem, CRM Online

Actions are a type of process in Microsoft Dynamics CRM. You can invoke actions, including custom actions, directly from a workflow or dialog, without writing code! More information: [Invoke custom actions from a workflow or dialog](#)

Actions can also be invoked by running custom code that uses the Microsoft Dynamics CRM Web services.

You can call actions:

- From code that executes within a plug-in or custom workflow.

- From a command that is placed in the application and executes the operation using JavaScript code.

- From an integration with another system that uses the Microsoft Dynamics CRM web services.

- From a custom client application that uses the Microsoft Dynamics CRM web services.

Developers can learn more in this Microsoft Dynamics CRM SDK topic: [Create your own actions](#).

In This Topic

[Why use actions?](#)
[Configurable messages](#)
[Global messages](#)

Why use actions?

Actions open a range of possibilities for composing business logic. Before Actions, the primary way to implement business processes was limited to plug-ins or custom workflow activities. With Actions, you can perform operations, such as Create, Update, Delete, Assign, or Perform Action. Internally, an action creates a custom CRM message. Developers refer to these actions as "messages". Each of these messages is based on actions taken on an entity record. If the goal of a process is to create a record, then update it, and then assign it, there are three separate steps. Each step is defined by the capabilities of the entity – not necessarily your business process.

Actions provide the ability to define a single verb (or message) that matches an operation you need to perform for your business. These new messages are driven by a process or behavior rather than what can be done with an entity. These messages can correspond to verbs like Escalate, Convert, Schedule, Route, or Approve – whatever you need. The addition of these verbs helps provide a richer vocabulary for you to fluently define your business processes. You can apply this richer vocabulary from clients or integrations rather than having to write the action within clients. This also makes it easier because you can manage and log the success or failure of the entire action as a single unit.

Configurable messages

Once an action is defined and activated, a developer can use that message like any of the other messages provided by the Microsoft Dynamics CRM platform. However, a significant difference is that now someone who is not a developer can apply changes to what should be done when that message is used. You can configure the action to modify steps as your business processes change. Any custom code that uses that message does not need to be changed as long as the process arguments do not change.

Workflow processes and plug-ins continue to provide similar capabilities for defining automation. Workflow processes still provide the capability for a non-developer to apply changes. But the difference is in how the business processes are composed and how a developer can write their code. An action is a message that operates on the same level as any of the messages provided by the Microsoft Dynamics CRM Platform. Developers can register plug-ins for Actions.

Global messages

Unlike workflow processes or plug-ins, an action doesn't have to be associated with a specific entity. You can define "global" Actions that can be called on their own.

See Also

Create your own actions
Configure actions
Invoke custom actions from a workflow or dialog
Business process flows
Workflow processes
Dialogs

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Configure actions

Applies To: CRM 2016 on-prem, CRM Online

You can enable a custom action from a workflow or dialog, without writing code. More information: Invoke custom actions from a workflow or dialog.

You may also create an action so that a developer can use it in code or you may need to edit an action that was previously defined. Like workflow processes, consider the following:

- What should the action do?

- Under what conditions should the action be performed?

Unlike workflow processes, you don't need to set the following options:

- **Start When**: Actions start when code calls the message generated for them.

- **Scope**: Actions always run in the context of the calling user.

- **Run in the background**: Actions are always real-time workflows.

Actions also have something that workflow processes don't – input and output arguments. More information: Define process arguments

In This Topic

Create an action
Edit an action

Create an action

◆ **Important**

If you're creating an action to include as part of a solution that will be distributed, create it in the context of the solution. Go to **Settings** > **Solutions** and locate the unmanaged solution that this action will be part of. Then, in the menu bar, select **New** > **Process**. This ensures that the customization prefix associated with the name of the action will be consistent with other components in the solution. After you create the action, you can't change the prefix.

Like workflow processes, actions have the following properties in the **Create Process** dialog box.

Process name

　After you enter a name for the process, a unique name will be created for it by removing any spaces or special characters from the process name.

Category

　This property establishes that this is an action process. You can't change this after you save the process.

Entity

　With actions processes, you can select an entity to provide context for the workflow just like other types of processes, but you also have the option to choose **None (global)**. Use this if your action doesn't require the context of a specific entity. You can't change this after you save the process.

Type

　Use this property to choose whether to build a new action from scratch or to start from an existing template.

Edit an action

You must deactivate processes before you can edit them.

You can edit an action that was created as part of an unmanaged solution or included in a solution installed in your organization. If the solution is a managed solution, you might not be able to edit it. The solution publisher has the option to edit the managed properties so that the action installed with a managed solution can't be edited.

When an action is saved, a unique name is generated based on the process name. This unique name has the customization prefix added from the solution publisher. This is the name of the message that a developer will use in their code.

When editing an action you have the following options:

Process Name

  After the process is created and the unique name is generated from the process name, you can edit the process name. You might want to apply a naming convention to make it easier to locate specific processes.

Unique Name

  When an action is saved, a unique name is generated based on the process name. This unique name has the customization prefix from the solution publisher added. This is the name of the message that a developer will use in their code. Don't change this unique name if the process has been activated and code is in place expecting to call the action using this name.

  ◆ **Important**

  After the action is activated and code is written to use a unique name, the unique name must not be changed without also changing the code that references it.

Enable rollback

  Generally, processes that support transactions will "undo" (or roll back) the entire operation if any part of them fails. There are some exceptions to this. Some actions developers might do in code initiated by the action might not support transactions. For example, if the code perform actions in other systems that are beyond the scope of the transaction. Those can't be rolled back by the action running in Microsoft Dynamics CRM. Some messages in the CRM platform don't support transactions. But everything you can do just with the user interface of the action will support transactions. All the actions that are part of a real-time workflow are considered in transaction, but with actions you have the option to opt out of this.

  You should consult with the developer who will use this message to determine whether it must be in transaction or not. Generally, an action should be in transaction if the actions performed by the business process don't make sense unless all of them are completed successfully. The classic example is transferring funds between two bank accounts. If you withdraw funds from one account you must deposit them in the other. If either fails, both must fail.

  ☑ **Note**

  You can't enable rollback if a custom action is invoked directly from within a workflow or dialog. You can enable rollback if an action is triggered by a CRM web services message.

Activate As

  Like all processes, you can activate the process as a template and use it as an advanced

starting point for processes that follow a similar pattern.

Define Process Arguments

In this area, you'll specify any data that the action expects to start and what data will be passed out of the action. More information: <u>Define process arguments</u>

Add Stages, Conditions and Actions

Like other processes, you specify what actions to perform and when to perform them. More information: <u>Add stages and steps</u>

Define process arguments

When a developer uses a message, they may begin with some data that they can pass into the message. For example, to create a new case record, there might be the case title value that is passed in as a the input argument.

When the message is finished, the developer may need to pass some data that was changed or generated by the message to another operation in their code. This data is the output argument.

Both input and output arguments must have a name, a type, and some information about whether the argument is always required. You can also provide a description.

The name of the message and the information about all the process arguments represent the "signature" for the message. After an action is activated and is being used in code, the signature must not change. If this signature changes, any code that uses the message will fail. The only exception to this may be changing one of the parameters so that it is not always required.

You can change the order of the arguments by sorting them or moving them up or down because the arguments are identified by name, not by the order. Also, changing the description won't break code using the message.

Action process argument types

The following table describes the action process argument types.

Type	Description
Boolean	A **true** or **false** value.
DateTime	A value that stores date and time information.
Decimal	A number value with decimal precision. Used when precision is extremely important.
Entity	A CRM record for the specified entity. When you select Entity, the drop-down is enabled and allows you to select the entity type.
EntityCollection	A collection of entity records.
EntityReference	An object that contains the name, ID, and type of an entity record that uniquely identifies it. When you select EntityReference, the drop-down is enabled and allows you to select the entity type.
Float	A number value with decimal precision. Used when data comes from a measurement that isn't

Type	Description
	absolutely precise.
Integer	A whole number.
Money	A value that stores data about an amount of money.
Picklist	A value that represents an option for an OptionSet attribute.
String	A text value.

Note

EntityCollection argument values can't be set in the user interface for conditions or actions. These are provided for use by developers in custom code. More information: [Create your own actions](#)

Add stages and steps

Actions are a type of process very similar to real-time workflows. All the steps that can be used in real-time workflows can be used in actions. For information about the steps that can be used for both real-time workflows and actions, see [Workflow stages and steps](#).

In addition to the steps that can be used for real-time workflows, actions also have the **Assign Value** step that is similar to the one used to set variables or input arguments in dialogs. In actions, these can be used only to set output arguments. You can use the form assistant to set output arguments to specific values or, more likely, to values from the record that the action is running against, records related to that record with a many-to-one relationship, records created in an earlier step, or values that are part of the process itself.

See Also

[Actions](#)
[Invoke custom actions from a workflow or dialog](#)
[Monitoring real-time workflows and actions](#)
[Create and edit processes](#)
[Workflow processes](#)
[Dialogs](#)
[Business process flows](#)
[Monitor and manage processes](#)
[Create your own actions](#)

Invoke custom actions from a workflow or dialog

Applies To: CRM Online

In Microsoft Dynamics CRM, workflows and dialogs have numerous capabilities supporting business scenarios. Calling basic SDK actions for a record, such as create, update, and delete, from within a workflow or a dialog solves quite a few business scenarios. However, if you couple the capabilities of the workflows and dialogs with the power of the custom actions invoked directly from within a workflow or a dialog, you add a whole new range of business scenarios to your application without needing to write code.

Let's look at the scenario in which a custom action is invoked from a workflow and a dialog. We'll invoke a custom action to request the manager's approval when a discount for a particular opportunity exceeds 20%.

In This Topic

Create a custom action

Invoke a custom action from a workflow

Invoke a custom action from a dialog

Create a custom action

1. Go to **Settings** > **Processes**.

2. On the Nav bar, choose **New**. Give the process a name and choose the **Action** category.

To request an approval for the discount, we're using a custom action called **Approval Process**. We added an input parameter, **SpecialNotes**, and a **Send email** step to create a new message and send a request for the manager's approval, as shown here.

To configure the email message, choose **Set Properties**. When the form opens, use the **Form Assistant** to add special notes and other information to the email, as highlighted on the screenshot. To add the special notes, place the cursor where you want them to appear in the message, and then, in the **Form Assistant**, under **Look for**, choose **Arguments** in the first drop-down list and choose **SpecialNotes** in the second drop-down list, and then choose **OK**.

Before you can invoke the action from a workflow or dialog, you have to activate it. After you have activated the action, you can view its properties by choosing **View properties**.
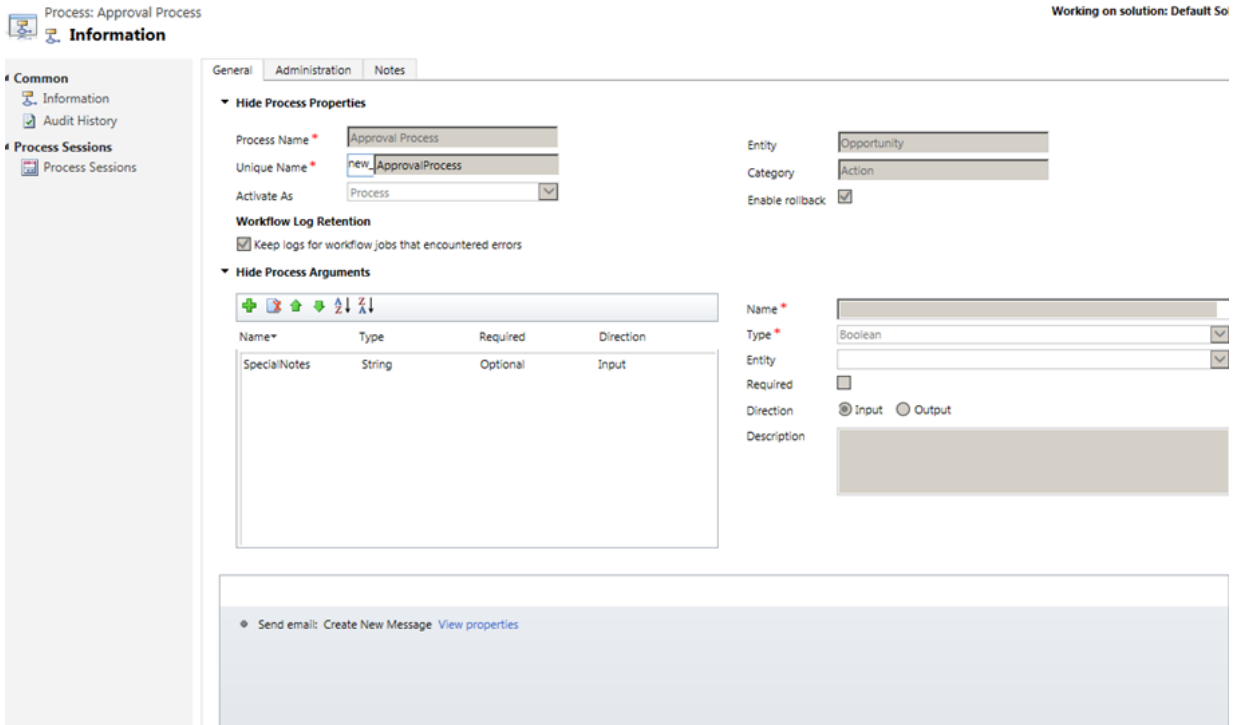
Invoke a custom action from a workflow

1. Go to **Settings** > **Processes**.

2. On the Nav bar, choose **New**. Give the process a name and choose the **Workflow** category.

We created a workflow that invokes the **Approval Process** custom action whenever the manager's approval for a discount over 20% for an opportunity is required.

You can set the action's input properties by choosing **Set Properties**. We added a name of the account related to the opportunity in the special notes. In the **Form Assistant**, under **Look for**, choose **Account** in the first drop-down list, choose **Account Name** in the second drop-down list, and then choose **OK**. The **Target** property is required and it is populated by the system. The **{Opportunity(Opportunity)}** in the **Target** property is the same opportunity that the calling workflow is running on. Alternatively, you can choose a specific opportunity for the target property by using lookup.

Invoke a custom action from a dialog

1. Go to **Settings** > **Processes**.

2. On the Nav bar, choose **New**. Give the process a name and choose the **Dialog** category.

You can implement a scenario that's similar to calling the **Approval Process** from a dialog as shown in the following illustration.

Information

General | Administration | Notes

▾ Hide Process Properties

Process Name * Request Approval for Opportunity   Entity   Opportunity

Activate As   Process   Category   Dialog

Available to Run

☑ As an on-demand process

☐ As a child process

Add Step ▾ | Insert ▾ | ✕ Delete this step.

▾ **Input Arguments**

Add

▾ **Variables**

Add

▾ **Steps**

▾ Page: Request approval for opportunity discounts > 20%

○ SpecialNotes to Manager

Prompt and Response: [Set Properties]

Prompt: Please attach any special notes you want the reviewer to see.

○ Discounts greater than 20% must be approved

Action   Approval Process   [Set Properties]

Status: Draft

Set up input parameters, as shown here.

Process: Request Approval for Opportunity
Set Approval Process input properties

Working on solution: Default Solution

Property Name	Data Type	Required	Value
SpecialNotes	SpecialNotes	Optional	{Response Text(SpecialNotes to Manage
Target	Target	Required	{Opportunity(Opportunity)}

See Also

[Actions](#)
[Configure actions](#)

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Business process flows

Applies To: CRM 2016 on-prem, CRM Online

In Microsoft Dynamics CRM, business process flows use the same underlying technology as other processes, but the capabilities that they provide are very different from other features that use processes.

In This Topic

[Why use business process flows?](#)
[What can business process flows do?](#)
[Multiple entities in business process flows](#)
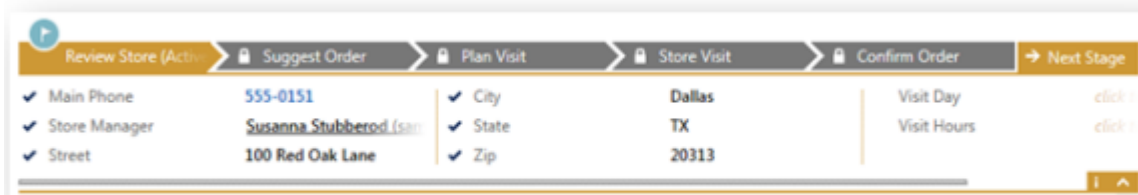
Why use business process flows?

Business process flows provide a guide for people to get work done. They provide a streamlined user experience that leads people through the processes their organization has defined for interactions that need to be advanced to a conclusion of some kind. This user experience can be tailored so that people with different security roles can have an experience that best suites the work they do by using Microsoft Dynamics CRM.

Use business process flows to define a set of steps for people to follow to take them to a desired outcome. These steps provide a visual indicator that tells people where they are in the business process. Business process flows reduce the need for training because new users don't have to focus on which entity they should be using. They can let the process guide them. You can configure business process flows to support common sales methodologies that can help your sales groups achieve better results. For service groups, business process flows can help new staff get up-to-speed more quickly and avoid mistakes that could result in unsatisfied customers.

What can business process flows do?

With business process flows, you define a set of *stages* and *steps* that are then displayed in a control at the top of the form.

Each stage contains a group of steps. Each step represents a field where data can be entered. People advance to the next stage by using the **Next Stage** button. You can make a step required so that people must enter data for the corresponding field before they can proceed to the next stage. This is commonly called "stage-gating".

Business process flows appear relatively simple compared to other types of processes because they do not provide any conditional business logic or automation beyond providing the streamlined experience for data entry and controlling entry into stages. However, when you combine them with other processes and customizations, they can play an important role in saving people time, reducing training costs, and increasing user adoption.

Business process flows integrated with other customizations

When you or your user enters data using business process flows, the data changes are also applied to form fields so that any automation provided by business rules or form scripts can be applied immediately. Steps can be added that set values for fields that are not present in the form and these fields will be added to the **Xrm.Page** object model used for form scripts. Any workflows that are initiated by changes to fields included in a business process flow will be applied when the data in the form is

saved. If the automation is applied by a real-time workflow, the changes will be immediately visible to the user when the data in the form is refreshed after the record is saved.

Although the business process flow control in the form does not provide any direct client-side programmability, changes applied by business rules or form scripts are automatically applied to business process flow controls. If you hide a field in a form, that field will also be hidden in the business process flow control. If you set a value by using business rules or form scripts, that value will be set within the business process flow.

System business process flows

Microsoft Dynamics CRM includes the following business process flows. To understand how business process flows work, review these system business process flows:

- Lead to Opportunity Sales Process

- Opportunity Sales Process

- Phone to Case Process

Multiple entities in business process flows

You can use a business process flow for a single entity or span multiple entities. For example, you may have a process that begins with an opportunity, then continues to a quote, an order, and then an invoice, before finally returning to close the opportunity.

You can design business process flows that tie together the records for up to five different entities into a single process so that people using Microsoft Dynamics CRM can focus on the flow of their process rather than on which entity they are working in. They can more easily navigate between related entity records.

Multiple business process flows are available per entity

Not every user in an organization may follow the same process and different conditions may require that a different process be applied. You can have up to 10 active business process flows per entity to provide appropriate processes for different situations.

Control which business process flow will be applied

You can associate business process flows with security roles so that only people with those security roles can see or use them. You can also set the order of the business process flows so that you can control which business process flow will be set by default. This works in the same way that multiple forms for an entity are defined.

When someone creates a new entity record, the list of available activated business process flows is compared to the business processes flows that the person's security role will show them. The first activated business process flow in that list is the one that will be applied by default. If more than one active business process flow is available, people can chose **Switch Process** from the command bar to apply a different process. Whenever someone switches processes, the current process stage will be set to the first stage of the newly applied business process flow.

Each record can have only one business process flow at a time. When any user applies a different process, that process is the one that the next user to view the record will see. If someone's security roles do not allow them to use a specific business process flow, the current business process flow will be visible, but disabled.

Business process flow considerations

You can define business process flows only for those entities that support them. You also need to be aware of the limits for the number of processes, stages, and steps that can be added.

Entities that can use business process flows

Only entities that use the updated forms can use business process flows. This includes custom entities and the following system entities:

- Account
- Appointment
- Campaign
- Campaign Activity
- Campaign Response
- Competitor
- Contact
- Email
- Entitlement
- Fax
- Case
- Invoice
- Lead
- Letter
- Marketing List
- Opportunity
- Phone Call
- Product
- Price List Item
- Quote
- Recurring Appointment
- Sales Literature
- Social Activity
- Order

- User

- Task

- Team

To enable a custom entity for business process flows, select the **Business process flows (fields will be created)** check box in the entity definition. Note that you can't undo this action.

📝 Note

If you navigate to the business process flow stage that contains the **Social Activity** entity and choose the **Next Stage** button, you'll see the **Create** option. When you choose **Create**, the **Social Activity** form loads. However, because **Social Activity** isn't valid for **Create** from the CRM application user interface, you won't be able to save the form and you'll see the error message: "Unexpected error."

Maximum number of processes, stages, and steps

To ensure acceptable performance and the usability of the user interface, there are some limitations you need to be aware of when you plan to use business process flows:

- There can be no more than 10 activated business process flow processes per entity.

- Each process can contain no more than 30 stages.

- Multi-entity processes can contain no more than five entities.

See Also

Configure business process flows
Enhance business process flows with branching
Video: Microsoft Dynamics CRM Business Process Overview
Process Enablement with Microsoft Dynamics CRM
Workflow processes
Dialogs
Actions

Configure business process flows

Applies To: CRM 2016 on-prem, CRM Online

Business process flows are guides for helping people get work done. Use business process flows to help ensure common tasks are performed consistently by all team members. You can enable business process flows for various entities, such as leads, opportunities, or cases.The procedure to create business process flows is similar to creating other types of processes, but configuring them is very different.

To learn more about why you use business process flows, see Business process flows.

In This Topic

Create business process flows

When you create business process flows, you define a set of stages that contain steps. You choose various types of information to include for each step.

To create a business process flow go to **Settings** > **Processes** and choose **New**. For the complete procedure to create a business process, see Create a new business process.

As with other processes, enter the following information in the **Create Process** dialog box:

Process name

> The name of the process doesn't need to be unique, but it should be meaningful for people who need to choose a process. You can change this later.

Category

> This property establishes that this is a *business process flow* process. You can't change this after you save the process.

Entity

> Select an entity to base the first stage of the business process flow on. The entity you select affects the fields available for steps that can be added to the first stage of the process flow. If you don't find the entity you want, make sure the entity has the **Business process flows (fields will be created)** option set in the entity definition. You can't change this after you save the process.

📝 Note

Business process flows have a simplified way to reuse existing business process flows as an advanced starting point for new business process flows. When you select **Business Process Flow** as the **Category**, there is no option available to set the **Type** value as you can for other types of processes. Instead, when you open an existing business process flow, you will find a **Save As** button on the command bar. This will create a new business process flow that is the same as the existing one, except that the text **(Copy)** will be appended to the name.

After you complete your entries select **OK** in the **Create Process** dialog box. This dialog box will close and the dialog box for the new business process flow will automatically open. You can then enter stages and steps.

Edit business process flows

To edit a business process flow, go to **Settings** > **Processes** > **Business Process Flows** and then select the business process you want to edit. An example of the first two stages of a business process flow is shown here.

BUSINESS PROCESS FLOW

Opportunity Sales Process

Details ⌄

Stage Name *		Step Name	Value	Required
Qualify		**Identify Contact**	Contact	☐
		Identify Account	Account	☐
Entity *		**Purchase Timeframe**	Purchase Timeframe	☐
Opportunity		**Estimated Budget**	Budget Amount	☐
Stage Category		**Purchase Process**	Purchase Process	☐
Qualify		**Identify Decision Maker**	Decision Maker?	☐
		Capture Summary	Description	☐
		⊞		

+ Insert stage   ⌕ Add branch

Stage Name *		Step Name	Value	Required
Develop		**Customer Need**	Customer Need	☐
		Proposed Solution	Proposed Solution	☐
Entity *		**Identify Stakeholders**	Identify Customer Contacts	☐
Opportunity		**Identify Competitors**	Identify Competitors	☐
Relationship		⊞		
Select relationships				

Expand **Details** under the name of the process, to rename it or add a description, and view additional information.

When you configure a business process flow, you can edit it and add stages and steps. For the complete procedure to edit a business process flow, see the eBook: Customize a business process in Dynamics CRM.

Edit Stages

Business process flows can have up to 30 stages.

- To add a stage, select **Insert stage** beneath a stage and enter a **Stage Name**.

- To remove a stage, select it and then choose the **X** in the upper right corner.

You can add or change the following properties of a stage:

- **Stage Name**

- **Entity**. You can change the entity for any stage except the first one.

- **Stage Category**. A category lets you group stages by a type of action. It is useful for
  reports that will group records by the stage they are in. The options for the stage
  category come from the Stage Category global option set. You can add additional

options to this global option set and change the labels of existing options if you want. You can also delete these options if you wish, but we recommend that you keep the existing options. You won't be able to add the exact same option back if you delete it. If you don't want them to be used, change the label to "Do not use".

- **Relationship**. Enter a relationship when the preceding stage in the process is based on a different entity. For the stage currently being defined, choose **Select relationships** to identify a relationship to use when moving between the two stages. It is recommended you select a relationship for the following benefits:

  - Relationships often have attribute maps defined that automatically carry over data between records, minimizing data entry.

  - When you select **Next Stage** on the process bar for a record, any records that use the relationship will be listed in the process flow, thereby promoting reuse of records in the process. In addition, you can use workflows to automate creation of records so that the user simply selects it instead of creating one to further streamline the process.

Edit Steps

Each stage can have up to 30 steps.

- To create a new step, select a stage, and then select the plus sign (**+**) under **Step Name**. Enter a name.

- In the **Value** column, select a field to use for data entry.

- Optionally, you can select the **Required** check box for any required field.

- To remove a step, select it and then choose the **X** to the right of the step.

Add branch

To learn about adding a branch to a stage, see [Enhance business process flows with branching](#).

To make a business process flow available for people to use, you must order the process flow, enable security roles, and activate it.

Set Process Flow Order

When you have more than one business process flow for an entity (record type), you'll need to set which process is automatically assigned to new records.. In the command bar, select **Order Process Flow**. For new records or records that do not already have a process flow associated with them, the first business process flow that a user has access to is the one that will be used.

Enable Security Roles

People will only be able to use business process flows that are associated with security roles assigned to their user account. By default, only the **System Administrator** and **System Customizer** security roles can view a new business process flow.

- To set these roles, in the command bar, select **Enable Security Roles**. You can choose either the **Enable for Everyone** or **Enable only for the selected security roles** options.

- If you choose **Enable only for the selected security roles**, you can select which security roles will allow access to the business process flow.

Activate

Before anyone can use the business process flow, you must activate it. In the command bar, select **Activate**. After you confirm the activation, the business process flow is ready to use. If a business process flow has errors, you will not be able to activate it until the errors are corrected.

See Also
[Business process flows](#)
[Monitor and manage processes](#)

Enhance business process flows with branching

Applies To: CRM 2016 on-prem, CRM Online

Business process flows guide you through various stages of sales, marketing, or service processes toward completion. In simple cases, a linear business process flow is a good option. However, in more complex scenarios, you can enhance a business process flow with branching. If you have the create permissions on business process flows, you'll be able create business process flow with multiple branches by using the **If-Else** logic. The branching condition can be formed of multiple logical expressions that use a combination of **AND** or **OR** operators. The branch selection is done automatically, in real time, based on rules defined during the process definition. For example, in selling cars, you can configure a single business process flow, which after a common qualification stage splits into two separate branches on the basis of a rule (Does the customer prefer a new car or pre-owned car, is their budget above or below $20,000, and so on.), one branch, for selling new cars and another branch, for selling pre-owned cars.

The following diagram shows a business process flow with branches.

Car sales process
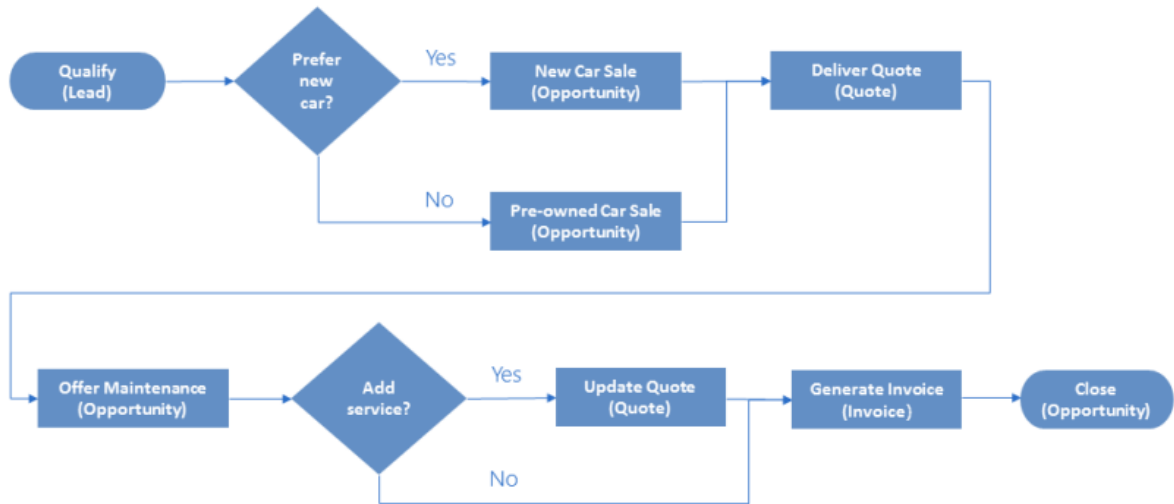
In This Topic

What you need to know when designing business process flows with branches

Take notice of the following information when you design the business process flow with the branches:

- A process can span across a maximum of 5 unique entities.

- You can use a maximum of 30 stages per process and a maximum of 30 steps per stage.

- Each branch can be no more that 5 levels deep.

- Branching rule must be based on the steps in the stage that immediately precedes it.

- You can combine multiple conditions in a rule by using the **AND** operator or the **OR** operator, but not both operators.

- An entity used in the process can be revisited multiple times (multiple closed entity loops).

- You can go back to the previous stage regardless of an entity type. For example, if the active stage is **Deliver Quote** on a quote record, you can move the active stage back to the **Propose** stage on an opportunity record. In another example, suppose you're currently in the **Present Proposal** stage

in your process flow: **Qualify Lead** > **Identify Needs** > **Create Proposal** > **Present Proposal** > **Close**. If the proposal presented to the customer requires more research to identify customer needs, you can simply select the **Identify Needs** stage of your process and choose **Set Active**.

- When you define a process flow, you can optionally select an entity relationship. This relationship must a 1:N (One-to-Many) entity relationship.

- Only one active process per a record is possible.

- A process name is not exposed to workflow conditions.

- The stages can be reordered using the **MOVE UP** or **MOVE DOWN** arrows within the branch. The stages can't be moved from one branch to other branches.

- When merging branches, all peer branches must merge to a single stage.

- The peer branches must all either merge to a single stage, or each peer branch must end the process. A peer branch can't merge with other branches and at the same time end the process.

Car selling process flow with two branches example

Let's look at the example of the business process flow with two branches, for selling new and pre-owned cars.

First, we'll create a new process named **Car Sales Process**.

1. Go to **Settings** > **Processes**.

2. Specify the **Category** as **Business Process Flow** and for the primary **Entity** choose **Lead**.

3. Add the first stage to the process called **Qualify** and add steps **Purchase Time frame** and **Car Preference**.

BUSINESS PROCESS FLOW
Car Sales Process
Details ∨

Stage Name * **Qaulify**		Step Name	Value	Required	
		Purchase Timeframe	**Purchase Timeframe**	☐	
Entity * **Lead**		**Car Preference**	**Car Preference**	☐	✕
		⊞			
Stage Category **Qualify**					

➕ Insert stage after branch   ⋏ Add branch

After the common **Qualify** stage, we split the process into to two separate branches, by using the **If-Else** clause.

💡 Tip

- To add the first branch for a stage, choose **Add branch** below the stage and specify the **If** condition. To add the second branch for the same stage, choose **Add branch** again, below the same stage. The **Else** clause will be displayed. You can choose **Else**, to convert it to **Else-If**, if you have more than two branches from the same stage, or if you want to enter a branch only when certain conditions are satisfied.

- Choose the green square **+** (plus) button under the branching rule, to add another condition to the rule.

- Choose the **+ Insert stage** button to insert a stage at the beginning of the branch.

If the **Car preference** = **New**, the process branches out to the **New Car Sales** stage, otherwise, it jumps to the **Pre-Owned Car Sales** stage, in the second branch, as shown below.

BUSINESS PROCESS FLOW

Car Sales Process

Details ⌄

Stage Name * **Qaulify**		Step Name	Value	Required
		Purchase Timeframe	Purchase Timeframe	☐
Entity * **Lead**		Car Preference	Car Preference	☐ ✕
		⊞		
Stage Category **Qualify**				

＋ Insert stage after branch   ⩕ Add branch

	Field	Operator	Type	Value
If	Car Preference ▾	Equals ▾	Value ▾	☑ New Car ☐ Pre-owned Car

⊘ ⊗

⊞

If **Car Preference** equals **"New Car"**

[+]

+ Insert stage

Stage Name *		Step Name	Value	Required
New Car Sale		Make and Model	(New) Make and Model	☐
		Color	(New) Color	☐
Entity *		Trim and options selected?	(New) Trim and options selected?	☐
Opportunity		Trade in?	(New) Trade in	☐
Relationship		All paperwork present	All paperwork present	☐
Select relationships		Schedule trade-in evaluation	Schedule trade-in evaluation	☐
Stage Category		[+]		
Develop				

+ Insert stage   ⋀ Add branch

Else (click to convert to else if)

[+]

+ Insert stage

Stage Name *		Step Name	Value	Required
Pre-Owned Car Sale		Clean history required?	(Used) Clean history required?	☐
		Max. Vehicle Age (Years)	(Used) Age	☐
Entity *		Max. Odometer Reading (Miles)	(Used) Odometer reading	☐
Opportunity		Max. Number of previous owners?	(Used) Number of previous owners?	☐
Relationship		Make and model	(Used) Make and model	☐
Select relationships		Color	(Used) Color	☐
		Trade in	(New) Trade in	☐
Stage Category		All paperwork present	All paperwork present	☐
Develop		Schedule trade-in evaluation	Schedule trade-in evaluation	☐
		[+]		

+ Insert stage   ⋀ Add branch

After completing all the steps in the **New Car Sales** stage or **Pre-Owned Car Sales** stage, the process returns back to the main flow, with the **Deliver Quote** stage.

Stage Name *		Step Name	Value	Required
Deliver Quote		Price list to use	Price List	☐
		Cost to customer	Cost to Customer	☐
Entity *		Quote delivered?	Quote Delivered?	☐
Quote		Customer agreement?	Verbal agreement?	☑
Relationship		[+]		
Select relationships				
Stage Category				
Propose				

+ Insert stage   ⋀ Add branch

Prevent information disclosure

Consider a business process flow with branches for processing a loan request at a bank, as shown below. The custom entities used in the stages are shown in parenthesis.
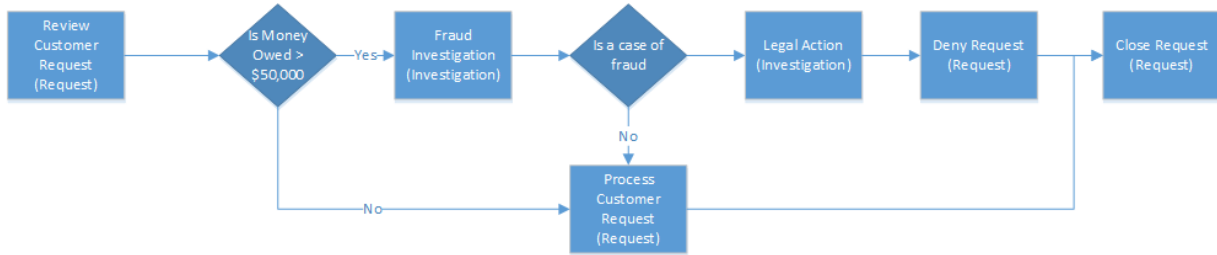
In this scenario, the bank loan officer needs access to the Request record, but she shouldn't have any visibility into the investigation of the request. At first glance, it looks that we can easily do this by assigning the loan officer a security role that specifies no access to the Investigation entity. But, let's look at the example in more detail and see if this is really true. Let's say that a customer puts in the loan request for over $60,000 to the bank. The loan officer reviews the request in the first stage. If the branching rule that checks if the amount owed to the bank will exceed $50,000 is satisfied, the next stage in the process is to investigate if the request is fraudulent. If it's determined that this is indeed a case of fraud, the process moves on to taking a legal action against the requestor. The loan officer shouldn't have visibility into the two investigative stages as she doesn't have access to the Investigation entity. However, if the loan officer opens the Request record, she would be able to see the entire end-to-end process. Not only will she be able to see the fraud investigation stage, but she'll also be able to identify the outcome of the investigation by having been able to see the Legal Action stage in the process. Also, she'll be able to preview the steps in the investigative stages by choosing the stage. While she won't be able to see the data or the step completion status, she'll be able to identify the potential actions that were taken against the submitter of the request during the investigation and legal action stages. In this process flow, the loan officer will be able to see the Fraud Investigation and Legal Action stages, which constitutes an improper information disclosure. We recommend paying special attention to the information that may become disclosed due to branching. In our example, split the process into two separate processes, one for the request processing and another one for the fraud investigation, to prevent the information disclosure. The process for the loan officer will look like this:
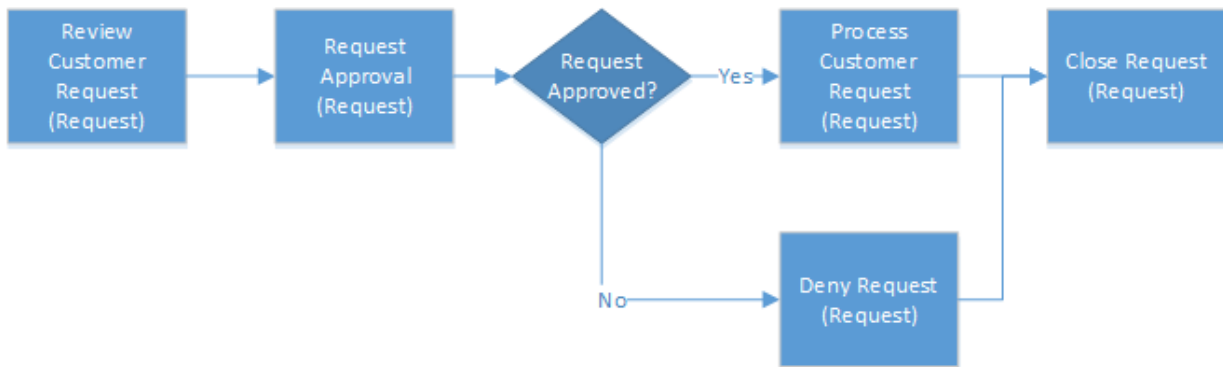
The process for the investigation will be self-contained and include the following stages:
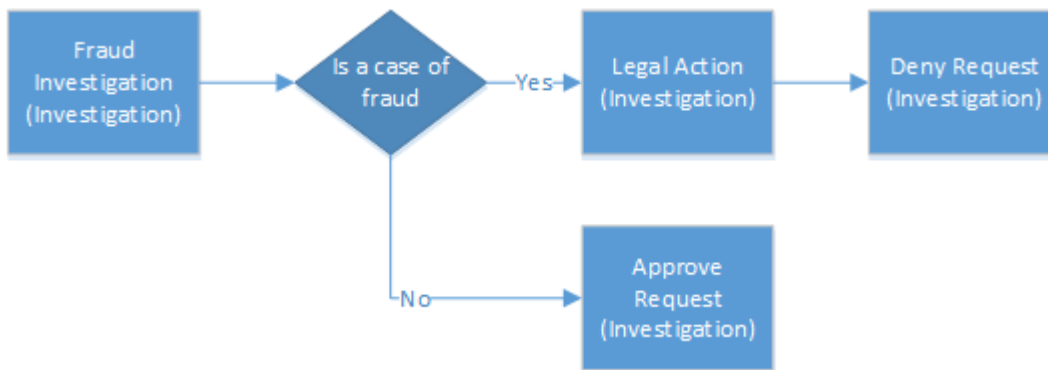
You will need to provide a workflow to synchronize the Approve/Deny decision from the Investigation record to the Request record.

See Also
Business process flows
Configure business process flows
Create and edit processes
Security roles and privileges
Video: Business Process in Microsoft Dynamics CRM 2015

Monitor and manage processes

Applies To: CRM 2016 on-prem, CRM Online

To monitor and manage processes, you must locate the process, evaluate the status, and perform any actions necessary to address problems.

In This Topic
Monitoring background workflows
Monitoring real-time workflows and actions
Monitoring dialogs
Status of workflow processes

Monitoring background workflows

Background workflows generate System Job records to track their status. You can access information about these system jobs in several places within the application:

Settings > System Jobs

This will include all types of system jobs. You will need to filter records to those where **System Job Type** is **Workflow**.

From the Workflow Process

Open the background workflow definition and go to the **Process Session** tab. This will show only the system jobs for this background workflow.

From the record

You can edit the entity form so that the navigation will include the **Background Processes** relationship. This will show all the system jobs that have been started in the context of the record.

✎ Note

If an asynchronous system job (workflow) fails several times consecutively, CRM starts to postpone execution of that job for longer and longer time intervals to allow the CRM administrator to investigate and resolve the issue. Once the job starts succeeding again, it will resume executing normally.

Actions on running background workflows

While a background workflow is running, you have options to **Cancel**, **Pause**, or **Postpone** the workflow. If you have previously paused a workflow, you can **Resume** it.

Monitoring real-time workflows and actions

Real-time workflows and actions do not use System Job records because they occur immediately. Any errors that occur will be displayed to the user in the application with the heading **Business Process Error**.

There is no log for successful operations. You can enable logging for errors by checking the **Keep Logs for workflow jobs that encountered errors** option in the **Workflow Log Retention** area at the bottom of the **Administration** tab for the process.

To view the log of errors for a specific process, open the real-time workflow or action definition and go to the **Process Session** tab. This will only show any errors logged for this process.

If you want a view of all the errors for any process, go to **Advanced Find** and create a view showing errors on the process session entity.

Monitoring dialogs

Every dialog that is run will create a Process Session record. This record provides a summary of the interaction within the dialog. You can view the Process Sessions for a specific dialog by using the Process Sessions area for that dialog, or you can use **Advanced Find** to create a query where the related **Process Category** is **Dialog**.

Status of workflow processes

When you view a list of workflow processes, any individual process can have one of the following **State** and **Status Reason** values:

State	Status Reason
Ready	Waiting for Resources
Suspended	Waiting
Locked	In Progress Pausing Canceling
Completed	Succeeded Failed Canceled

See Also

Create and edit processes
Workflow processes
Configure workflow steps
Best practices for workflow processes
MSDN: Asynchronous service architecture

Create and edit business rules

Applies To: Dynamics CRM 2013, Dynamics CRM 2015, Dynamics CRM 2016, Dynamics CRM Online

In Microsoft Dynamics CRM, you can apply form logic without writing JavaScript code or developing plug-ins. Business rules provide a simple declarative interface to implement and maintain fast changing, commonly used business rules that will be applied to Main and Quick Create forms, and to an entity, in the Web application and Microsoft Dynamics CRM for tablets. It is applied to the Main and Quick forms in the Outlook client in online and offline modes.

In This Topic

Why business rules?
What can business rules do?
How do I configure business rules?
Server side business rules and support for IF-Else and AND/OR logic
Limitations for business rules
Order in which logic is applied

Why business rules?

Business rules provide an easy declarative way to consistently evaluate the business logic on both client and server, without the need to write code. The client-side logic evaluation is more immediate because it is performed when you open and update the record form, while the server-side provides consistent logic evaluation on the server.

- The business rule is executed only on the client, if the rule's scope is set at a form level (all forms or a specific form). The rules are executed when a record form is loaded and updated.

- The business rule is executed both on the server and client, if the rule's scope is set at an entity level. The rules on the server-side are executed when a record is created or saved.

What can business rules do?

Business rules allow for a subset of the capabilities provided by form scripts. You can define conditions and apply the following actions:

- Set field values

- Clear field values

- Set field requirement levels

- Show or hide fields

- Enable or disable fields

- Validate data and show error messages

Business rules can be set to apply to all Main or Quick Create entity forms or specific Main forms that you choose. You can also set the rule to apply to an entity.

You can transport business rules from one organization to another by including them in a solution and you can install solutions that contain business rules.

Examples of how to set or clear field values

Let's consider a couple of examples. With the first rule, for any immediate purchase, you apply a 5% discount. With the second rule, you clear all discounts if the purchase timeframe is unknown,

The following rule definition shows how to set a field value to a 5% discount for immediate purchases.

BUSINESS RULE: Opportunity

Offer discount if purchased immediately

Click to add description

◢ **IF...THEN**

　　◢ **CONDITION**

　　　　If **Purchase Timeframe** equals **"Immediate"**

　　　　✚　Add condition

　　◢ **ACTION**

　　　　Set **Opportunity Discount (%)** to **5**

　　　　✚　Add action

✚　Add Else

The following rule definition shows how to clear a field value – clear all discounts, for purchases with an unknown purchase timeframe.

Clear discount if purchase timeframe is unknown

Click to add description

▲ IF...THEN

  ▲ CONDITION

      If **Purchase Timeframe** does not contain data

      or **Purchase Timeframe** equals **"Unknown"**

      ╋ Add condition

  ▲ ACTION

      Set field value

      Field   Type

      Opportunity Discount (%) ▼   Clear ▼
                                     Field
                                     Value
                                     Formula
                                     Clear   ✓ ✕

      ╋ Add action

  ╋ Add Else

Clear discount if purchase timeframe is unknown

Click to add description

▲ IF...THEN

  ▲ CONDITION

      If **Purchase Timeframe** does not contain data

      or **Purchase Timeframe** equals **"Unknown"**

      ╋ Add condition

  ▲ ACTION

      Clear **Opportunity Discount (%)**

      ╋ Add action

  ╋ Add Else

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How do I configure business rules?

First, you need to have the privileges necessary to navigate to **Settings** > **Customization**. This typically requires the **System Administrator** or **System Customizer** security role. To activate a business rule, you must have the **Activate Business Rules** privilege.

✎ Note

Business rules will only work for [Updated entities](#) or custom entities.

There are four ways you can view, create, or edit business rules:

Solution > Entity

　From a solution, such as the default solution, you will find a **Business Rules** node for all entities.
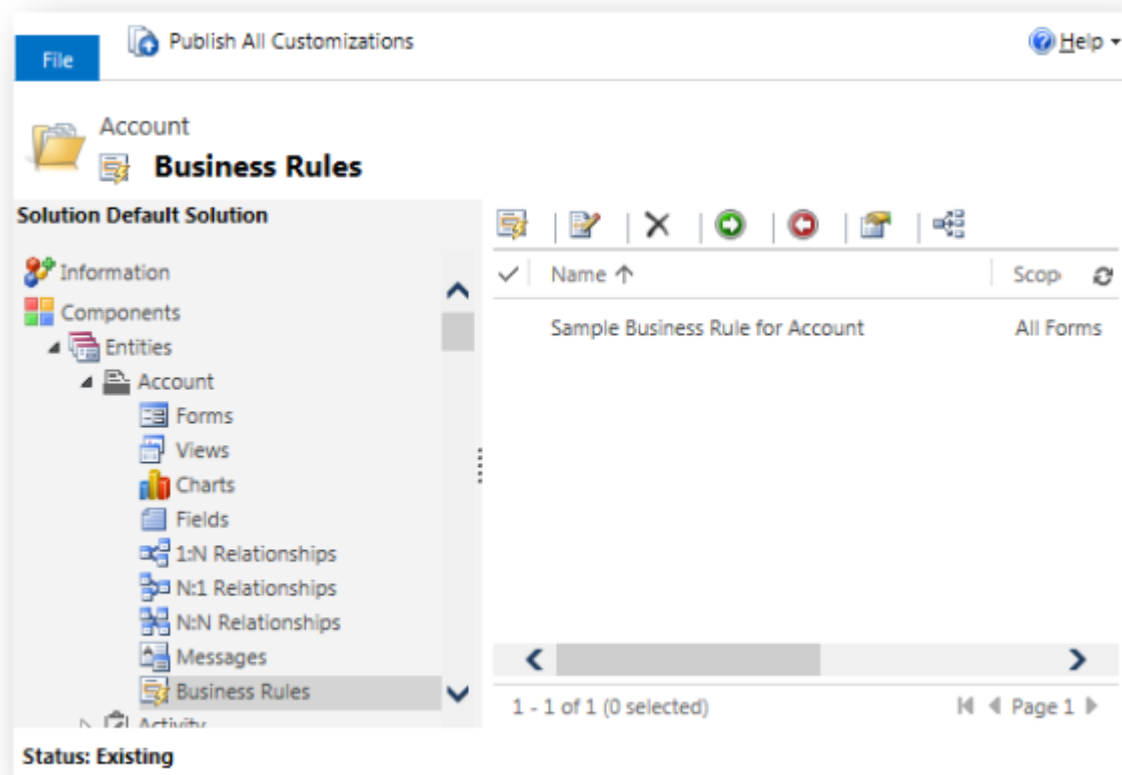
Solution > Entity > Field

　When you view an entity field, you will find a **Business Rules** node that will show you only the business rules that include this attribute.
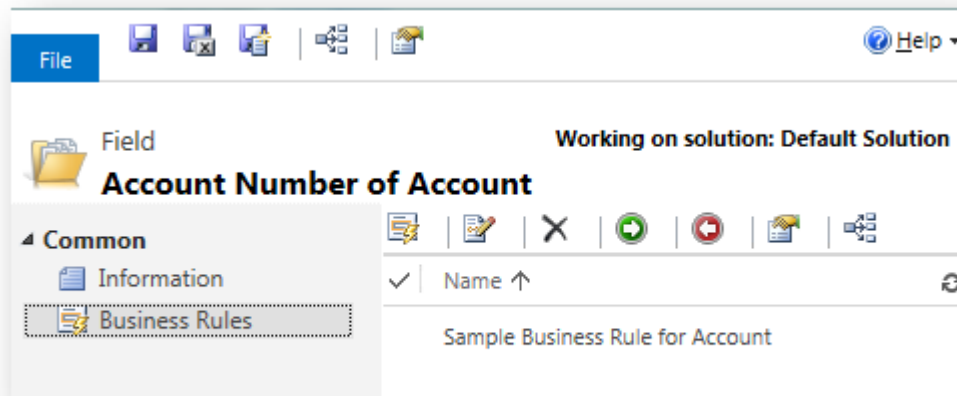
Form Editor

From the form editor, you can use the **Business Rules** button in the ribbon to show the **Business Rules Explorer** on the right side. This will show you all business rules that will be applied just for this form.

If you create a rule from the form editor, the default scope is for that form. More information: Set the scope
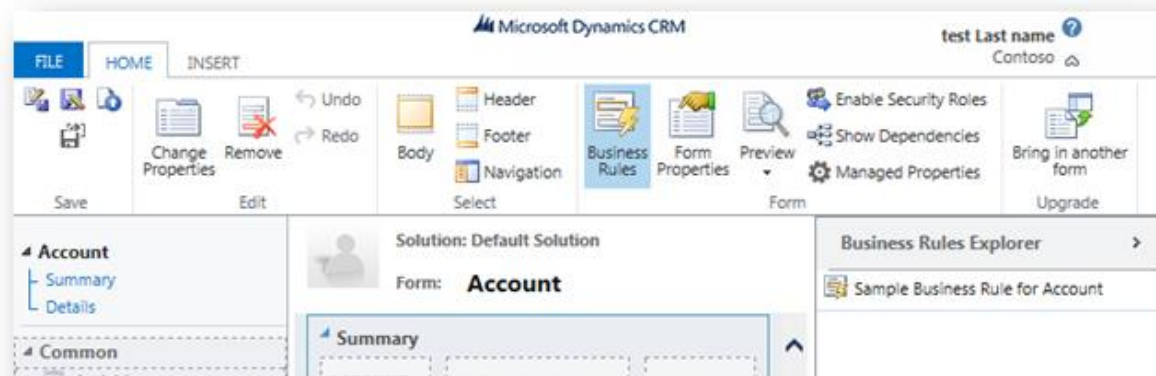
Form Editor > Field

When you view the properties for a field that is used in a form, you will see a **Business Rules** tab that shows you the business rules that include this attribute.
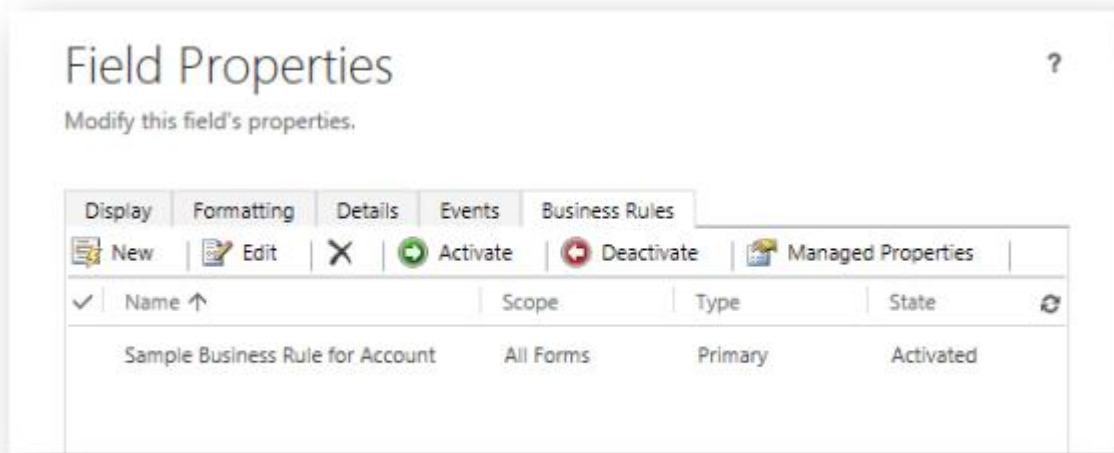
If an existing rule is similar to a rule you want to make, you can open that rule and use the **Save As** button to copy an existing rule as a starting point for a new rule.

Set the scope

In the top right of the form, use the **Scope** field to set the scope for the rule.

Scope	Where it runs run
Entity	All forms and server
All forms	All forms
Specific form	Just that form

You cannot select multiple specific forms. If you choose **All Forms**, the rule will be applied to all the Main forms and the Quick Create form, as long as the form includes all the fields referenced by the rule. If you create a new business rule by using the form editor, the default scope is just that form.

Server side business rules and support for IF-Else and AND/OR logic

Previously, you had an ability to evaluate the business rules on an individual client. To evaluate the business rule logic on the server and apply it to all clients, you had to provide the plug-ins, which are expensive to develop and maintain. Setting the scope of the business rule at an entity level, gives you an ability to evaluate the business rule once on the server and apply it to all clients without writing code. You can move the logic for commonly used scenarios out of plug-ins into the entity-level business rules. In addition, we provided the support for default values in a business rule. For instance, if Contoso only does business in the United States, a simple business rule can be implemented that on creation of an incoming lead, the country/region is automatically set to U.S.A.

 Note

When the scope is set to an Entity and you create or edit a record using the forms, the rule runs on the client side, but later, it runs again on the server. Because of this, we prevent you from creating a circular reference to a field, if you set the scope to an Entity. For example, you can't set Credit Limit =

Credit Limit + 1000, because it would increase the value once on the client side and then would try to run again on the server side.

For more complex business scenarios, you needed to use multiple business rules that were evaluated using the **AND** logic operator. All conditions had to be true before the actions were applied. There was no **If-Else** or **AND/OR** support. This functionality is now added and will let you create more elaborate business rules with less effort. The following example of the business rule uses the **If-Else** logic:

There are a few limitations that you should be aware of:

- Nested **If-Else** statements are not supported.
- Grouping of expressions in a condition is not supported.
- Expressions can be combined either using **AND**, or using **OR**, but not both.

Configure conditions

If you want to change an activated business rule, you must deactivate it before you can edit it.

To add a condition, click the **+** icon and a new condition row will appear with default values set. Enter the field name to set the **Field**, and then choose the appropriate **Operator**. Operator options will change depending on the data type of the field.

Conditions are checked whenever any field referenced within the condition changes.

You can choose three different types of conditions:

Field

  Use this type to compare the value of one form field with another.

Value

  Use this type to compare the value of one form field with a value you enter.

Formula

  This option appears only for numerical or date data types. It does not appear for fields that contain text. Use this type to compare the result of a simple calculation that may use either a value in another form field or a value you enter.

When you are finished entering or editing the rule, choose the **check mark** icon to save it or the **(X)** icon to discard changes. To remove a previously saved condition, place your cursor over the condition and choose the **Delete** button 🗑.

Configure actions

To add an action, choose the **Add** button **+** and you will have the following options:

Show error message

  Use this action to set an error message on a field if the data within it is not valid. The text you specify for the message will be displayed with an error icon near the field.
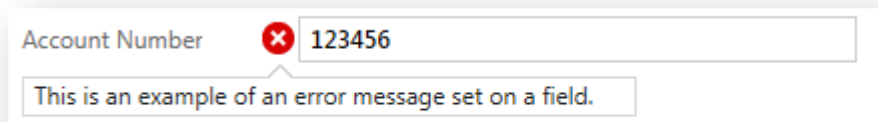
  The record cannot be saved as long as this message is displayed. After the data in the field has been corrected according to the conditions set in your rule, the message will disappear and the record can be saved.

Set field value

  Choose the **Field** and then the **Type**. There are three types:

  Field

    Use this type to set the value of one form field with the value of another field.

  Value

    Use this type to set the value of a form field with a value you enter.

  Formula

    This option appears only for numerical or date data types. It does not appear for fields that contain text. Use this type to set the value to the result of a simple calculation that may use

either a value in another form field or a value you enter.

Set business required

Use this type to change the requirement level for the field. The options are **Not Business Required** and **Business Required**. There is no option to set this to business recommended.

Set visibility

Use this type to change whether the field is displayed in the form. The options are **Show Field** and **Hide Field**.

Lock or unlock field

Use this type to change whether the field is enabled in the form. The options are **Lock** and **Unlock**. When the field is locked, people will not be able to edit the value in the field.

After you have defined an action, you can change the order or delete it by using the options available when you place your cursor over the action.

Set the description

Setting a description is optional. It isn't displayed anywhere else except in the business rule editor. But it is a good idea to include a description of what the rule is supposed to do and why it has been added.

Test and activate your business rules

Before anyone can use the business rules you have created, you must activate them. Before you activate them, you should test them. You can test business rules by using the **Preview** button in the form editor.

Limitations for business rules

Business rules are intended to address common actions. Compared to what a developer can do by using form scripts, business rules have limitations. However, business rules are not intended to replace form scripts.

Here are a few limitations to using business rules:

- Business rules run only when the form loads and when field values change. They do not run when a record is saved, unless the scope for the rule is set at an entity level.

- Business rules work only with fields. If you need to interact with other visible elements, such as tabs and sections, within the form you need use form scripts.

- When you set a field value by using a business rule, any OnChange event handlers for that field will not run. This is to reduce the potential for a circular reference, which could lead to an infinite loop.

- If a business rule references a field that is not present on a form, the rule will simply not run. There will be no error message.

- Whole Number fields that use the formats for TimeZone, Duration, or Language will not appear in the rule editor for the conditions or actions, so they cannot be used with business rules.

- You can't add more than ten **if-else** conditions in a business rule.

- For Microsoft Dynamics CRM for tablets, the definition of the business rules are downloaded and cached when CRM for tablets opens. Changes made to business rules are not applied until CRM for tablets is closed and re-opened.

- When you set the value of a lookup field, the text of the primary field value that is set in the form will always match the text that is visible in the rule definition. If the text representing the primary field value of the record you are setting in the lookup changes, the value set by your rule will continue to use the text portion of the primary field value defined by the rule. To fix this, update the rule definition to use the current primary name field value.

  It is useful to understand that the value set for a lookup has three parts:

  - **Name**: The text of the primary field value you see in the form.

  - **Id**: The unique identifier for the record. This is the data that is saved. This is not visible in the form.

  - **LogicalName**: The name of the entity, such as **contact**, **account**, or **opportunity**.

  The rule will set all three parts of this value. The **Id** value for a specific record never changes, but the **Name** value might change.

  For example, if you define a rule to set a lookup to a contact that has the **Full Name** of 'Old Name', this text is the **Name** you will see in the lookup when it is set by your business rule even if someone later changes the **Full Name** of the contact to 'New Name'. The lookup **Id** value will be correctly set to the expected record, but the **Name** (which is not saved) will reflect the rule definition value rather than the current **Full Name** value of the record it references.

Clear the actions from your rules

Except for showing error messages, you must be sure to include a separate business rule to clear any actions you may have applied. For example, let's say you have a rule on an Account entity that says:

If **Preferred Method of Contact** equals "**Phone**"
Set **Business Phone** as **Business Required**

This will work whenever the **Preferred Method of Contact** field is set to **Phone**. But if the **Preferred Method of Contact** field is later changed to something else, the **Phone** field will remain **Business Required**. In order to clear this action, you need to include a separate rule to apply the following logic:

If **Preferred Method of Contact** does not equal "**Phone**"
Set **Business Phone** as **Not Business Required**

The **Show error message** action is different because it automatically evaluates any conditions used to set the error message and will remove it if the conditions are no longer true.

Order in which logic is applied

The logic included in your business rules is applied together with other logic in the form that could include system scripts, custom scripts, and other business rules. The order in which this logic is applied will affect the outcome. The order is as follows:

1. Any system scripts are applied first.

2. Any logic in custom form scripts is applied.

3. Logic in business rules is applied.

    When there are multiple business rules, they are applied in the order they were activated, from oldest to newest.

4. The Entity scope business rules are executed on the server, after the synchronous plug-ins.

This means that to control the order in which business rules are applied, you must deactivate and reactivate the ones you want to be applied last.

Localize error messages used in business rules

If you have more than one language provisioned for your organization, you will want to localize any error messages that you have set. Each time you set a message, a label is generated by the system. If you export the translations in your organization, you can add localized versions of your messages and then import those labels back into Microsoft Dynamics CRM, so that people using languages other than your base language can view the translated messages.

See Also
Video: Microsoft Dynamics CRM Customization New Features - Business Rules
Create and edit processes
Create and design forms
Create and edit views
SDK: Create or edit how business rules are initiated

Create business rules based on business process flows

In previous versions of Microsoft Dynamics CRM, we provided a programmatic way for defining and executing the business rules based upon business process flows. This implementation required writing code in JavaScript.

 With Microsoft Dynamics CRM Online 2016 Update and Microsoft Dynamics CRM 2016 (on-premises), you can define business rules based on business processes without writing code, directly in the CRM user interface (UI).

You'll be able to define business rules in the user interface based on:

- Currently active business process that is rendered on a form in the UI.

- Active stage of the business process. An active stage is the stage that you're currently on.

- Selected stage of the business process. A stage that you select in the process flow. This stage may or may not be the active stage.

- Stage category of the business process. A category lets you group stages by a type of action. The options for the stage category come from the **Stage Category** global option set. You can add options to this global option set and change the labels of existing options if you want.

To learn more about business process flows, see: [Business process flows](#) and [Help & Training: Create a new business process](#).

A business rule is triggered by the business process events, such as when a process changes to a new active stage or a stage is selected. The execution of the business logic will cause the business process flow UI page to update. You'll be able to customize the UI to show or hide particular fields at different stages of the process flow or mark certain fields as business required.

When you create business rules based upon business process flows, consider the following information about a business rule execution.

- Conditions based on the business process flow in business rules with the entity scope are evaluated on the server for the following cases:

  - If the condition is based only on the process flow and not on stages.

  - If the condition is based on the process flow and the active stage.

  - If the condition is based on the stage category of the active stage.

- Conditions based on the business process flow with the entity scope aren't valid for the following cases:

  - If the condition is based on the process flow and the selected stage.

  - If the condition is based on the stage category of the selected stage.

- A business rule based on a business process flow is executed:

  - On change of the business process if the rule is based only on the process flow and not on stages.

  - On change of the business process or on change of the active stage if the selection for the Field column for stages is Active Stage.

  - On change of the process or on change of the selected stage if the selection for the **Field** column for stages is **Selected Stage**.

- A business rule defined on the stage category for the active stage is executed on change of the process or on change of the active stage in the process.

- A business rule defined on the stage category for the selected stage is executed on change of the process or on change of the selected stage in the process.

To define the business rules, you have to navigate to **Microsoft Dynamics CRM** > **Settings** > **Customization** > **Customize the System**. Under **Components**, expand the entity that you want to define the business rule for and click **Business Rules** in the navigation pane. To define a new rule, click **New**.

Example scenarios for business rules based on business process flows

The following examples depict business rules defined for the **Opportunity** entity. They represent several common scenarios based on the **Opportunity Sales Process** business process, process stages, and stage categories.

Business Process Rule

In this example, the rule is based on the **Opportunity Sales Process** and not tied to any particular stage. The **ACTION** specifies that the **Account** field must be shown on a form as a required field.

In the **IF…THEN CONDITION**, select **Business Process**, and then in the **Type** drop-down list, select **Value**. In the **Value**list, the **Opportunity Sales Process**is shown, which is the default value for the **Business Process** selection.

Business Process Rule

Business rule based on the business process.

◢ **IF…THEN**

   ◢ **CONDITION**

      If **Business Process** equals **"Opportunity Sales Process"**

      ➕ Add condition

   ◢ **ACTION**

      Show field **Account**

      Set **Account** as **Business Required**

      ➕ Add action

Active Stage Rule

In the next example, **Active Stage Rule**, for the **CONDITION**, in the **Type** drop-down list, select **Value With Stage**, and then in the **Value** list, select **Opportunity Sales Process**. You also set the **Active Stage** to **Propose**, as shown here.

For the **Propose** stage, specify the **Description** field as required. The field will show in the process flow UI with a label containing the asterisk character, like this, **Description***. In the **ELSE IF CONDITION**, specify the **Definition** field as optional, for the **Qualify** or **Develop** stages. To define the **Description** field as required, in the **ACTION**, you have to select the **Set business required** option, then select **Description** in the **Field** drop-down list, and then select **Business Required**in the **Status** list. In the **ELSE IF CONDITION**, select **Not Business Required**.

A complete example:

BUSINESS RULE: Opportunity

Active Stage Rule

Business rule based on the business process active stage.

◢ IF...THEN

  ◢ CONDITION

  If **Business Process** equals **"Opportunity Sales Process"** where **Active Stage** equals **"Propose"**

  ✚ Add condition

  ◢ ACTION

  Set **Description** as **Business Required**

  ✚ Add action

◢ ELSE IF

  ◢ CONDITION

  If **Business Process** equals **"Opportunity Sales Process"** where **Active Stage** equals **"Qualify, Develop"**

  ✚ Add condition

  ◢ ACTION

  Set **Description** as **Not Business Required**

  ✚ Add action

✚ Add Else

Selected Stage Rule

The **Selected Stage Rule** is similar to the previous example, only for the currently selected stage in the process flow UI.

BUSINESS RULE: Opportunity

Selected Stage Rule

Business rule based on the business process selected stage.

◢ **IF...THEN**

   ◢ **CONDITION**

      If **Business Process** equals **"Opportunity Sales Process"** where **Selected Stage** equals **"Propose"**

      ✛ Add condition

   ◢ **ACTION**

      Set **Confirm Interest** as **Business Required**

      ✛ Add action

◢ **ELSE IF**

   ◢ **CONDITION** (OPTIONAL)

      If **Business Process** equals **"Opportunity Sales Process"** where **Selected Stage** equals **"Qualify, Develop"**

      ✛ Add condition

   ◢ **ACTION**

      Set **Confirm Interest** as **Not Business Required**

      ✛ Add action

✛ Add Else

Rules based on stage category

The following examples show the business rules based on the stage category: active stage and selected stage. Instead of selecting **Business Process** in the **IF…THEN CONDITION**, you select **Stage Category (Active Stage)**, and then select a stage category. Also, make a **Description** a required field for the **Propose** stage category and not a required field for other categories, as shown here.

Stage Category (Active) Rule

Business rule based on the stage category (active).

◢ **IF...THEN**

    ◢ **CONDITION**

        If **Stage Category (Active Stage)** equals **"Propose"**

        +   Add condition

    ◢ **ACTION**

        Set **Description** as **Business Required**

        +   Add action

◢ **ELSE IF**

    ◢ **CONDITION** (OPTIONAL)

        If **Stage Category (Active Stage)** equals **"Qualify, Develop"**

        +   Add condition

    ◢ **ACTION**

        Set **Description** as **Not Business Required**

        +   Add action

Stage Category (Selected) Rule

Business rule based on the stage category (selected).

⊿ **IF...THEN**

    ⊿ **CONDITION**

        If **Stage Category (Selected Stage)** equals **"Propose"**

        ➕   Add condition

    ⊿ **ACTION**

        Set **Confirm Interest** as **Business Required**

        ➕   Add action

⊿ **ELSE IF**

    ⊿ **CONDITION** (OPTIONAL)

        If **Stage Category (Selected Stage)** equals **"Qualify, Develop"**

        ➕   Add condition

    ⊿ **ACTION**

        Set **Confirm Interest** as **Not Business Required**

        ➕   Add action

See Also
Create and edit business rules
Business process flows

Create and edit web resources

Applies To: CRM 2016 on-prem, CRM Online

Web resources are typically used by developers to extend the web application using files that are used in web development. As a Microsoft Dynamics CRM user you may need to manage web resources provided by a developer or designer.

In this topic

What are web resources?

Web resources are virtual files stored in the Microsoft Dynamics CRM database. Each web resource has a unique name that can be used in a URL to retrieve the file. Think of them this way: If you had access to the actual web server running the web application, you could copy files over to that website. But with Microsoft Dynamics CRM Online you can't do this. Even with Microsoft Dynamics CRM on-premises, you shouldn't do this. Instead, you can use web resources to upload files to the Microsoft Dynamics CRM database and then reference them by name just as though you had copied them as files to the web server.

For example, if you create an HTML page as a web resource named "new_myWebResource.htm", you could open that page in a browser using a URL like this:

`<Microsoft CRM URL>/WebResources/new_myWebResource.htm`

where *<Microsoft CRM URL>* is the URL you usually use to open Microsoft Dynamics CRM. Because the web resource is data in the system, only licensed users for your organization can access them this way. Normally, web resources are included in forms rather than referenced directly. The most common usage is to provide JavaScript libraries for form scripts.

☑ Note

You can't include a web resource in a form header or footer.

Because web resources are data in the system and are solution aware, you can move them to different organizations by exporting them as part of a solution and importing the solution into a different organization.

Web resources are limited to specific types of files. Web resources can only be files that would be loaded into a web browser. The following types of files can be used to create web resources:

Type	File name extension
Webpage (HTML)	.htm, .html
Style Sheet (CSS)	.css
Script (Jscript, JavaScript)	.js
Data (XML)	.xml
Image (PNG)	.png
Image (JPG)	.jpg

Type	File name extension
Image (GIF)	.gif
Silverlight (XAP)	.xap
StyleSheet (XSL)	.xsl, .xslt
Image (ICO)	.ico

Silverlight web resources are supported, but to support multiple browsers, HTML web resources are the recommended type of web resources to use if you are designing a user interface.

Create and edit web resources

1. Go to **Settings** > **Customizations**.
2. Choose **Customize the System**.
3. Under **Components**, choose **Web Resources**.
4. **To create a web resource**: Choose **New**.
   To edit a web resource: Double click the web resource you want to edit.
5. The web resource form has the following fields and capabilities:

Label	Description
Name	**Required**. This is the unique name for this web resource. You can't change this after you save the web resource.
	This name can only include letters, numbers, periods, and nonconsecutive forward slash ("/") characters.
	The solution publisher customization prefix will be prepended to the name of the web resource.
Display Name	The name displayed if you view a list of web resources.
Description	A description of the web resource.
Type	**Required**. This is the type of web resource. You can't change this after you save the web resource.
Text Editor	When the type of web resource represents a kind of text file, click this button to open a page to edit the content using the text editor.
Language	Allows for a selection of a language. This option just tags the record that stores the web resource data. It doesn't change the behavior of the web resource.
Upload File	Press the **Browse…** button to choose a file to upload as a web resource.
	You can upload a file when creating a new web resource or to overwrite an existing web resource.
	The file name extension of the file must match allowed extensions.
	By default the maximum size file that can be uploaded as a web resource is 5MB. This value can be modified using the **System Settings** > **Email** tab > **Set file size limit for attachments** setting. More information: Help & Training: System Settings dialog box - Email tab
URL	After you save the web resource, the URL to the web resource will be displayed here. Click this link to view the web resource in your browser.

6. After you have added your changes, choose **Save** and then **Publish**.

Use the text editor appropriately

The text editor provided in the application for web resources should only be used for simple edits of text files. You can use it to create and edit HTML web resources, but you should only edit HTML web resources that were created using the text editor. The text editor is designed for very simple HTML

content. If the content of an HTML web resource wasn't created using the text editor, don't use the text editor to edit it.

The text editor uses a control that modifies the HTML source in a way that allows it to be edited. These changes can make the page behave differently in the browser and cause more sophisticated code to stop working. Opening an HTML web resource with the text editor and saving it without making any changes can break some HTML web resources.

We recommend that you use an external editor to edit text files and then save them locally before uploading them with the **Upload File** button. This way you can preserve a copy of the web resource if you need to return to an earlier version. You can use a simple editor like Notepad, but a text editor with more advanced capabilities is highly recommended. Visual Studio Express editions are free and provide powerful capabilities for editing the files used by text-based web resources.

See Also

Customize your CRM system
MSDN: Web resources for Microsoft Dynamics CRM

Define alternate keys to reference CRM records

Applies To: CRM Online

With *alternate keys*, you can assure an efficient and accurate way of integrating data into Microsoft Dynamics CRM from external systems. It's especially important in cases when an external system doesn't store the CRM record IDs (GUIDs) that uniquely identify records. The alternate keys are not GUIDs and you can use them to uniquely identify the CRM records. You must give an alternate key a unique name. You can use one or more entity fields to define the key. For example, to identify an account record with an alternate key, you can use the account name and the account number. You can define alternate keys in the CRM web application without writing code, or you can define them programmatically. Note that while you can define the alternate keys in the user interface (UI), they can only be used programmatically, in code.

Some of the benefits of the alternate keys feature include:

- Faster lookup of the records.

- More robust bulk data operations, especially in CRM Online.

- Simplified programming with data imported from external systems without CRM record IDs.

To learn more about alternate keys programmability, see:
MSDN: Define alternate keys for an entity
MSDN: Use an alternate key to create a record

Define the alternate keys

To define the alternate keys, go to Go to **Settings** > **Customizations**.. Choose **Customize the System** > **Components** > **Entities** > **Entity <X>** > **Keys**. Choose **New**. On the form, fill in the required fields (**Display Name** and **Name**) and then choose and add the fields to the key. Save the key. In the example shown here, we used the Account Number field in the alternate key definition.
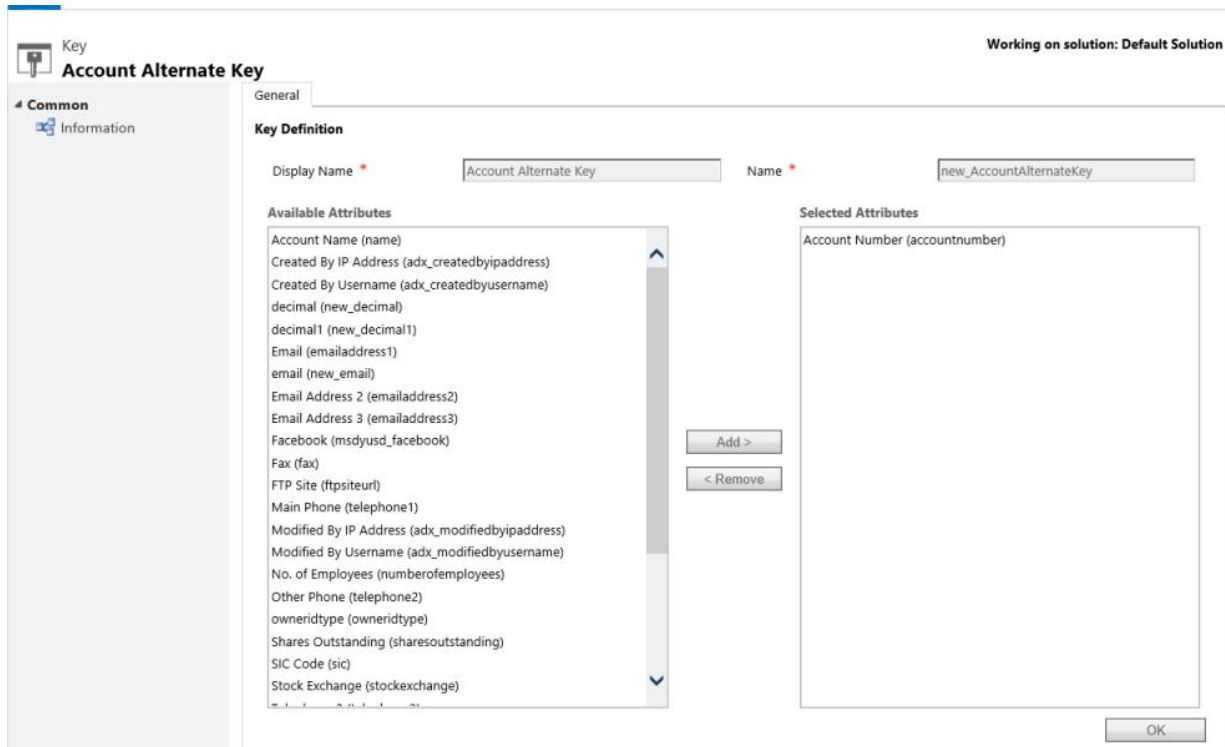
Note

You can define up to five different keys for an entity.

See Also

Query and visualize hierarchical data

Applies To: CRM 2016 on-prem, CRM Online

You can get valuable business insights by visualizing hierarchically related data. The Microsoft Dynamics CRM hierarchical modelling and visualization capabilities give you a number of benefits:

- View and explore complex hierarchical information.

- View key performance indicators (KPIs) in the contextual view of a hierarchy.

- Visually analyze key information across the web and the tablets.

For some entities, such as account and user, the visualizations are provided out-of-the-box. Other entities, including custom entities, can be enabled for a hierarchy and you can create the visualizations for them. Based on your needs, you can choose between using a tree view, which shows the entire hierarchy, or a tile view, which depicts a smaller portion of the hierarchy. Both views are shown side by side. You can explore a hierarchy by expanding and contracting a hierarchy tree. The same hierarchical settings for visualization are set once, but apply to both Microsoft Dynamics CRM and Microsoft Dynamics CRM for tablets. In tablets, the visuals render in a modified format suitable for the smaller form factor. The customizable components required for hierarchical visualization are solution aware, therefore, they can be transported between organizations like any other customization. You can configure the attributes shown in the visualization by customizing a Quick Form using the form editor. There is no requirement to write code.

In This Topic

Query hierarchical data
Visualize hierarchical data

Query hierarchical data

In Microsoft Dynamics CRM, hierarchical data structures are supported by self-referential one-to-many (1:N) relationships of the related records. In the past, to view hierarchical data, you had to iteratively query for the related records. Presently, you can query the related data as a hierarchy, in one step. You'll be able to query records using the **Under** and **Not Under** logic. The **Under** and **Not Under** hierarchical operators are exposed in Advanced Find and the workflow editor. For more information about how to use these operators, see Configure workflow steps. For more information about Advanced Find, see Help & Training: Create, edit, or save an Advanced Find search

The following examples illustrate various scenarios for querying hierarchies:

Query account hierarchy

Query account hierarchy, including related activities
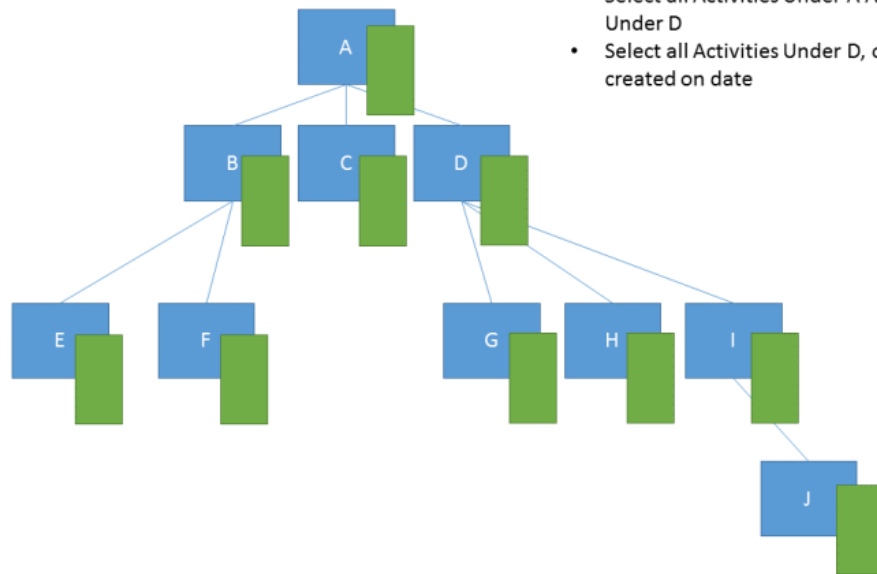
Query account hierarchy, including related opportunities

Query	Result
Select all Accounts under A	{B,C,D,E,F,G,H,I,J}
Select all Accounts under A AND not under D	{B,C,D,E,F,}
Select all Opportunities where account under A	{8,9,10.... 30}
Select all Opportunities where account under D OR Opportunity under "15"	{23,24,25,26,27,28,29,30, 16,17,18}
Select all Opportunities where Account under A AND Account Not Under D	{8,9,10,11,12.....,22}
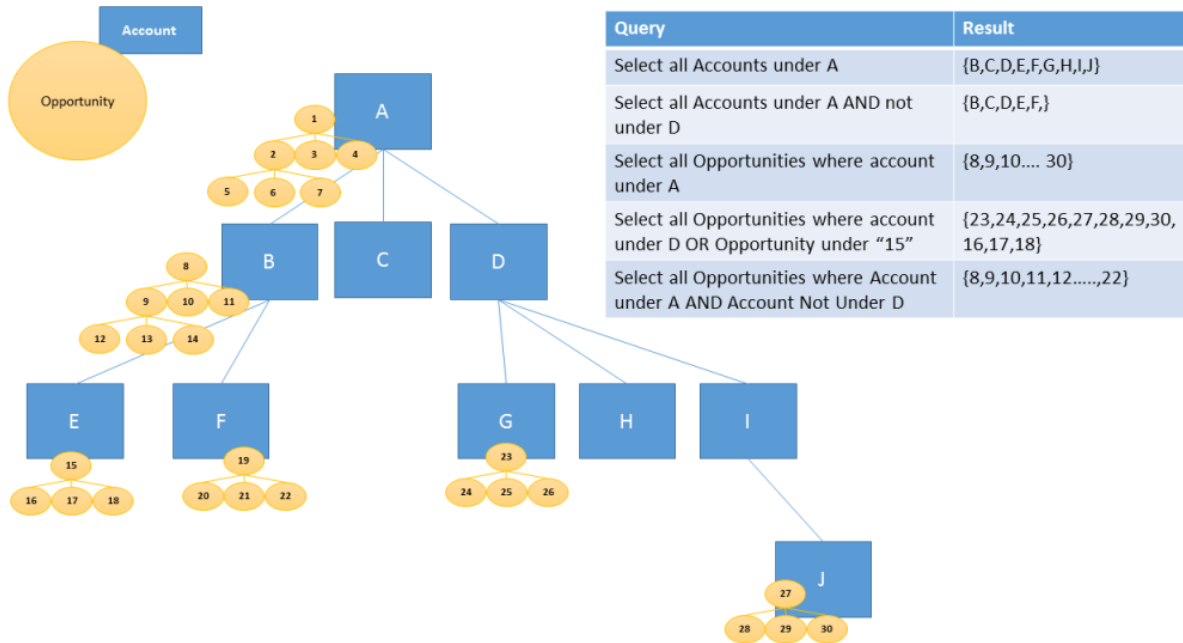
To query the data as a hierarchy, you must set one of the entity's one-to-many (1:N) self-referential relationships as hierarchical. To turn the hierarchy on:

1. Go to **Settings** > **Customizations**.

2. Choose **Customize your system** > **Components**.

3. Choose **Entity** > **1:N Relationships**, then choose a (1:N) relationship and in the **Relationship definition**, set **Hierarchical** to **Yes**.

 Note

- Some of the out-of the-box (1:N) relationships can't be customized. This will prevent you from setting those relationships as hierarchical.

- You can specify a hierarchical relationship for the system self-referential relationships. This includes the 1:N self-referential relationships of system type, such as the "contact_master_contact" relationship.

Visualize hierarchical data

The system entities that have visualizations available out-of-the-box include **Account**, **Position**, **Product**, and **User**. In the grid view of these entities, you can see the icon depicting the hierarchy chart, to the left of the record name. The hierarchy icon isn't present for all records by default. The icon is shown for the records that have a parent record, a child record, or both.

Microsoft Dynamics CRM ˅ 🏠 | **SALES** ˅ Accounts ˅

ⓘ **CRM for Outlook** See how CRM for Outlook makes you even more productive. Get CRM for Outlo

➕ NEW 🗑 DELETE | ˅ 📄 COPY A LINK | ˅ 🔗 EMAIL A LINK | ˅ ▶ RUN REPORT

📌 Active Accounts ˅

✓	Account Name ↑	Owner
	A. Datum Corporation (sample)	ceo ceo
	Adventure Works (sample)	sales vp
	Alpine Ski House (sample)	sales vp
	Blue Yonder Airlines (sample)	sales vp
	City Power & Light (sample)	sales manager
	Coho Winery (sample)	sales manager
	Contoso Pharmaceuticals (sample)	sales manager
	Fabrikam, Inc. (sample)	sales person
	Fourth Coffee (sample)	sales person
	Litware, Inc. (sample)	sales person

If you select the hierarchy icon, you can view the hierarchy, with the tree view on the left and the tile view on the right, as shown below:

560
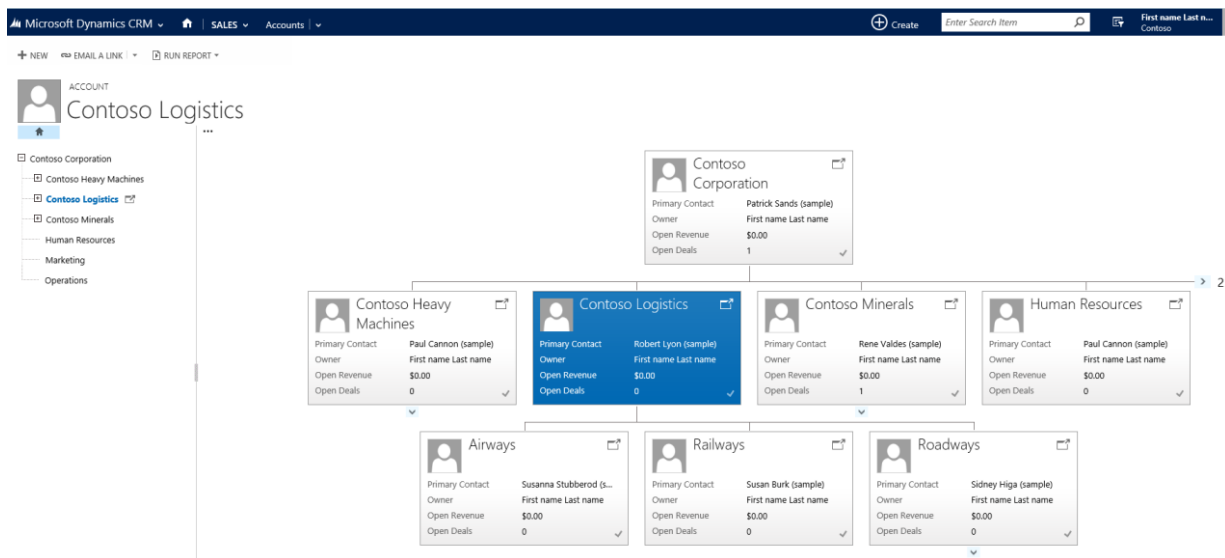
A few other out-of the-box system entities can be enabled for a hierarchy. These entities include **Case**, **Contact**, **Opportunity**, **Order**, **Quote**, **Campaign**, and **Team**. All custom entities can be enabled for a hierarchy.

Tip

If an entity can be enabled for a hierarchy:

1. Go to **Settings** > **Customizations**.
2. Choose **Customize your system** > **Components** > **Entity**. You will see the selection called **Hierarchy Settings**. The entities that can't be enabled for a hierarchy don't have this selection, with the exception of the Sales Territory entity. Although **Hierarchy Settings** appears for the Sales Territory entity, the entity can't be enabled for a hierarchy.

Important things to remember when you create visualizations:

- Only one (1: N) self-referential relationship per entity can be set as hierarchical. In this relationship the primary entity and the related entity must be of the same type, such as account_parent_account or new_new_widget_new_widget.

- Presently, a hierarchy or visualization is based on one entity only. You can depict the account hierarchy showing accounts at multiple levels, but you can't show accounts and contacts in the same hierarchy visualization.

- Maximum number of fields that can be displayed in a tile is four. If you add more fields to the Quick Form that is used for the tile view, only the first four fields will be displayed.

Visualization example

Let's look at an example of creating the visualization for a custom entity. We created a custom entity called new_Widget, created a (1:N) self-referential relationship **new_new_widget_new_widget** and marked it as hierarchical, as shown here.

Next, in the **Hierarchy Settings** grid view, we selected the **new_new_widget_new_widget** hierarchical relationship. In the form, we filled in the required fields. If you haven't yet marked the (1:N) relationship as hierarchical, the link on the form will take you back to the relationship definition form, where you can mark the relationship as hierarchical.
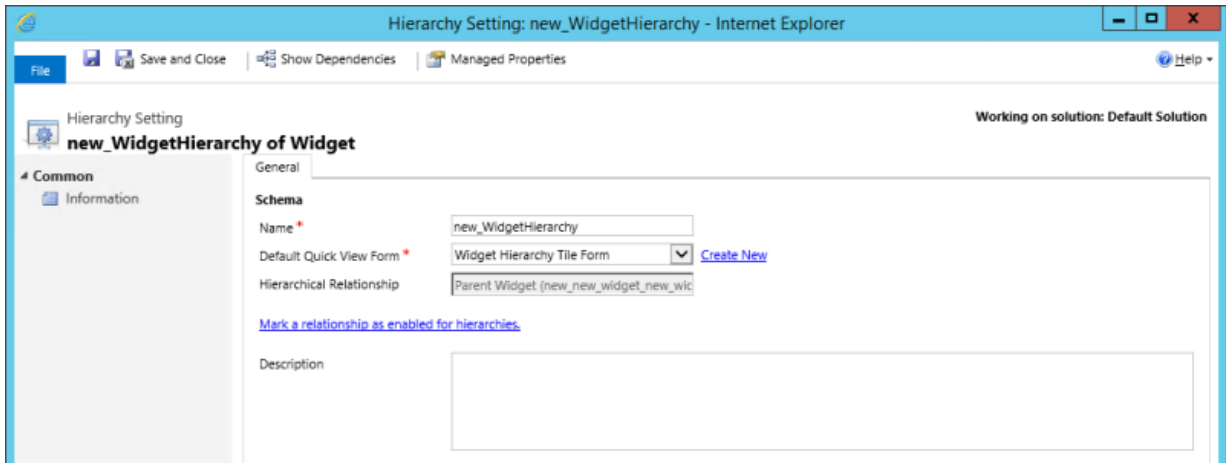
For the **Quick View Form**, we created a Quick Form called **Widget Hierarchy Tile Form**. In this form, we added four fields to display in each tile.
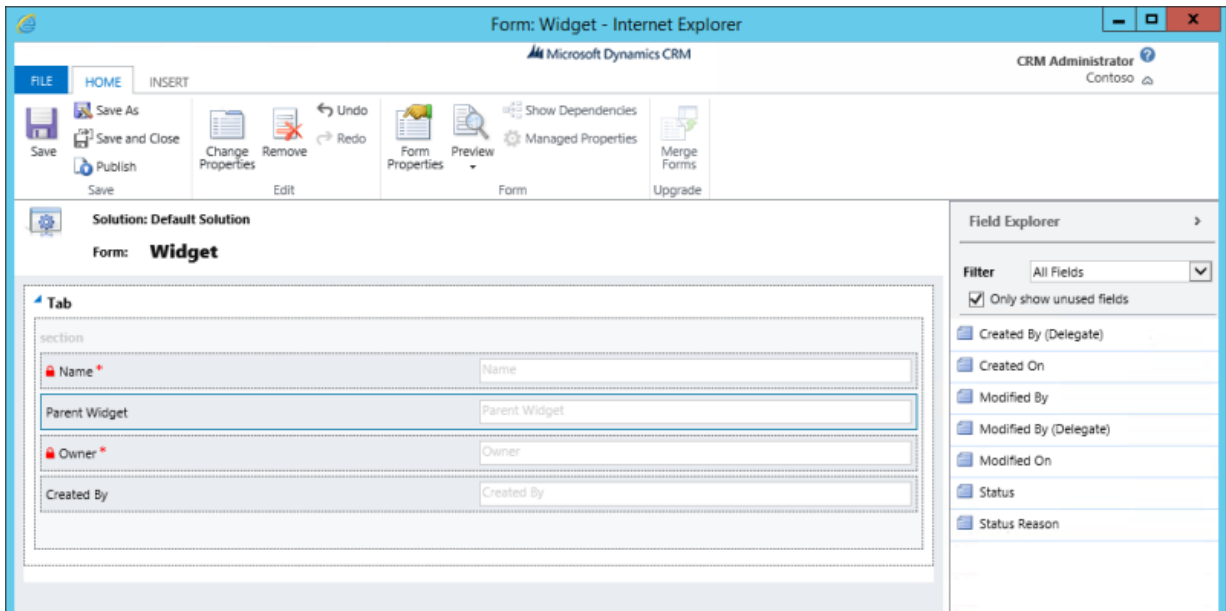
After we completed the setup, we created two records: Standard Widget and Premium Widget. After making the Premium Widget a parent of the Standard Widget by using the lookup field, the new_Widget grid view depicted the hierarchy icons, as shown below:

Tip

The hierarchy icons don't appear in the record grid view until the records are paired in the parent – child relationship.

Choosing the hierarchy icon displays the new_Widget hierarchy with the tree view on the left and the tile view on the right, showing two records. Each tile contains four fields that we provided in the **Widget Hierarchy Tile Form**.

See Also

Customize the Help experience

Applies To: CRM 2016 on-prem, CRM Online

Microsoft Dynamics CRM has a knowledge base application built in for online help. This help is hosted on CRM Help & Training, a central location where users can find articles, videos, eBooks, best practices, and tips regarding topical issues.

In addition to the built-in help, Microsoft Dynamics CRM offers customizable help and tooltips to provide contextual information to users filling in forms. You can replace default Help with the custom Help of your choice, at the global (organization) level or entity level. Custom Help makes the content exposed through the Help links more relevant to the user's day-to-day activities. With a single, global URL you can override the out-of-the-box Help links for all customizable entities. Per entity URLs override the out-of-the-box Help links on grids and forms for a specific customizable entity. You can include additional parameters in the URL, such as language code and entity name. These parameters allow a developer to add functionality to redirect the user to a page that's relevant to their language or the entity context within the application. The entity level custom Help settings are solution aware, therefore you can package them as a part of the solution and transport them between organizations or distribute them in solutions. Custom tooltips provide the ability to set the text that appears as a tooltip when the field is displayed in a form. Tooltips are also solution aware. For more information about tooltips, view: Video: Microsoft Dynamics CRM Customizable Tool Tips

 Note

Customizable Help is not available in Microsoft Dynamics CRM for tablets.

Example of a custom URL at a global level

You have a dynamic Help server to serve the Help content for the custom entities. Your solution almost entirely consists of the custom entities. You can specify the . aspx page that points to the Help server and pass the parameters in the URL. You can program the Help server to display the correct Help page based on the parameters passed.

Example of a custom URL at an entity level

You have a static set of Help webpages for the custom entities and customized out-of-the box (OOB) system entities. For example, you have added only two or three custom entities and heavily customized the opportunity entity. The rest of the OOB system entities remained unchanged. In this case, you can override the Help content for the custom entities and the **Opportunity** entity and use the default Help for the rest of the entities in your system.
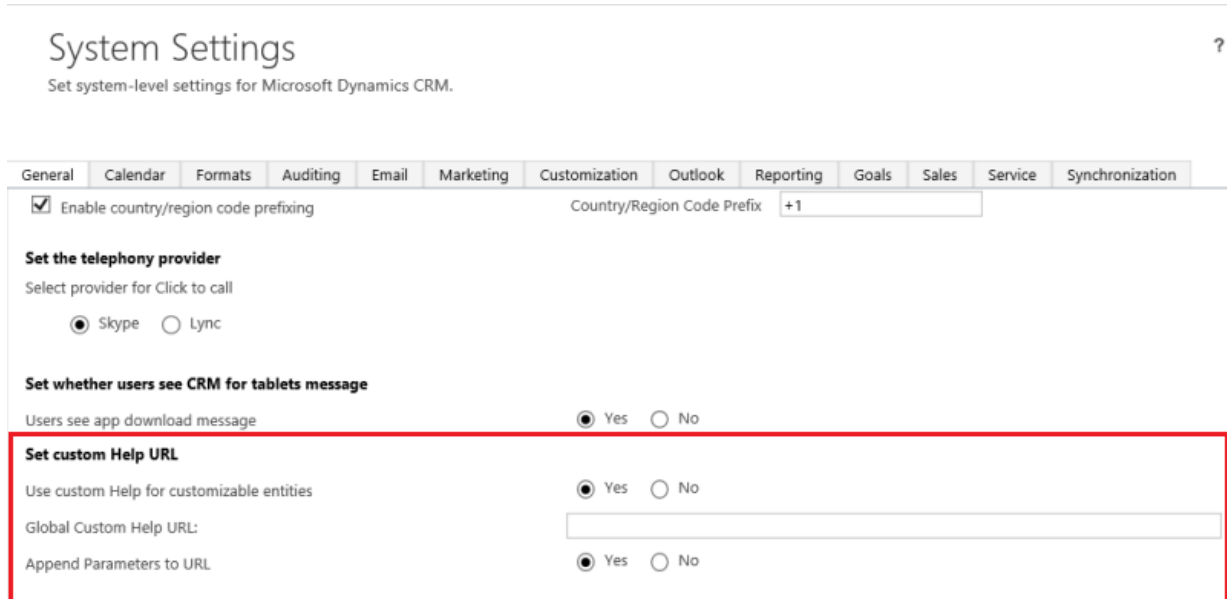
Where to find help when you design your custom Help

When you build your own custom Help, check out the [Training & Adoption Kit for Microsoft Dynamics CRM](#). It contains a lot of ready-made material that you can use straight from the kit, or customize it. The Training & Adoption Kit includes eBooks for end users and administrators, user guides and quick references. 📹 [Watch a short video on how to customize the training material in the training and adoption kit](#).

Set up customizable Help

As an administrator, you can use the settings to override default Help at the global level.

- Go to **Settings** > **Administration**.

- Click the **System settings** > **General** tab, as shown here.

System Settings

Set system-level settings for Microsoft Dynamics CRM.

| General | Calendar | Formats | Auditing | Email | Marketing | Customization | Outlook | Reporting | Goals | Sales | Service | Synchronization |

☑ Enable country/region code prefixing   Country/Region Code Prefix +1

Set the telephony provider
Select provider for Click to call
   ⦿ Skype   ◯ Lync

Set whether users see CRM for tablets message
Users see app download message   ⦿ Yes   ◯ No

Set custom Help URL
Use custom Help for customizable entities   ⦿ Yes   ◯ No
Global Custom Help URL:
Append Parameters to URL   ⦿ Yes   ◯ No

To override the default Help for an entity, use the settings in **Microsoft Dynamics CRM**.

- Go to **Settings** > **Customizations**.

- Click the **Customize the system** > **Components** > **Entity** > **General** tab. You must first enable custom Help at the global level.

To append the parameters to a URL, set **Append Parameters to URL** in the **System settings** > **General** tab to **Yes**. Specify the parameters that will be attached to the URL:

- User Language Code: userlcid

- Entity Name: entity

- Entry Point: hierarchy chart or form

- Form Id: formid

See Also

Customize your CRM system
Administering CRM 2016
Community blog: CRM 2015 – Custom Help Content
MSDN: Custom help options
MSDN: Use web resources to provide help content

Customize CRM for phones and tablets

Applies To: CRM 2016 on-prem, CRM Online

With Microsoft Dynamics CRM, you can design once and deploy everywhere. Customizations you make to your CRM system appear in the CRM for phones and tablets apps as well as in the web app. Your changes are optimized in the mobile apps so they display properly. Choose one of the following or scroll down to see the types of changes you can make, and how they might display differently in the mobile apps than the web app.

The latest version of the phone app, Microsoft Dynamics CRM for phones, provides the same full-featured experience as the CRM for tablets app. It has the same intuitive user interface (adapted for phones), as well as offline capabilities.

The previous version of the phone app has a new name: Microsoft Dynamics CRM for phones express. For information about customizing the previous version of the app, see Create and edit mobile forms for CRM for phones express.

After you've made customizations to a form, users will see a prompt to download updates the next time they open their mobile app.

In this topic

Home page for CRM for phones and tablets

Form customizations for CRM for phones and tablets

Entities displayed in CRM for phones and tablets

Change navigation options for CRM for phones and tablets

Change commands for CRM for phones and tablets

Form script differences for CRM for phones and tablets

Publishing customizations for CRM for phones and tablets

Business rules in CRM for phones and tablets

Home page for CRM for phones and tablets

When users first open CRM for phones and tablets, they'll see the home page, which defaults to the **Sales Dashboard**. You can create new dashboards or edit existing ones in the web app and enable them for mobile, and users can choose a different Home dashboard. For more information about creating or changing dashboards, see Create a dashboard or Manage dashboard components on the CRM Help & Training site.

Form customizations for CRM for phones and tablets

CRM for phones and CRM for tablets use the forms as the web app. The way the form displays in the app is optimized for the mobile experience. The following diagrams show the reflow from the web app to the tablet and phone apps:

Web app
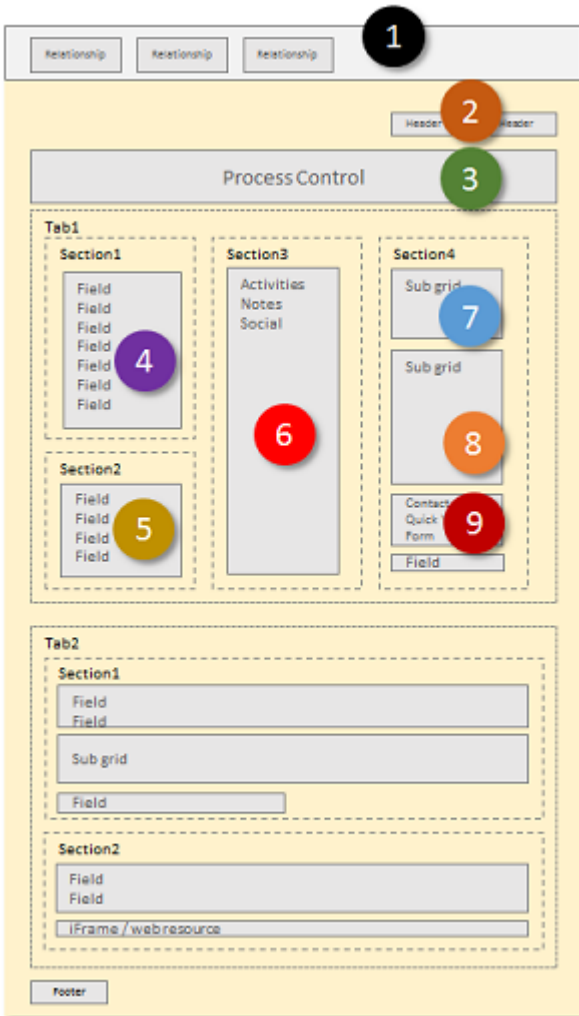
Tablet app
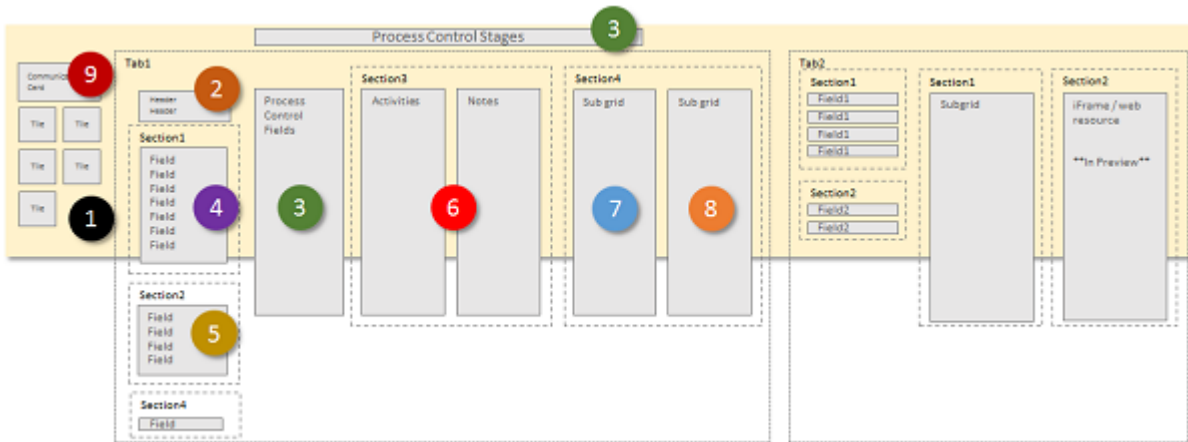
Phone app
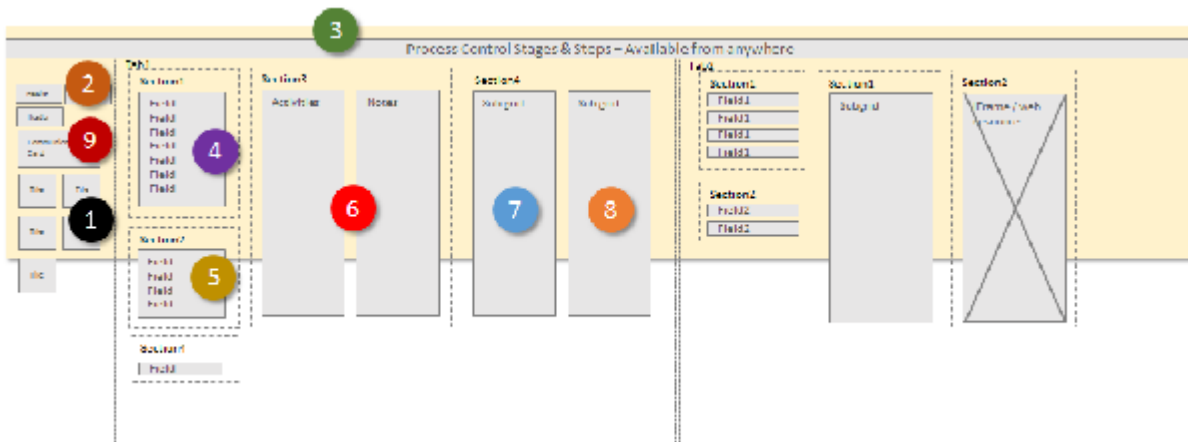
CRM for phones and tablets does not provide the capability to switch between forms. If you have more than one main form for an entity, the one displayed depends on the form order set and which security roles are assigned to the form. More information: Multiple forms

While customizing a form, you can hide the following from the CRM for phones experience:

1. Fields

2. Sections

3. Entire tabs

That way, if you think phone users need to focus only on the primary information for a contact, for example, you can hide the contact details from the phone app while you're customizing the form.

Hide details from the CRM for phones display

1. While customizing a form in the form editor, select the field, section, or tab you want to hide. For tips on using the form editor, see Use the form editor.

2. Click **Change Properties**.

3. Clear **Available on phone** and click **OK**.

Entities displayed in CRM for phones and tablets

You can enable a limited set of entities for CRM for phones and CRM for tablets. To see if an entity is enabled or to enable an entity, click **Settings** > **Customizations** > **Customize the System** > **Entities**. Select an entity and review the **Outlook & Mobile** settings.

Note the following:

- All custom entities can be enabled for CRM for phones and CRM for tablets.

- You can use the Lookup for entities that are not enabled for CRM for phones and CRM for tablets from a record that is enabled and see the data. However, the entity will not be editable.

Entities that are visible and read-write in CRM for phones and CRM for tablets

Entity Name	CRM for phones and CRM for tablets Visibility Property	CRM for phones and CRM for tablets Read-only Property
Account	Modifiable	Modifiable
Activity	Not modifiable	Not modifiable
Appointment	Modifiable	Modifiable
Case	Modifiable	Modifiable
Competitor	Modifiable	Modifiable
Connection	Not modifiable	Modifiable
Contact	Modifiable	Modifiable
Lead	Modifiable	Modifiable
Note	Not modifiable	Not modifiable
Opportunity	Modifiable	Modifiable
Opportunity Product	Modifiable	Modifiable
Phone Call	Modifiable	Modifiable
Queue Item	Modifiable	Modifiable
Social Activity	Modifiable	Modifiable
Social Profile	Modifiable	Modifiable
Task	Modifiable	Modifiable

Entities that are visible and read-only in CRM for phones and CRM for tablets

Entity Name	CRM for phones and CRM for tablets Visibility Property	CRM for phones and CRM for tablets Read-only Property
Attachment	Not modifiable	Not modifiable

Entity Name	CRM for phones and CRM for tablets Visibility Property	CRM for phones and CRM for tablets Read-only Property
Email	Modifiable	Not modifiable
Entitlement	Not modifiable	Not modifiable
Knowledge Base Record	Modifiable	Not modifiable
Product	Modifiable	Not modifiable
Queue	Modifiable	Not modifiable
SLA KPI Instance	Not modifiable	Modifiable
Team	Not modifiable	Not modifiable
User	Not modifiable	Not modifiable
Web Resource	Not modifiable	Not modifiable

Change navigation options for CRM for phones and tablets

CRM for phones and tablets uses the same sitemap data to provide navigation options as the web application except that it is optimized for presentation in the mobile apps.

If an entity that appears in the navigation bar for the web application is enabled for CRM for phones and tablets, it will also appear on the navigation bar in the mobile apps.

A grouping within an Area on the web client is ignored in the mobile apps, which show entities as a flat list. You can add an entity to multiple groups on the web client. The mobile apps will display a flattened list and will not show any repeats. Users won't see an entity unless they have read access to that entity.

The order of the items in the nav bar is determined by the order in the site map. If there is a duplicate, only the first instance will show.

Custom entities use a fixed custom entity icon.
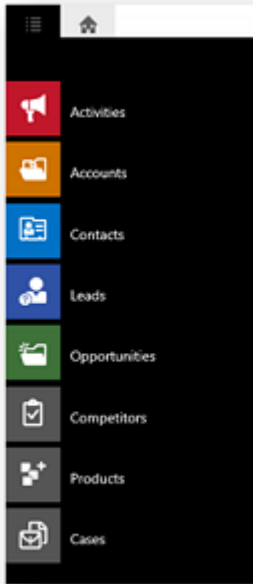
See [Change application navigation using the SiteMap](#) for more information.

Change commands for CRM for phones and tablets

CRM for phones and tablets uses the same ribbon definitions to provide commands as the web application except that it is optimized for presentation in the mobile apps. You can set the ribbon definitions to display based on the type of client. For example, you can set commands so they appear in the web app but not the phone or tablet apps. Some default commands are set to appear only in the web app, which is why you won't see them in the mobile apps.
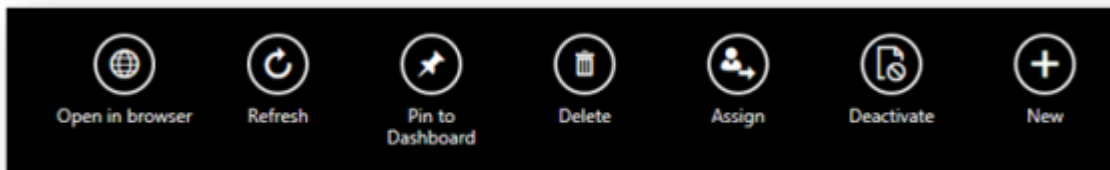
 Note

Icons configured for commands aren't displayed, and labels that are too long are truncated.

More information:[Customize commands and the ribbon](#)

Form script differences for CRM for phones and tablets

Scripts written for forms used in the web application should also work with CRM for phones and tablets, but there are some differences. As a rule, methods that aren't valid within for the mobile apps don't return errors, but they also don't return any values. Developers can use the following conditional statement to separate code that won't work correctly in the mobile apps:

```
if (Xrm.Page.context.client.getClient() != "Mobile")

{

    // Add code that should not run in CRM for phones and tablets here


}
```

You can also use the getFormFactor API to set whether code will work on just phones or just tablets, with a statement like this:

```
if (Xrm.Page.context.client.getClient() == "Mobile" && Xrm.Page.context.client.getFormFactor()

== 3)

{

// Add code that should only run in CRM for phones here

}
```

The following list shows what to expect with scripts in the mobile apps. For specific details, see the developer documentation in the MSDN: Client-side programming reference.

- Using window.alert, window.confirm, window.prompt or any other code that blocks code execution while waiting for a user's response won't work as expected or will display an error. You shouldn't use these methods in scripts for the mobile apps.

- Because tabs displayed in CRM for phones and tablets can't expand or collapse, code that tries to expand or collapse them won't work, and code configured for event handlers using these events won't execute.

- Web resource or iFrame elements in your dashboards won't display in the mobile apps. Methods that interact with them won't work, and code configured for event handlers using these for the events called when these items load won't run. If you're interested in trying out a preview feature that does display web resource or iFrame elements in CRM for tablets, see Preview feature: iFrame and web resource support in CRM for tablets.

- Because CRM for phones and tablets doesn't provide the ability for a user to switch to different forms, methods that enable this in the web application won't work.

- Any methods for showing or navigating to related entities in the web application won't work.

- Methods that would refresh the command bar, get dimensions of the view port, or close a form window won't work.

Publishing customizations for CRM for phones and tablets

When you customize CRM for phones and tablets, you should always explicitly publish your customizations to make sure they synchronize with the mobile apps.

Business rules in CRM for phones and tablets

Business rule definitions are downloaded and cached when CRM for phones and tablets opens. Changes made to business rules aren't applied until the user closes and re-opens the mobile app.

See Also

Video: Extend Dynamics CRM to your Smart Phone with CRM Online Update 1 (2:34)
Create and edit metadata
Create and design forms
Create and edit views
Create and edit processes
Create and edit business rules

Manage configuration data

Applies To: CRM 2016 on-prem, CRM Online

The Configuration Migration tool enables you to move configuration data across Microsoft Dynamics CRM instances and organizations. Configuration data is used to define custom functionality in CRM, and is typically stored in custom entities. Configuration data is different from end user data (account, contacts, and so on). A typical example of configuration data is what you define in Unified Service Desk for Microsoft Dynamics CRM to configure a customized call center agent application. The Unified Service Desk entities, along with the configuration data that is stored in the entities, define an agent application. For more information about Unified Service Desk, see Administration Guide for Unified Service Desk for Microsoft Dynamics CRM.

The Configuration Migration tool enables you to:

- Select the entities and fields from where you want to export the configuration data.

- Avoid duplicate records on the target system by defining a uniqueness condition for each entity based on a combination of fields in the entity, which is used to compare against the values on the target system. If there are no matching values, a unique record is created on the target system. If a matching record is found, the record is updated on the target system.

 Note

If no duplicate detection (uniqueness) condition is specified for an entity that is being exported, the tool uses the primary field name of the entity to compare against the existing data on the target system.

- Disable plug-ins before exporting data and then re-enable them on the target system after the import is complete for all the entities or selected entities.
- Validate the schema for the selected entities to be exported to ensure that all the required data/information is present.
- Reuse an existing schema to export data from a source system.
- Embed the exported modules created from this tool (schema and data files) in other programs. For example, you can use the exported data in Microsoft Dynamics CRM Package Deployer along with other solutions files and data to create and deploy packages on a CRM instance. More information: Deploy packages using CRM Package Deployer and Windows PowerShell

🔷 **Important**

The Configuration Migration tool does not support filtering of records in an entity. By default, all the records in the selected entity will be exported.

In This Topic

How does the Configuration Migration tool work?
Troubleshoot configuration data migration issues using log files
Best practices for migrating your configuration data by using the tool

How does the Configuration Migration tool work?

The following diagram illustrates how the Configuration Migration tool is used for migrating configuration data.
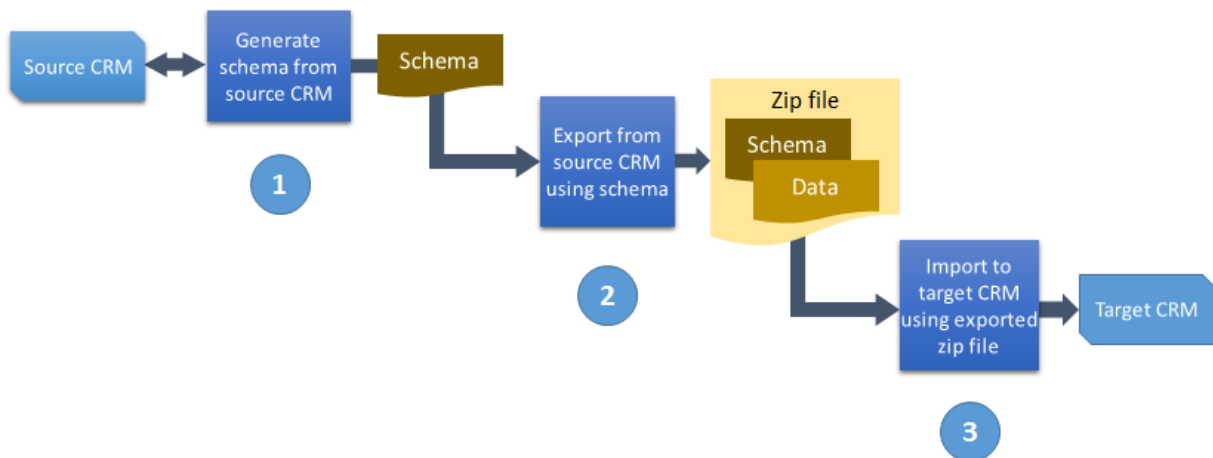
1 **Define the schema of the source data to be exported**: The schema file (.xml) contains information about the data that you want to export such as the entities, attributes, relationships,

definition of uniqueness of the data, and whether the plug-ins should be disabled before exporting the data. More information: [Create a schema to export configuration data](#)

② **Use the schema to export data**: Use the schema file to export the data into a .zip file that contains the data and the schema of the exported data. More information: [Create a schema to export configuration data](#)

③ **Import the exported data**: Use the exported data (.zip file) to import into the target CRM instance. The data import is done in multiple passes to first import the foundation data while queuing up the dependent data, and then import the dependent data in the subsequent passes to handle any data dependencies or linkages. This ensures clean data import. More information: [Import configuration data](#)

Troubleshoot configuration data migration issues using log files

The Configuration Migration tool provides logging support to get detailed information about errors that can occur while signing in to the CRM instance using the tool, activities performed by the tool during the schema definition and export/import of the configuration data, and information about the data that was imported using the tool. There are three log files generated by the tool that are available at the following location on the computer where you run the tool:
c:\Users\<*UserName*>\AppData\Roaming\Microsoft\DataMigrationUtility\<*Version*>.

- **Login_ErrorLog.log**: Provides information about the issues that occurred when you use the tool to sign in to the CRM instance. If there are any issues during sign in, a message appears on the tool's login screen with a link to this log file. The message states that an error occurred while processing the login request and the user can view the error log. You can click the link in the message to view this log file. The log file is created the first time you encounter any sign-in issues in the tool. Thereafter, the log file is used to log information about a sign-in issue, whenever it occurs.

- **DataMigrationUtility.log**: Provides detailed information about each task performed in the tool during last run. You can view the log file from the tool by clicking the **Logs** menu on the main screen, and clicking **Running Log**.

- **ImportDataDetail.log**: Provides detailed information about the data imported in the last import job by using the tool. Each time you run an import job using this tool, the existing details from the log file are moved to a file called ImportDataDetail._old.log in the same directory, and the ImportDataDetail.log file displays information about the latest import job run using the tool. You can view this log file from the tool by clicking the **Logs** menu on the main screen, and then clicking **Last Import Log**.

Best practices for migrating your configuration data by using the tool

The following are things you should consider while using this tool to migrate your configuration data:

- While creating the export data schema, you must define uniqueness rules appropriately for each entity to avoid any unintentional data updates on the target system.

- Import the exported data in a pre-production environment (preferably a mirror image of the production environment) to ensure that the data import results are as you intended.

- Back up your production environment before importing the data.

See Also

Create a schema to export configuration data
Modify a configuration data schema
Import configuration data
Migrate your Unified Service Desk configuration to another CRM server
Administering CRM 2016
Manage product catalog configuration

Create a schema to export configuration data

Applies To: CRM 2016 on-prem, CRM Online

The Configuration Migration tool lets you build a schema to describe your export data. It also enables you to check for any missing dependencies and relationships in the entities or fields to be exported to avoid an inconsistent data set.

In This Topic

Before you begin
Create a schema and export configuration data
Reuse an existing schema to export configuration data

Before you begin

Download the Microsoft Dynamics CRM SDK package. Extract the contents of the package on your computer. The Configuration Migration tool is available under the SDK\Tools\ConfgurationMigration folder in the extracted CRM SDK package. You do not need to install the Configuration Migration tool. Run the tool by double-clicking the **DataMigrationUtility.exe** file in the SDK\Tools\ConfgurationMigration folder.

Create a schema and export configuration data

1. Start the Configuration Migration tool.

2. On the main screen, click **Create schema**, and click **Continue**.

3. On the **Login** screen, provide authentication details to connect to yourCRM instance from where you want to export data. If you have multiple organizations on the CRM server, and want to select the organization from where to export the data, select the **Always display list of available orgs** check box. Click **Login**.

4. If you have multiple organizations, and you selected the **Always display list of available orgs** check box, the next screen lets you choose the organization that you want to connect to. Select a CRM organization to connect to.

5. From the **Select the solution** list, select a solution from where you want to export the data:

6. In the selected solution, you can select the entities and fields to be exported or export all the entities within the solution.

    a. To select the entities and fields to be exported, from the **Select Entity** list, select the entity for which you want to export the data. The **Fields for the entity** list displays all the fields of the selected entity.

        i. To add selected fields of the entity, click **Add Fields**.

        ii. To add the entity itself and all the fields, click **Add Entity**.

    b. To export all the entities, click **Add All** next to the **Select Entity** list.
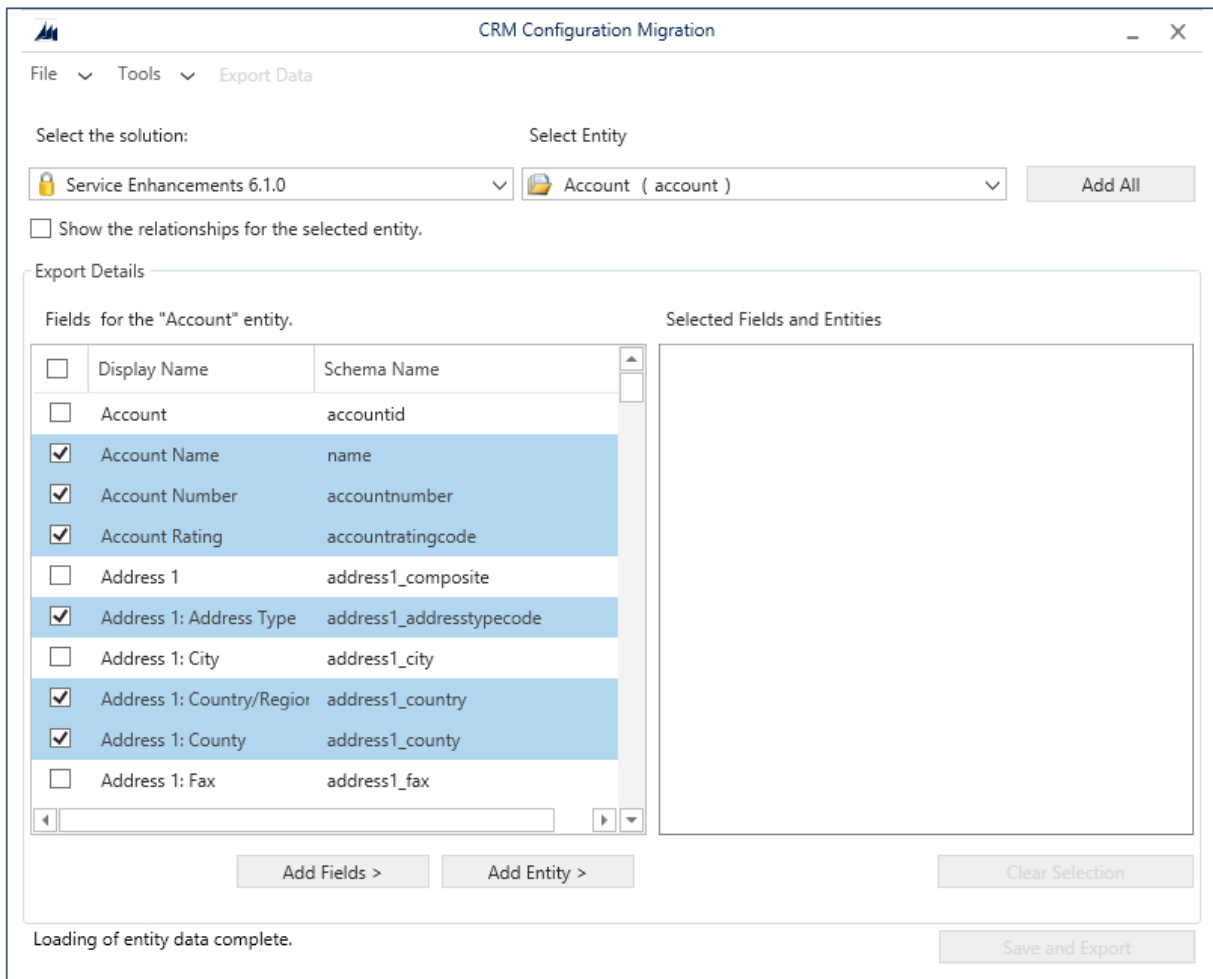
7. You can select the **Show the relationships of the selected entity** to view the related entities for the selected entity so that you can export them as well.

8. The selected entities are displayed in the **Selected Fields and Entities** box.

   - If you want to remove an entity, field, or relationship, click to select it, right-click, and then select the remove option.

   - If you want to remove all the items in the **Selected Fields and Entities** and start over, click **Clear Selection**.
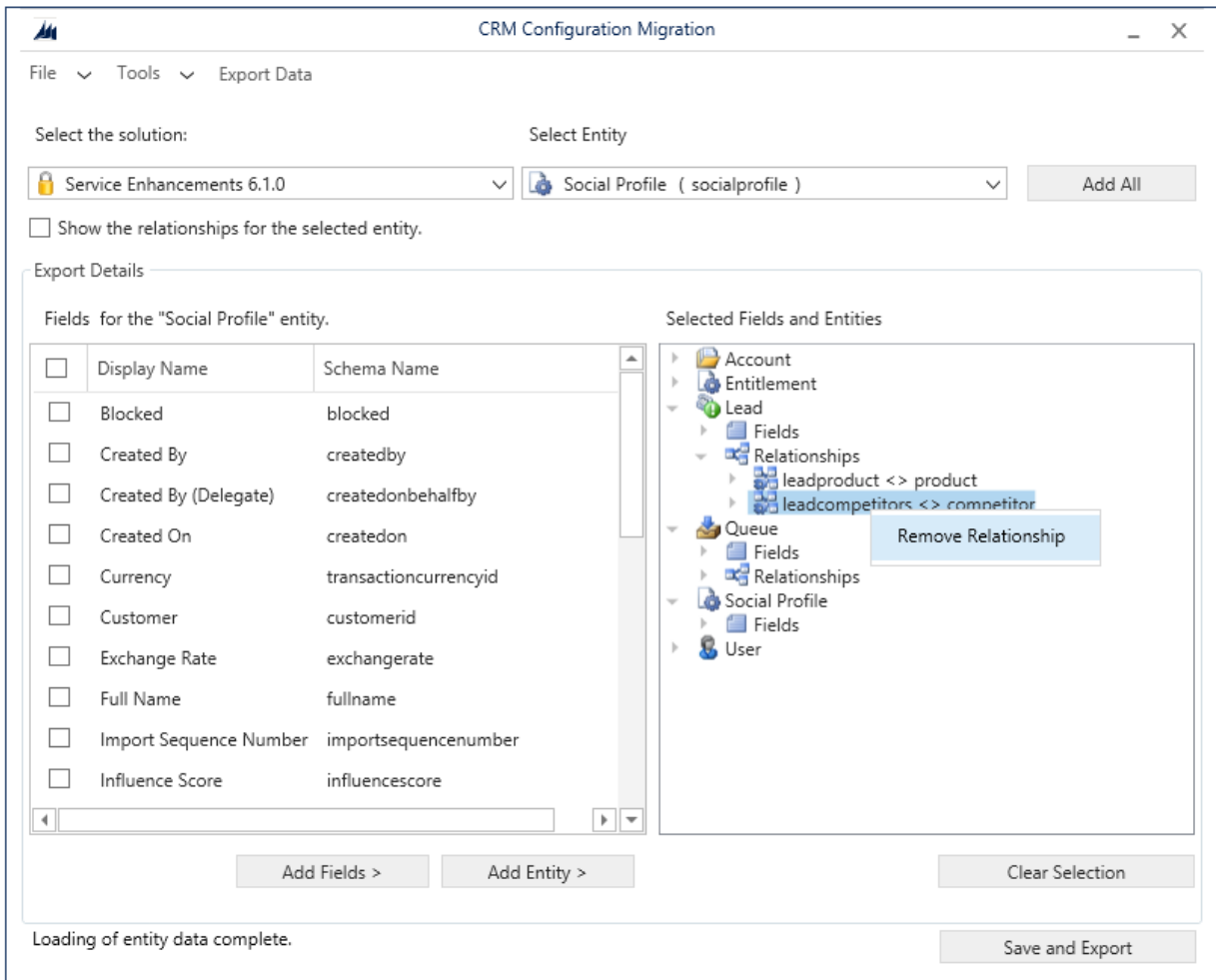
9. To validate the selected data to be exported, click **Tools** > **Validate Schema**.
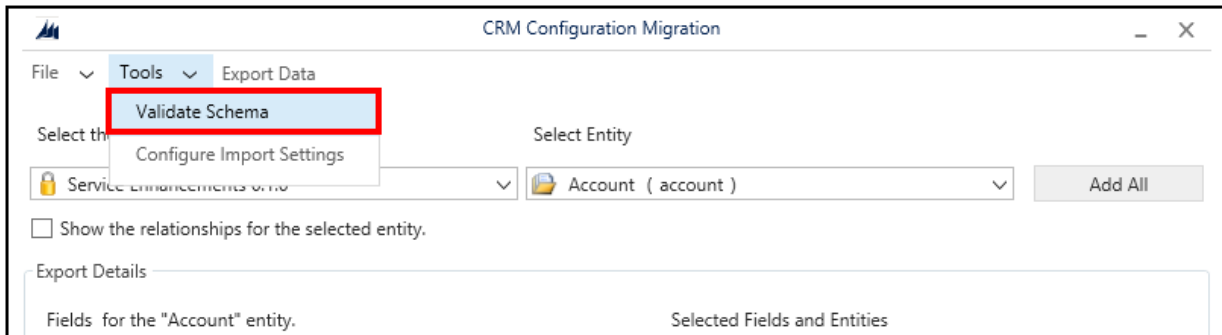
10. A message is displayed if there are any missing dependencies. To close the message, click **OK**.
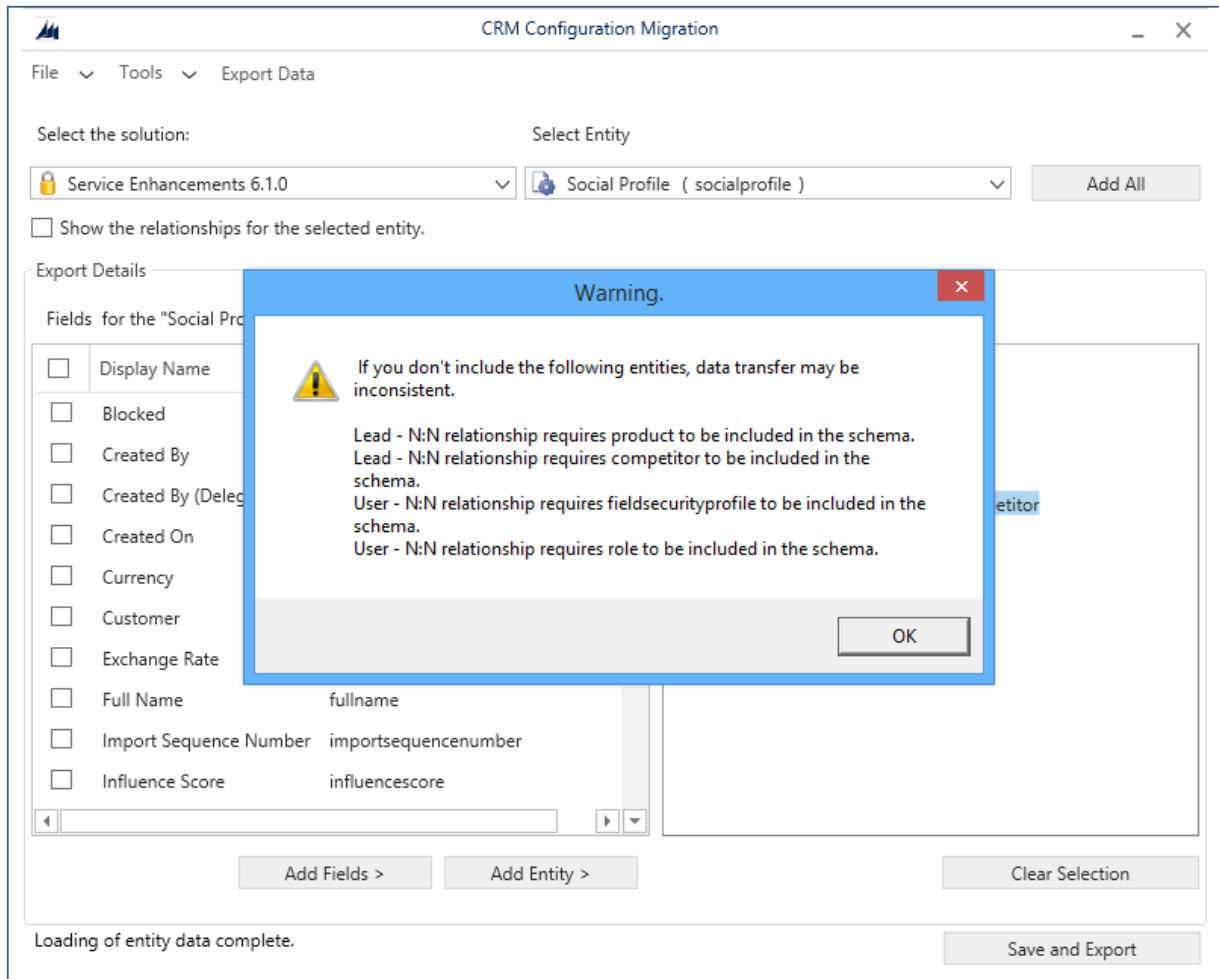
11. Add the missing entities, and then perform step 9 again to validate the data. A confirmation message is displayed if there are no validation errors.

💡 **Tip**

If the missing entity is not in the solution you selected for export, you can add the entity from the **Default Solution** by selecting it from the **Select the solution** list.

12. Define the uniqueness condition for your data to be exported. To open a new screen, click **Tools** > **Configure Import Settings**. For each entity that you have selected to export, add the field or fields on which you want the records to be compared with existing records on the target system during the import. Select a field, and click **Add Field**.

13. To disable plug-ins for all the entities before the data is imported on to the target system, select the **Disable plug-ins on all entities for import** check box. The tool will disable all the plug-ins while importing data on to the target server, and re-enable them after the import process.

14. To save the settings and return to the main screen, click **Save**.

 Note

If you want to undo any changes in the **Configure Import Settings** dialog box, you must manually revert those changes in this dialog box, and then click **Save** to save your changes, and close the dialog box.

15. In the main screen:

a. Click **File** > **Save Schema** to just save the schema without exporting the data. You are prompted to specify the name and location of the schema file (.xml) to save. You can use the schema later to export the data. You can exit the tool now.

b. Click **Export Data** to export the data and schema file. You are prompted to specify the name and location of the schema file to be exported. Specify the name and location, and click **Save**. Go to the next step.

c. Click **Save and Export** to choose whether to export the data after saving the schema file or not. You are prompted to specify the name and location of the schema file to be exported. Specify the name and location, and click **Save**. You are prompted to save the data file: click **Yes** to export it or **No** to export it later. If you clicked **Yes**, go to the next step.

16. On the next screen, specify the location of the data file to be exported in the **Save to data file** box, and then click **Export Data**. The screen displays the export progress status and the location of the exported file at the bottom of the screen once the export is complete.
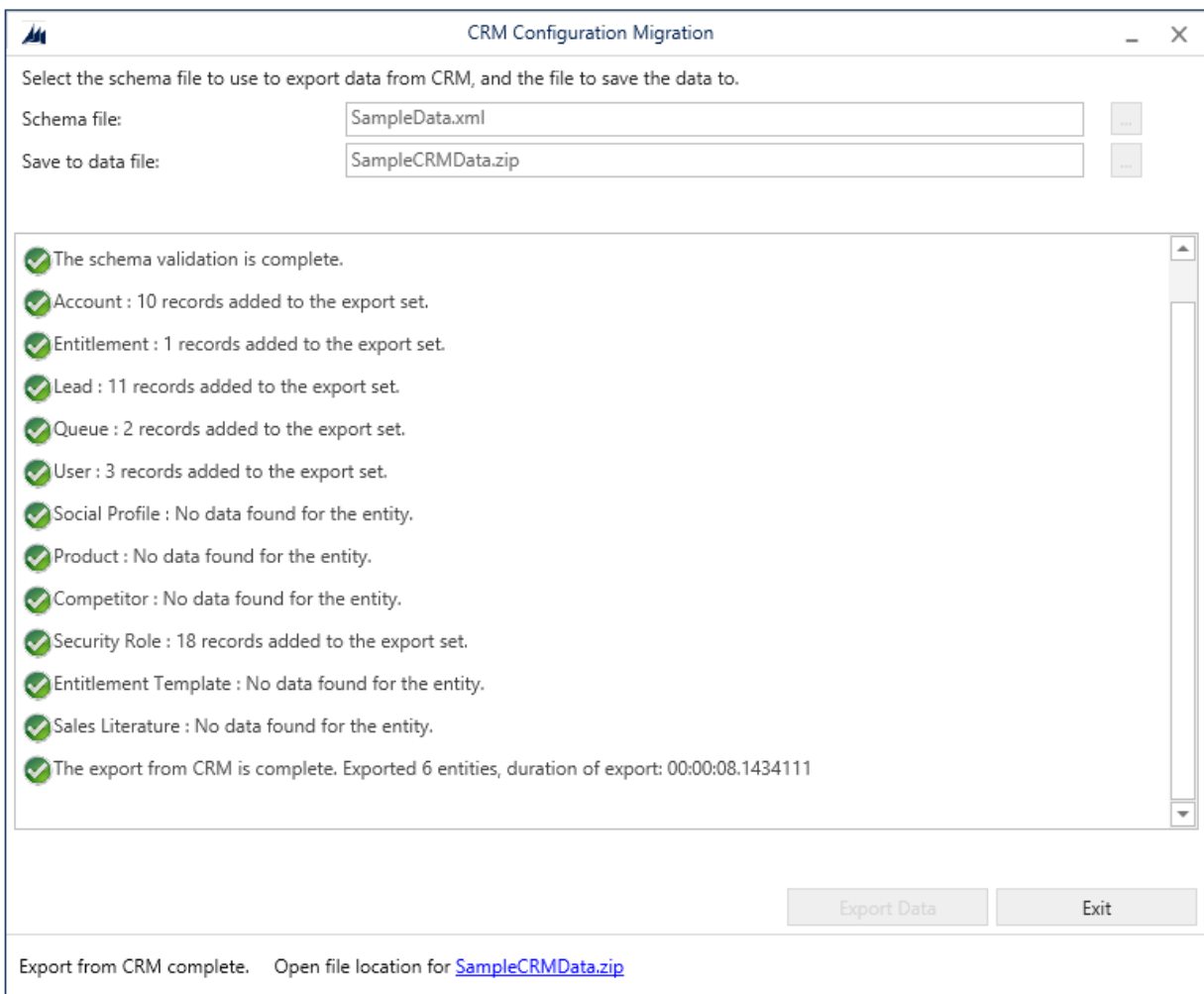
17. Click **Exit** to close the tool.

Reuse an existing schema to export configuration data

You can reuse a schema file that was generated using the Configuration Migration tool to quickly export data across CRM instances without having to create the schema all over again.

1. Start the Configuration Migration tool.

2. On the main screen, click **Export data**, and click **Continue**.

3. On the **Login** screen, provide authentication details to connect to your CRM instance from where you want to export data. If you have multiple organizations on the CRM server, and want to select the organization from where to export the data, select the **Always display list of available orgs** check box. Click **Login**.

4. If you have multiple organizations, and you selected the **Always display list of available orgs** check box, the next screen lets you choose the organization that you want to connect to. Select a CRM organization to connect to.

5. On the next screen, select the schema file to be used for the data export.

6. Specify the name and location of the data file to be exported.

7. Click **Export Data**. The screen displays the export progress status and the location of the exported file at the bottom of the screen once the export is complete.

8. Click **Exit** to close the tool.

See Also
Modify a configuration data schema
Manage configuration data
Import configuration data

Modify a configuration data schema

Applies To: CRM 2016 on-prem, CRM Online

You can modify an existing schema file to include information about new configuration data or to update the existing configuration data definition to enhance the configuration data export process.

Before you begin

- Download the Microsoft Dynamics CRM SDK package. Then extract the contents of the package on your computer. The Configuration Migration tool is available under the

`SDK\Tools\ConfgurationMigration` folder in the extracted CRM SDK package. You do not need to install the Configuration Migration tool. Run the tool by double-clicking the **DataMigrationUtility.exe** file in the `SDK\Tools\ConfgurationMigration` folder.

- You must have a schema file that was created using the Configuration Migration tool. More information: [Create a schema to export configuration data](#)

Modify a schema file

1. Start the Configuration Migration tool.

2. On the main screen, click **Create schema**, and click **Continue**.

3. On the **Login** screen, provide authentication details to connect to your CRM instance for which you originally created the export data schema file. If you have multiple organizations on the CRM server, and want to select an organization, select the **Always display list of available orgs** check box. Click **Login**.

4. If you have multiple organizations, and you selected the **Always display list of available orgs** check box, the next screen lets you choose the organization that you want to connect to. Select a CRM organization to connect to.

5. On the main screen, click **File** > **Load Schema**.

6. Navigate to the schema file that you want to edit, select it, and click **Open**.

7. The schema file definition appears in the Configuration Migration tool. Make the required changes to the schema definition file. For information about defining a schema file, see steps 5-14 in [Create a schema to export configuration data](#).

8. Save the updated schema file.

9. Click **Exit** to close the tool.

See Also

[Import configuration data](#)
[Create a schema to export configuration data](#)
[Manage configuration data](#)

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Import configuration data

Applies To: CRM 2016 on-prem, CRM Online

After exporting your configuration data from the source CRM instance, you are now ready to import it to the target CRM instance.

Before you begin

[Download the Microsoft Dynamics CRM SDK package.](#) Then extract the contents of the package on your computer. The Configuration Migration tool is available under the SDK\Tools\ConfgurationMigration folder in the extracted CRM SDK package. You do not need to install the Configuration Migration tool. Run the tool by double-clicking the **DataMigrationUtility.exe** file in the SDK\Tools\ConfgurationMigration folder.

Import configuration data

1. Start the Configuration Migration tool.

2. On the main screen, click **Import data**, and click **Continue**.

3. On the **Login** screen, provide authentication details to connect to your CRM instance from where you want to import data. If you have multiple organizations on the CRM server, and want to select the organization where to import the configuration data, select the **Always display list of available orgs** check box. Click **Login**.

4. If you have multiple organizations, and you selected the **Always display list of available orgs** check box, the next screen lets you choose the organization that you want to connect to. Select a CRM organization to connect to.

5. Provide the data file. (.zip) to be imported. Browse to the data file, and select it. Click **Import Data**.

6. **This step is applicable only if the data that you are importing contains the user information of the source system**. Enter mapping user information on the target system. You can either map all of them to the user who is running the import process or map to individual users by using a user map file (.xml). If you choose the latter, you will have to either specify an existing user map file or the tool can generate it for you. If you generate a new file, fill in the mapping user name in the **New** parameter for every user on the source server. Select the user map file in the tool when you are done, and click **OK**.
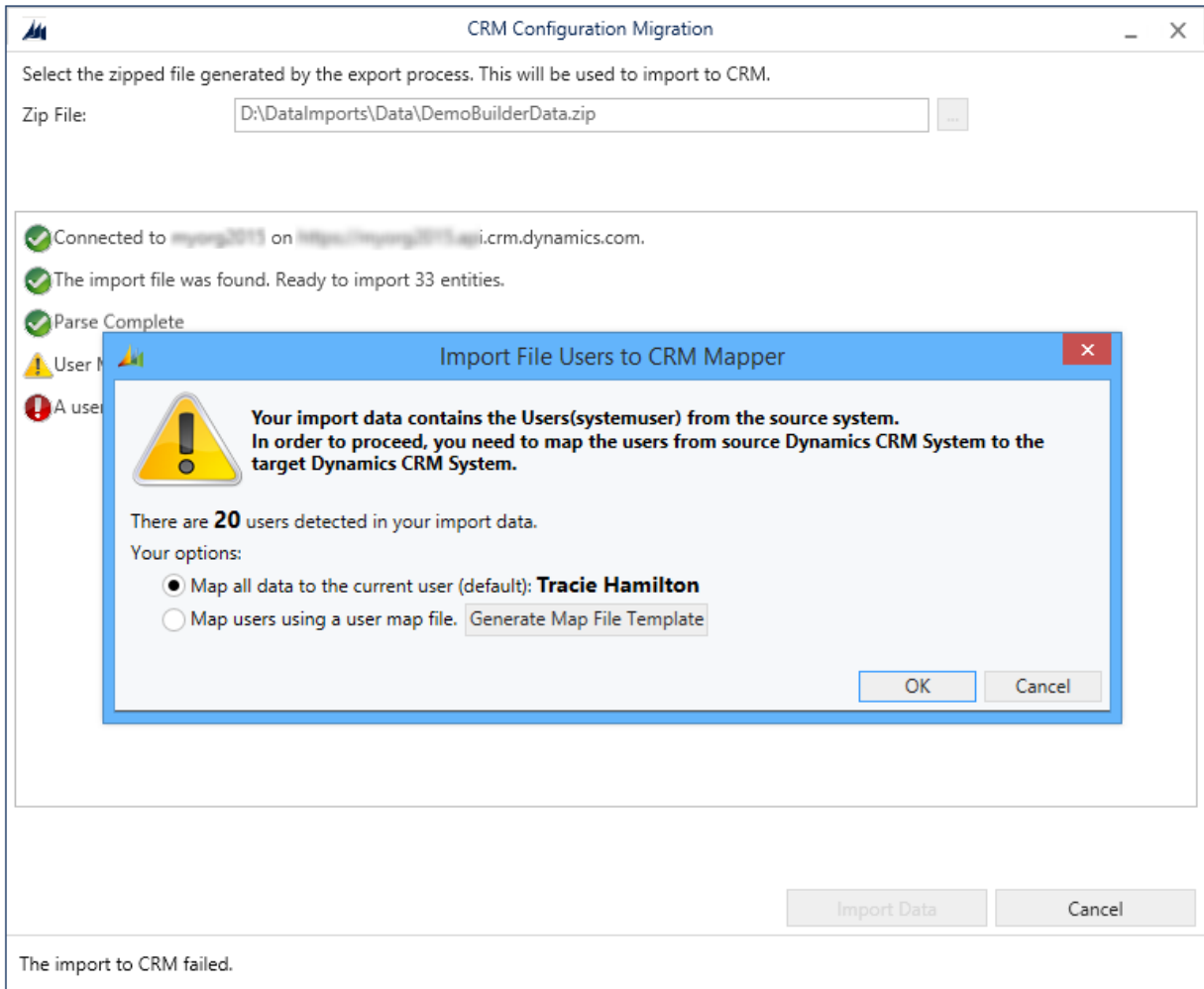
The next screen displays the import status of your records. The data import is done in multiple passes to first import the foundation data while queuing up the dependent data, and then import the dependent data in the subsequent passes to handle any data dependencies or linkages. This ensures clean and consistent data import.

7. Click **Finish** to close the tool.

See Also

Manage configuration data

Manage product catalog configuration

Applies To: CRM 2016 on-prem, CRM Online

Microsoft Dynamics CRM offers a rich, easy to configure product catalog that will help your company sell products and services with greater efficiency. A sales operations manager will be able to create the product catalog with fewer SKUs, bundle product and service, as an attractive and cost effective offering, and define up-sell and cross-sell of products. In addition, the product catalog configuration data can be migrated across CRM systems. For example, after the product catalog configuration is fully tested on the test server, you can move the configuration data to the production environment, without having to recreate it. To migrate, you'll be using the Configuration Migration Tool: Manage configuration data. As an administrator, you will be responsible for configuring and migrating the product catalog configuration data.

Configure product catalog

To configure the product catalog:

1. Go to **Settings** > **Administration**.
2. Choose **System Settings**, then choose the **Sales** tab.

In the **Sales** tab, set the appropriate values for the following settings and save the changes:

Setting	Description
Create products in active state	Select whether product records without a parent product family record are created in an **active** or **draft** state.
	In the current release of CRM, by default, all the product records (product family, product, and bundle) are created in the **draft** state. This setting ensures compatibility for your applications working with the previous version of CRM where the product records were created in an **active** state.
	By default, its set to **No** in the new CRM installations, and set to **Yes**, for the upgrading systems.
Allow selection of default price list for opportunity via inbuilt rule	Select whether the default price list for an opportunity is automatically selected based on the territory relationship for the price list and the current user who is creating the opportunity.
	By default, it's set to **Yes**.
Maximum number of products in a bundle	Specify the maximum number of products that can be added in a bundle.
Use system pricing calculation	Select whether to use the CRM system pricing engine to calculate prices in opportunities, quotes,

Setting	Description
	orders, and invoices or to use custom pricing.
	In the current release of CRM, you can choose to use custom pricing logic instead of the system pricing to calculate prices when you add products in opportunities, quotes, orders, and invoices. To use custom pricing, select **No** for this option. Additionally, you must register a plug-in on the **CalculatePrice** message, provided in the CRM Web services, that contains your custom pricing code. Every time you create or change the product information in an opportunity, quote, order, or invoice, the custom code is invoked instead of the CRM system pricing engine to calculate the prices. For more information, see [MSDN: Use custom pricing for products](#).
Discount calculation method	Select whether you want to calculate discounts at the line-item level or at the per-unit level in each line item in an opportunity, quote, order, or invoice. By default, it's set to **Line item**.
Maximum number of properties that are allowed for a product or bundle	Specify the maximum number of properties that can be associated with a product or bundle. Product properties are added to a product family record, and all the child products and bundles under the product family inherit the properties added to the parent product family. The number specified in this setting comes into effect only when you publish a product or a bundle with the associated properties, and not at the time when you add the properties to a draft product family record.

Migrate product catalog configuration data

To migrate the product catalog configuration data, use the Configuration Migration Tool. For more information on how to use the tool, see: [Manage configuration data](#).

You must select the following entities for migrating the product catalog configuration data:

- Product
- Product Association (needed for bundles)
- Product Relationship (not a mandatory entity, needed only for relationships)
- Property
- Property Association
- Property Option Set Item

- Notes (needed, if there are any notes for the product)

- Currency

- Price List

- Price List Item

- Unit

- Unit Group

- Territory (needed if there is a default price list configuration)

- Connection (needed, if there is a default price list configuration)

- Competitor (needed, if there are any competitors for product)

- Sales Literature and Sales Literature Item (needed, if there is any sales literature for product)

- Discount (not a mandatory entity, needed only for discounts when added to price lists)

- Discount List (not a mandatory entity, needed only for discounts)

 Note

During product catalog configuration data transfer, you may see a schema validation warning, saying that the data transfer may be inconsistent. This is because you didn't include the Entitlement entity and the Entitlement Template entity in the transfer. However, these entities are not required and you can disregard the warning. The product catalog configuration data will be migrated correctly.

Certain conditions and restrictions apply during migration:

- Only active and retired products can be exported or imported.

- If importing of a product record fails because of a missing dependency, the related property records are not imported. When importing the product hierarchy, if creation of a record fails because of a missing dependency, the record's child hierarchy will not be imported.

- If for exporting, you selected the product entity, without selecting other entities required for export, the product records are exported without the associated properties.

- If for exporting, you select only the property entities (Property, Property Associations and Property Option Sets), without selecting the product entity, no data is exported.

- For a product record, any new property created in the source system, will also be created in the target system, after the import.
  For a product record, the source data will override any changes in the property that also exists in the target data, after the import.
  For a product record, if a property exists in both systems, source and target, when the property is removed from the source system, it is not removed from the target system, after the import.

See Also

Manage your data

Applies To: CRM 2016 on-prem, CRM Online

Managing data in in Microsoft Dynamics CRM includes importing data into CRM, cleaning up duplicate records, deleting data in bulk, and securing sensitive data through data encryption.

In This Section

See Also

Import data (all record types)

Applies To: CRM 2016 on-prem, CRM Online

Importing data is often the first important task that you need to perform after you have installed Microsoft Dynamics CRM. You can import data from various CRM systems and data sources into standard and customized fields of most business and custom entities in Microsoft Dynamics CRM. You can include related data, such as notes and attachments. To assure data integrity, you can enable duplicate detection that prevents importing duplicate records. More information: Detect duplicate data

Preliminary steps before you import the data into CRM include:

1. Preparing source data files in one of the following formats: comma-separated values (.csv), XML Spreadsheet 2003 (.xml), Compressed (.zip) or text files. You can import data from one source file or several source files. A source file can contain data for one entity type or multiple entity types.

2. Preparing data maps for mapping data contained in the source file to the CRM record fields. You must map every column in the source file to an appropriate field. Unmapped data isn't imported. More information: Select a data map

There are several ways to import data into CRM:

1. To import large volumes of data, we recommend a programmatic way, as most efficient. When you import data programmatically, you gain additional capabilities that are not available when you use other methods of importing data. These advanced capabilities include viewing stored source data, accessing error logs and creating data maps that include complex transformation mapping, such as concatenation, split, and replace. More information: Import data.

2. For smaller import jobs, you can use the Import Data Wizard tool included in the CRM web application. For information about the Import Data Wizard or how to import specific record types, see Import accounts, leads, or other data.

 Note

For the Import Data Wizard, the maximum file size for .zip files is 32 MB; for the other file formats, it's 8 MB.

With the Import Data Wizard, you can specify the "Map Automatically" option. The wizard automatically maps all the files and the column headings with Microsoft Dynamics CRM record types and fields if:

- The file names exactly match the display name of the record type.

- The column headings of the file you are importing exactly match the display names of the fields in the record.

3. To add data for an individual record, the quickest way is to use **Quick Create** from the nav bar or **New** from the entity form.

More information: Data import.

See Also

Microsoft Dynamics CRM Help & Training
Manage your data
Detect duplicate data

Detect duplicate data

Applies To: CRM 2016 on-prem, CRM Online

To determine whether a record is a potential duplicate, Microsoft Dynamics CRM uses duplicate detection rules. When publishing a duplicate detection rule, a matchcode is created for each existing record. A matchcode is also created when a record is created or updated. When a record is in the process of being created or updated, its matchcode can be checked automatically against the matchcodes of existing records. By default, Microsoft Dynamics CRM has simple duplicate detection rules for accounts, contacts, and leads. For example, you detect duplicates by matching the record fields, such as email address, first name, and last name.

Note

Duplicate detection works with Microsoft Dynamics CRM for tablets, but isn't available for CRM for phones.

Important

You have to be a system administrator or a system customizer to create, enable, and publish duplicate detection rules for your organization.

After publishing a duplicate detection rule, increasing the length of fields that are included in the duplicate detection criteria goes undetected. The field length could exceed the matchcode length limit and not be verified. This may result in duplicates not being detected.

You can create multiple detection rules for the same entity type. However, you can publish a maximum of five duplicate detection rules per entity type at one time.

You can detect duplicates:

- When you create or update records for entities that enabled for duplicate detection. This includes records created with Dynamics CRM for Outlook and tracked in Microsoft Dynamics CRM web application. The duplicate detection dialog is only displayed for the records created or updated in the CRM user interface (UI). For example, for records created by a workflow, the duplicate detection dialog is not displayed.

Note

Microsoft Dynamics CRM has the ability to detect duplicates for the updated UI entities when you create or update records using entity forms or grid views in the CRM web application.

- When Dynamics CRM for Outlook goes from offline to online.
- During data import. You can specify whether or not to check for duplicates during the import.

Note

Duplicates can't be detected when a user merges two records, converts a lead, or saves an activity as completed. Duplicates also aren't detected when a user changes the status of a record, such as activating or reactivating it.

To check for duplicates in the web application, you can use **Detect Duplicates** capability provided in **More Commands** (•••) on the nav bar in the grid. The duplicate records are also detected when you import data programmatically or through Import Data Wizard. In addition, you can check for duplicates by running scheduled duplicate detection jobs. For step-by-step instructions on how to set up the duplicate detection job, see Run system jobs to detect duplicates.

A duplicate detection job runs in the background while you do other things in Microsoft Dynamics CRM. You can request email notification from CRM upon the completion of a duplicate detection job.

See Also

Manage your data
Import data (all record types)
Check for duplicates
Set up duplicate detection rules
Run system jobs to detect duplicates
Delete bulk records

Delete bulk records

Applies To: CRM 2016 on-prem, CRM Online

The *bulk deletion* feature helps you to maintain data quality and manage the consumption of system storage in Microsoft Dynamics CRM by deleting data that you no longer need.

For example, you can delete the following data in bulk:

- Stale data.

- Data that is irrelevant to the business.

- Unneeded test or sample data.

- Data that is incorrectly imported from other systems.

With bulk deletion you can perform the following operations:

- Delete data across multiple entities.

- Delete records for a specified entity.

- Receive email notifications when a bulk deletion finishes.

- Delete data periodically.

- Schedule the start time of a recurring bulk delete.

- Retrieve the information about the failures that occurred during a bulk deletion.

Delete bulk data

1. Go to **Settings** > **Data Management**.
2. Choose **Bulk Record Deletion**.
3. Choose **New** to run the **Bulk Deletion Wizard** to create a bulk deletion job with the records you want to delete.

For information about how to implement bulk delete in code, see MSDN: Delete data in bulk.

See Also

Manage your data
Data encryption

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Data encryption

Applies To: CRM 2016 on-prem, CRM Online

Microsoft Dynamics CRM uses standard Microsoft SQL Server cell level encryption for a set of default entity attributes that contain sensitive information, such as user names and email passwords. This feature can help organizations meet FIPS 140-2 compliance.

For Microsoft Dynamics CRM Online and Microsoft Dynamics CRM (on-premises), all new and upgraded organizations use data encryption by default. Data encryption can't be turned off.

Microsoft Dynamics CRM users who have the system administrator security role can change the encryption key at any time. More information: Change an organization encryption key

🔶 **Important**

For on-premises versions of Microsoft Dynamics CRM:

- Changing the encryption key requires TLS/SSL configured on the Microsoft Dynamics CRM website.

- It is a best practice is to change the encryption key once every year.

- The encryption key is required to activate data encryption when you import an organization database into a new deployment or a deployment that has had the configuration database (MSCRM_CONFIG) re-created after the organization was encrypted. You can copy the original encryption key to Notepad and paste it into the **Settings** > **Data Management** > **Data Encryption**

dialog box after the organization import is completed.

- When you re-enter the data encryption key, we recommend that you run the Microsoft Dynamics CRM web application using Internet Explorer to paste the encryption key into the **Data Encryption** dialog box.

Change an organization encryption key

1. Go to **Settings** > **Data Management**.
2. Click **Data Encryption**.
3. In the **Change Encryption Key** box type the new encryption key and then select **Change**.
4. Select **OK** in the confirmation message and then click **Close** to exit the Data Encryption page.
5. We recommend that you copy the key to a safe place. Copy your organization data encryption key

Copy your organization data encryption key

We strongly recommend that you make a copy of your data encryption key. This is particularly important for on-premises deployments that may need to reactivate data encryption after a redeployment or failure recovery.

1. Sign in to Microsoft Dynamics CRM as a user with the system administrator security role.
2. Go to **Settings** > **Data Management**.
3. Click **Data Encryption**.
4. In the **Data Encryption** dialog box, select **Show Encryption Key**, in the **Current encryption key box** select the encryption key, and copy it to the clipboard.

⚠️ **Caution**

When the Microsoft Dynamics CRM (on-premises) website is not configured for HTTPS, the **Data Encryption** dialog box will not be displayed. For a more secure deployment, we recommend that you configure the website for HTTPS. However, if the website is not configured for HTTPS, use a tool that can be used to modify CRM database tables, such as Microsoft SQL Server Management Studio or the Deployment Web Service, open the configuration database (MSCRM_CONFIG), and in the DeploymentProperties table, set DisableSSLCheckForEncryption to *1*.

5. Paste the encryption key in to a text editor, such as Notepad.

⚠ Warning

By default, Microsoft Dynamics CRM generates a passphrase that is a random collection of Unicode characters. Therefore, you must save the system-generated passphrase by using an application and file that supports Unicode characters. Some text editors, such as Notepad use ANSI coding by default. Before you save the passphrase using Notepad, select **Save As**, and then in the **Encoding** list, select **Unicode**.

6. As a best practice, save the text file that contains the encryption key on a computer in a secure location on an encrypted hard drive.

See Also

SQL Server Encryption
FIPS 140 Evaluation
Manage your data
Manage configuration data

Free storage space in Microsoft Dynamics CRM

Applies To: CRM 2016 on-prem, CRM Online

These are ways to reduce the amount of storage space used by removing or deleting different types of information from Microsoft Dynamics CRM. Use one or more of these methods to control your total data storage usage with Microsoft Dynamics CRM. You can delete certain categories of data as the need arises, or you can set up bulk deletion jobs to reoccur at set intervals.

⚠ Warning

The suggestions in this topic include deleting notes, attachments, import history, and other data. Before you delete data, be sure that the data is no longer needed because you cannot retrieve deleted data. There is no "undo" to restore your data once it has been deleted. This means it may make more sense for you to increase the amount of storage space you have with your Microsoft Dynamics CRM Online subscription instead of reducing the amount of storage space used.

✎ Note

Except for methods 3 and 5, all these methods require that you have an administrator Microsoft Dynamics CRM security role, such as System Administrator. This gives you permission to delete records in bulk and to delete system jobs.

In This Topic

Method 1: Delete bulk email and workflow instances using a bulk deletion job

Method 1: Delete bulk email and workflow instances using a bulk deletion job

⚠ Warning

If you delete this data, you will no longer be able to tell if an email was sent through bulk email or if a workflow rule ran against a record. The emails that were sent and the actions that ran against the record in the workflow will remain.

1. Go to **Settings** > **Data Management**.

2. Choose **Bulk Record Deletion**. In the menu bar, choose **New**. This opens the Bulk Deletion Wizard.

3. Choose **Next**.

4. In the **Look for** list, select **System Jobs**.

5. In the search criteria area, add criteria similar to the following:
   System Job Type – **Equals** – **Bulk E-mail**; **Workflow**;
   Status Reason – **Equals** – **Succeeded**
   Completed On – **Older Than X Months** – 1

6. Group the three criteria rows:

   a. Choose the arrow next to each criteria row, and then choose **Select Row**.

   b. With all three rows selected, choose **Group AND**.

7. Choose **Next**.

8. In the **Name** text box, type a name for the bulk deletion job.

9. Select a date and time for the job start time; preferably a time when users are not in Microsoft Dynamics CRM.

10. Select the **Run this job after every** check box, and then in the **days** list, select the frequency you want the job to run.

11. If you want a notification e-mail sent, select the **Send an e-mail to me (email@domain.com) when this job is finished** check box.

12. Choose **Next**, review the bulk deletion job, and then choose **Submit** to create the recurring job.

Method 2: Evaluate and delete suspended workflows

Sometimes workflows will enter a suspended state because there is a condition that will never be met or some other reason that will not allow the workflow to continue.

⚠ Warning

Some workflows will be in a suspended state because they are waiting for a condition that has not yet been met, which is expected. For example, a workflow may be waiting for a task to be completed.

1. Choose **Advanced Find**.

2. In the **Look for** list, select **System Jobs**.

3. In the search criteria area, add criteria similar to the following:

    System Job Type – **Equals** – **Workflow**

    Status Reason – **Equals** – **Waiting**

4. Group the two criteria rows:

    a. Choose the arrow next to each criteria row, and then choose **Select Row**.

    b. With all three rows selected, choose **Group AND**.

5. Choose **Find**.

6. In the results window, you can open each item to determine whether the workflow can be deleted.

Method 3: Remove email attachments using Advanced Find

⚠ Warning

If you delete this data, the attachments will no longer be available in Microsoft Dynamics CRM. However, if you have them saved in Microsoft Office Outlook, they will still be there.

1. Choose **Advanced Find**.

2. In the **Look for** list, select **Email Messages**.

3. In the search criteria area, add criteria similar to the following:

   Email Attachments (Item)

   File Size (Bytes) – **Is Greater Than** - In the text box, type a byte value, such as 25000.

4. Choose **Results**.

5. Under **Activities**, you will now have a list of email messages that have attachments that are larger than 'X' bytes. Review the emails and delete the attachments as needed.

Method 4: Remove email messages with attachments using a bulk deletion job

⚠ **Warning**

If you delete this data, the email messages and their associated attachments will no longer be available in Microsoft Dynamics CRM. However, if you have them saved in Microsoft Office Outlook, they will still be there.

1. Go to **Settings** > **Data Management**.

2. Choose **Bulk Record Deletion**, and then in the menu bar, choose **New**. This opens the Bulk Deletion Wizard.

3. Choose **Next**.

4. In the **Look for** list, select **Email Messages**.

5. In the search criteria area, add criteria similar to the following:

   Status Reason – **Equals** – **Completed**

   Actual End – **Older Than X Months** – 1

   Email Attachments (Item)

   File Size (Bytes) – **Is Greater Than** – In the text box, type a byte value, such as 25000.

6. Group the first two criteria rows:

   a. Choose the arrow next to each criteria row, and then choose **Select Row**.

   b. With both rows selected, choose **Group AND**.

7. Choose **Next**.

8. In the **Name** text box, type a name for the bulk deletion job.

9. Select a date and time for the job start time; preferably a time when users are not in Microsoft Dynamics CRM.

10. Select the **Run this job after every** check box, and then in the **days** list, select the frequency you want the job to run.

11. If you want a notification e-mail sent, select the **Send an email to me (email@domain.com) when this job is finished** check box.

12. Choose **Next**, review the bulk deletion job, and then choose **Submit** to create the recurring job.

Method 5: Remove notes with attachments using Advanced Find

⚠ **Warning**

If you delete this data, notes and their associated attachments will no longer be available in Microsoft Dynamics CRM.

1. Choose **Advanced Find**.

2. In the **Look for** list, select **Notes**.

3. In the search criteria area, add criteria similar to the following:
   File Size (Bytes) – **Is Greater Than** – In the text box, type a byte value, such as 1048576.

4. Choose **Results**.

5. You will now have a list of attachments that are larger than the size you specified.

6. Select individual or a multiple attachments, and then choose **Delete** (X).

Method 6: Remove notes with attachments using a bulk deletion job

⚠ **Warning**

If you delete this data, notes and their associated attachments will no longer be available in Microsoft Dynamics CRM.

1. Go to **Settings** > **Data Management**.

2. Choose **Bulk Record Deletion**, and then in the menu bar, choose **New**. This opens the Bulk Deletion Wizard.

3. Choose **Next**.

4. In the **Look for** list, select **Notes**.

5. In the search criteria area, add criteria similar to the following:

    File Size (Bytes) – **Is Greater Than** – In the text box, type a byte value, such as 1048576.

    Created On – **Older Than X Months** – 1

6. Group the two criteria rows:

    a. Choose the arrow next to each criteria row, and then choose **Select Row**.

    b. With all three rows selected, choose **Group AND**.

7. Choose **Next**.

8. In the **Name** text box, type a name for the bulk deletion job.

9. Select a date and time for the job start time; preferably a time when users are not in Microsoft Dynamics CRM.

10. Select the **Run this job after every** check box, and then in the **days** list, select the frequency you want the job to run.

11. If you want a notification e-mail sent, select the **Send an email to me (email@domain.com) when this job is finished** check box.

12. Choose **Next**, review the bulk deletion job, and then choose **Submit** to create the recurring job.

Method 7: Remove bulk duplicate detection jobs and associated copies of duplicate records

Every time that a duplicate detection job runs, a copy of each duplicate record is stored in the database as part of the duplicate detection job. For example, if you have 100 duplicate records, every time that you run a duplicate detection job that finds these duplicates, whether it is manual or reoccurring, those 100 duplicate records will be stored in the database under that instance of that duplicate job until the duplicates are merged or deleted, or until the instance of that duplicate detection job is deleted.

1. Go to **Settings** > **Data Management**.

2. Choose **Duplicate Detection Jobs**.

3. Select the duplicate detection job instances you want to delete and then choose **Delete** (X).

To avoid wasting storage space, make sure duplicates are resolved promptly so that they are not reported in multiple duplicate detection jobs.

Method 8: Delete bulk import instances using a bulk deletion job

Every time you perform a bulk import, there is a system job associated with that import. The system job details show which records imported successfully and which records failed.

⚠ **Warning**

After you delete these bulk import jobs, you will not be able to see what data was imported and you cannot roll back the import.

1. Go to **Settings** > **Data Management**.

2. Choose **Bulk Record Deletion**, and then in the menu bar, choose **New**. This opens the Bulk Deletion Wizard.

3. Choose **Next**.

4. In the **Look for** list, select **System Jobs**.

5. In the search criteria area, add criteria similar to the following:
   System Job Type – **Equals** – **Import**
   Status Reason – **Equals** – **Succeeded**
   Completed On – **Older Than X Months** – 1

6. Group the three criteria rows:

   a. Choose the arrow next to each criteria row, and then choose **Select Row**.

   b. With all three rows selected, choose **Group AND**.

7. Choose **Next**.

8. In the **Name** text box, type a name for the bulk deletion job.

9. Select a date and time for the job start time; preferably a time when users are not in Microsoft Dynamics CRM.

10. Select the **Run this job after every** check box, and then in the **days** list, select the frequency you want the job to run.

11. If you want a notification e-mail sent, select the **Send an email to me (email@domain.com) when this job is finished** check box.

12. Choose **Next**, review the bulk deletion job, and then choose **Submit** to create the recurring job.

Method 9: Delete bulk deletion job instances using a bulk deletion job

When you are bulk deleting data, such as in many of the methods described in this article, a bulk deletion system job is created and can be deleted.

⚠ **Warning**

After you delete these jobs, you will lose the history of the prior bulk deletion jobs that you've run.

1. Go to **Settings** > **Data Management**.
2. Choose **Bulk Record Deletion**, and then in the menu bar, choose **New**. This opens the Bulk Deletion Wizard.
3. Choose **Next**.
4. In the **Look for** list, select **System Jobs**.
5. In the search criteria area, add criteria similar to the following:
   System Job Type – **Equals** – **Bulk Delete**
   Status Reason – **Equals** – **Succeeded**
   Completed On – **Older Than X Months** – 1

📝 **Note**

You could also delete jobs that have failed or been canceled.

6. Group the three criteria rows:
   a. Choose the arrow next to each criteria row, and then choose **Select Row**.
   b. With all three rows selected, choose **Group AND**.
7. Choose **Next**.
8. In the **Name** text box, type a name for the bulk deletion job.
9. Select a date and time for the job start time; preferably a time when users are not in Microsoft Dynamics CRM.
10. Select the **Run this job after every** check box, and then in the **days** list, select the frequency you want the job to run.
11. If you want a notification e-mail sent, select the **Send an email to me (email@domain.com) when this job is finished** check box.
12. Choose **Next**, review the bulk deletion job, and then choose **Submit** to create the recurring job.

Method 10: Delete audit logs

When you enable auditing, Microsoft Dynamics CRM creates audit logs to store the audit history of the records. You can delete these audit logs to free space when they are no longer needed.

⚠ **Warning**

When you delete an audit log, you can no longer view the audit history for the period covered by that audit log.

1. Go to **Settings** > **Auditing**.

2. In the **Audit** area choose **Audit Log Management**.

3. Select the oldest audit log, then choose **Delete Logs**.

4. In the confirmation message choose **OK**.

📝 **Note**

You can only delete the oldest audit log in the system. To delete more than one audit log repeat deleting the oldest available audit log until you have deleted enough logs.

See Also

Manage your data
Data encryption
Manage Microsoft Dynamics CRM Online instances

Enable change tracking to control data synchronization

Applies To: CRM 2016 on-prem, CRM Online

Large Microsoft Dynamics CRM organizations that synchronize their data with external data sources can now enable entities for change tracking. You can export or retrieve a selected set of CRM data, and then keep the external data warehouse in sync.

By selecting, or deselecting, change tracking for specific entities you can reduce the load on your server resources and save processing time when extracting CRM data and synchronizing it to an external store. You can enable change tracking for both system and custom entities.

1. Go to **Customizations** > **Customize the System**.

2. Select an entity, and under **Data Services**, select the **Change Tracking** check box.
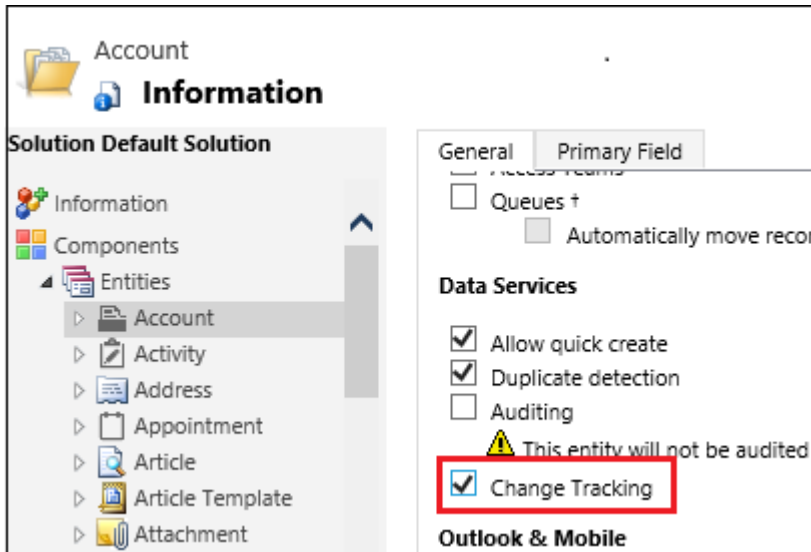
See Also

[Manage your data](#)

Set up and manage phones and tablets

Applies To: CRM 2016 on-prem, CRM Online

The following section contains information about setting up and supporting Microsoft Dynamics CRM when using mobile devices.

In This Section

[Set up CRM for phones and CRM for tablets](#)
[Support for CRM for phones and CRM for tablets](#)
Secure and manage CRM for phones and tablets
[Set up CRM for phones express](#)

Things to know about CRM for phones and tablets

See Also

Administering CRM 2016

Set up CRM for phones and CRM for tablets

Applies To: CRM 2016 on-prem, CRM Online

Your users want their CRM data while on-the-go. We've got three mobile CRM apps for you to deploy:

- **CRM for phones**: If you're running Microsoft Dynamics CRM Online 2015 Update 1 or later or Microsoft Dynamics CRM 2016 on-premises, we've got a new phone app for you that's been reworked to be "Configure once, deploy everywhere". Design your information architecture once and the customizations will automatically flow to all form factors. Much is shared with CRM for tablets.

  Video: Extend Dynamics CRM to your Smart Phone

- **CRM for tablets**: With the same basic features as CRM for phones, tablet users will appreciate the CRM experience optimized for a larger screen.

- **CRM for phones express**: If you've not yet updated to Microsoft Dynamics CRM Online 2015 Update 1 or later or Microsoft Dynamics CRM 2016 on-premises, you can deploy CRM for phones express. See Set up CRM for phones express.

In this topic

Get started with CRM for phones and CRM for tablets
What users need to do
What admins need to do
Configure CRM for phones and CRM for tablets
Things to know about CRM for phones
Supported languages for CRM for phones and CRM for tablets
Entities and CRM for phones and CRM for tablets
Authentication and CRM for phones and CRM for tablets
Considerations and best practices for securing CRM data on CRM for phones and CRM for tablets
Other features
Privacy notice

Get started with CRM for phones and CRM for tablets

Requirements

For hardware and software requirements for CRM for phones and CRM for tablets, see Support for CRM for phones and CRM for tablets.

Deployments

CRM for phones requires and can only connect to Microsoft Dynamics CRM Online 2015 Update 1 or later or Microsoft Dynamics CRM 2016 on-premises (for the iPhone and Android apps only). It cannot be used with previous versions of Microsoft Dynamics CRM Online or Microsoft Dynamics CRM on-premises.

⚠ Warning

CRM for phones for Windows phones isn't currently supported for on-premises deployments.

CRM for tablets can connect to both Microsoft Dynamics CRM Online organizations and Microsoft Dynamics CRM on-premises deployments. Microsoft Dynamics CRM Online organizations using CRM for tablets require the Microsoft Dynamics CRM Online Fall '13 release or later.

◆ Important

Microsoft Dynamics CRM on-premises deployments require Internet-facing deployment (IFD) for users to access their data on their tablets. If you have your Microsoft Dynamics CRM website available over the internet but it is not using the Microsoft Dynamics CRM IFD configuration, **it is not supported**. To verify that your on-premises deployment is configured for IFD, open Microsoft Dynamics CRM Deployment Manager on your Microsoft Dynamics CRM Server. The Authentication Summary section should show that both Claims-Based Authentication and Internet-facing deployment (IFD) are enabled. More information: Configure IFD for Microsoft Dynamics CRM.
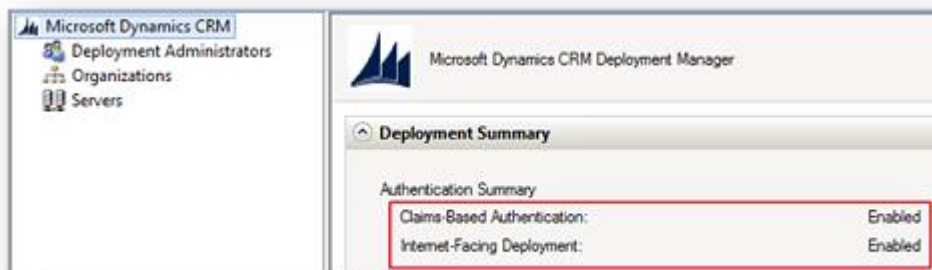
Required privileges

Microsoft Dynamics CRM uses a security privilege, **CRM for mobile**, to provide access to CRM for phones and CRM for tablets. Follow these steps to check and assign the security privilege for a security role:

1. Go to **Settings** > **Security**.

2. Click **Security Roles**.

3. Choose a security role > **Business Management** tab.

4. In the **Privacy Related Privileges** section, verify that **CRM for mobile** is set to **Organization**. If not, click **CRM for mobile**.

5. Click **Save and Close** to save the changes to the security role.

6. Send an email to tablet-enabled users to let them know they can download the mobile app from the app store. Include the organization URL and sign-in information in the email.

This applies to new installations of Microsoft Dynamics CRM Online, Microsoft Dynamics CRM 2013 or later, and customers that upgrade from Microsoft Dynamics CRM 2011. You can add or remove this privilege from custom or default security roles to meet your business needs. Users who do not have this privilege will see the following error:

You haven't been authorized to use this app. Check with your system administrator to update your settings.

 Note

Microsoft Dynamics CRM includes the ability to audit user access. Audit events are logged if a user accesses your CRM organization through CRM for tablets. However, there is not a new event type that indicates the access was through CRM for tablets. The audit login events would appear as **User Access via Web Services**.

What users need to do

See the topic: Help & Training: CRM for Phones and Tablets User's Guide

Install CRM for phones and CRM for tablets

Help & Training: Install CRM for tablets and phones

 Tip

Be sure to provide users the URL and credentials they need to sign in.

What admins need to do

Enable dashboards for CRM for phone and CRM for tablet users

Multiple dashboards are available for CRM for phones and CRM for tablets users. After you set up standard or custom dashboards for mobile access, users can easily modify which dashboards appear and how they appear on their phones or tablets.

1. Go to **Settings** > **Customizations**.

2. Click **Customize the System**.

3. Under Components, click **Dashboards**.

4. Double-click or press and hold the dashboard you want to enable for phone or tablet access.

5. Click **Properties** > **Enable for mobile** > **OK**.

6. Click **Save**.

Show your users how to set and view the enabled dashboards on their phones or tablets. More information: Help & Training: Get around in CRM for phones and tablets

You can assign security roles to a dashboard so the dashboard appears only to users with certain security roles. For example, to set who has access to the Sales Dashboard, click **Settings** > **Customizations** > **Customize the System** > **Components** > **Dashboards**, and then select the **Sales Dashboard**. Then, click **Enable Security Roles**.

Get your on-premises deployment ready for CRM for Windows 8.1 or later tablets

◆ **Important**

The following content covering registry changes applies to CRM for tablets and **not** CRM for phones.

There are two CRM for tablets apps in the Windows store—one for Windows 8.1 and Windows 8 (deprecated). To deploy the CRM for Windows 8.1 app, review the following scenarios.

Scenario	Admin action
You're using Microsoft Dynamics CRM Online Spring '14 or later.	None. You can skip the steps in this section. They apply only to on-premises Microsoft Dynamics CRM.
You're using an on-premises version of CRM that is earlier than Microsoft Dynamics CRM 2013 Service Pack 1 (SP1).	Update to Microsoft Dynamics CRM 2013 Service Pack 1 (SP1) or later, and then follow the steps in this section.
You organization is running Microsoft Dynamics CRM 2013 Service Pack 1 (SP1) or later.	Follow the steps in this section.

📝 **Note**

If you need to delay updating to Microsoft Dynamics CRM 2013 Service Pack 1 (SP1) or later, your

users can use the Windows 8 app.

Before your users install the Windows 8.1 app, complete these steps:

1. Make sure your CRM server is updated to Microsoft Dynamics CRM 2013 Service Pack 1 (SP1) or later.

2. Update a registry setting on your mobile devices.

📝 Note

If users have installed the CRM for Windows 8.1 app prior to you making these registry changes, they will need to restart the tablet app after the changes are complete.

Update the registry on managed mobile devices

If your mobile devices are managed under the control of group policy, the following steps describe what you need to do.

⚠️ Caution

This task contains steps that tell you how to modify the registry. However, because serious problems may occur if you modify the registry incorrectly, it's important that you follow these steps carefully. For added protection, back up the registry before you modify it. Then, you can restore the registry if a problem occurs. For more information about how to back up and restore the registry, open the following link to view the article in the Microsoft Knowledge Base: How to back up and restore the registry in Windows.

1. If you plan on using group policy to do a domain wide deployment of the registry change and your server is not running Windows Server 2012 R2 or later, download and install the Windows Server Administrative Templates.

2. Open the Group Policy Management Editor.

3. Select an existing policy or create a new policy.

4. Go to **Computer Configuration** > **Policies** > **Administrative Templates** > **Windows Components** > **App runtime** and set **Turn on dynamic Content URI Rules for Windows store apps** to **Enabled**.

5. Click **Show**, and then add the URL for your organization. For example, https://orgname.contoso.com.

6. Close the group policy editor and save your changes.

More information: How to update links to external web pages for an enterprise environment and Group Policy

Update the registry on unmanaged mobile devices using a script

If your mobile devices are unmanaged, see the following sample PowerShell script that shows how to change the registry on each Windows 8.1 or later device.

```
# **********************************************************
#
#    Copyright (c) Microsoft. All rights reserved.
#    This code is licensed under the Microsoft Limited Public License.
#    THIS CODE IS PROVIDED *AS IS* WITHOUT WARRANTY OF
#    ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING ANY
#    IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR
#    PURPOSE, MERCHANTABILITY, OR NON-INFRINGEMENT.
#
# **********************************************************
param([string]$admin)


#Force PowerShell to relaunch in Admin mode
if($admin -ne 'LaunchingAsAdminNow')
{
    $Args = '-ExecutionPolicy Unrestricted -file "' + ((Get-Variable
MyInvocation).Value.MyCommand.Path) + '" LaunchingAsAdminNow'
    $AdminProcess = Start-Process "$PsHome\PowerShell.exe" -Verb RunAs -ArgumentList $Args -
PassThru
}
else
{
    # Create Packages key if it does not exist
    $packages=Get-Item -Path HKLM:\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\Packages
-ErrorAction SilentlyContinue
    if($packages -eq $null)
    { New-Item -Path HKLM:\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies -Name Packages}


    # Create Applications key if it does not exist
```

```
    $apps=Get-Item -Path
HKLM:\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\Packages\Applications -ErrorAction
SilentlyContinue

    if($apps -eq $null)

    { New-Item -Path HKLM:\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\Packages -Name
Applications}


    # Add or overwrite EnableDynamicContentUriRules value to 1
    New-ItemProperty -Path
HKLM:\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\Packages\Applications -Name
EnableDynamicContentUriRules -PropertyType DWord -Value 1 -force


    # Create ContentUriRules key if it does not exist
    $rules=Get-Item -Path
HKLM:\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\Packages\Applications\ContentUriRules
-ErrorAction SilentlyContinue

    if($rules -eq $null)

    {New-Item -Path
HKLM:\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\Packages\Applications -Name
ContentUriRules}


    # Prompt user for the domain uri
    $domainname = Read-Host 'Please provide the domain uri that you want to add to the allow
list(such as https://*.contoso.com:444)'


    # Add uri to the allow list under ContentUriRules
    $urls=Get-Item -Path
HKLM:\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\Packages\Applications\ContentUriRules
-ErrorAction SilentlyContinue

    New-ItemProperty -Path
HKLM:\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\Packages\Applications\ContentUriRules
-Name ($urls.ValueCount+1) -PropertyType String -Value $domainname -force

}
```

Update the registry on unmanaged mobile devices using the Registry Editor

If your mobile devices are unmanaged, you can also change the registry on each Windows 8.1 or later device like this:

1. Start Registry Editor.
2. Before making changes to your registry, make a backup. Click **File** > **Export**, and then enter your settings.
3. Locate the following registry subkey:
    HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\CurrentVersion\policies
4. Right-click or tap **policies**, point to **New**, and then click **Key**.
5. Type **Packages**, and then press **ENTER**.
6. Right-click or tap **Packages**, point to **New**, and then click **Key**.
7. Type **Applications**, and then save the text.
8. Right-click or tap **Applications**, point to **New**, and then click **DWORD (32-bit) Value**.
9. Type **EnableDynamicContentUriRules** and then save the text.
10. Right-click or tap **EnableDynamicContentUriRules**, and then click **Modify**.
11. Type **1** in the **Value Data** box, and then click **OK**.
12. Right-click or tap **Applications**, point to **New**, and then click **Key**.
13. Type **ContentUriRules**, and then save the text.
14. Right-click or tap **ContentUriRules**, point to **New**, and then click **String Value**.
15. Type **1**, and then save the text.
16. Right-click or tap **1**, and then click **Modify**.
17. Type your CRM organization's URL in the **Value Data** box (for example, https://contoso.com), and then click **OK**.
18. Exit Registry Editor.

    Now you can point your users to the Windows 8.1 app, so they can get the added functionality of the offline experience. More information: Help & Training: Install the CRM for tablets app

Configure CRM for phones and CRM for tablets

Navigation bar

If an entity is enabled for **CRM for mobile** and appears in the nav bar (sitemap) for the web application, it will also appear on the nav bar in CRM for phones and CRM for tablets.

The CRM for phones and CRM for tablets apps show the entities as a flat list in the same order as the sitemap in the web application. They ignore any groupings within web application areas. You can add

an entity to multiple groups on the web application, but CRM for phones and CRM for tablets display a flattened list and do not show any repeats. CRM for phones and CRM for tablets apply your Microsoft Dynamics CRM security role, so you will not see an entity unless you have at least read access to that entity.

Custom entities use a fixed custom entity symbol.
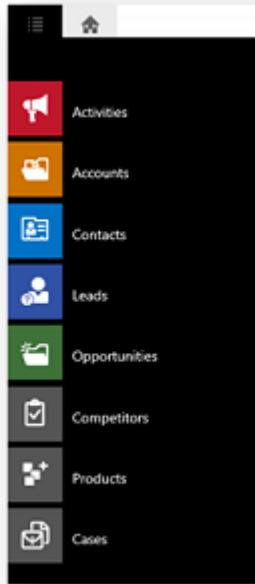
Simple lists

The lists of records that appear on the Sales Dashboard and within a form appear as simple lists. These lists have a different appearance than the typical view of records. There are a few frequently used actions you can perform on a simple list.

 Note

Simple lists are not available in CRM for phones. Instead use the command bar **…** and click **Select View** to change your view.

- Tap the list header to see the full list for the current view.
- Tap a list item to open the form for that item.
- Tap and hold an item to display the command bar.
- Tap the **New Item** button + to the right of the view name to create a new record of that type.

Some more things to note:

- You'll see the **New Item** button + to the right of the view name for any entity type that is read/write enabled for CRM for tablets.

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- Simple lists retrieve ten records at a time regardless of the **Records Per Page** setting in your **Personal Options** area of the web application. As you scroll to the bottom of the list, CRM for tablets displays additional records.

Fields Displayed

A typical view of records displays all columns in the view definition. A simple list displays the first few columns from the selected view. Simple lists are also capable of displaying images for each record if the entity is enabled to display images.
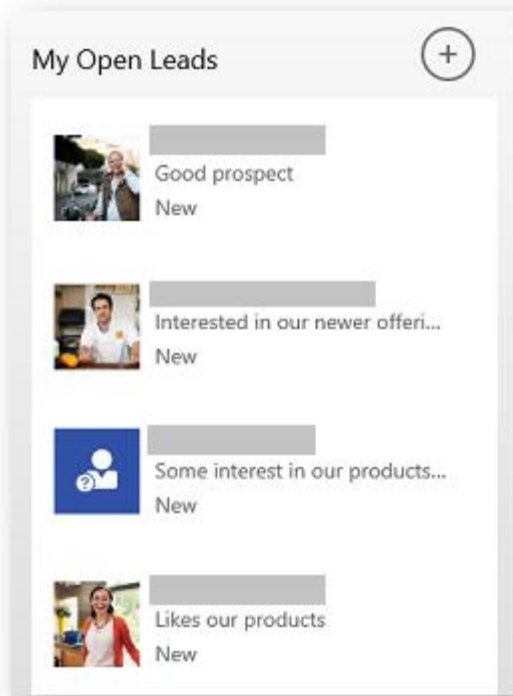
The number of fields you'lll see in the list is different depending on whether or not the entity is enabled for images. If it is, the image is the first thing to appear. Next to the image the primary field for the entity is displayed first and wraps up to two lines. The primary field is followed by the first two columns in the view that are not the primary field. Those fields will each appear on one line.

If the entity is not enabled for images, the primary field for the entity is displayed first. The primary field is followed by the first three columns in the view that are not the primary field.

There are a few special list types: Activity, Stakeholders, and Sales Team. These are discussed in the next sections.

Activity Lists

The simple list for activities includes some special functionality that isn't available on other lists. Each standard activity type (such as Phone call and Task) includes a symbol to differentiate it from the other activity types. Next to the symbol, the primary field for the activity is displayed and will wrap up to three lines. The next field to display is the first field from the view (excluding the primary field), **Due Date**, and **Activity Type**. Activities that can be marked as complete have a check box next to them. Tap the check box to mark the activity as complete.

The activities list shows activities that are due today and past due activities in a darker color. Activities that are not due today or past due appear in a lighter color. Activities with a due date include the date and time of when they are due.

Microsoft Dynamics CRM uses a composite Activity entity to store and retrieve data common between different activity types (like Task, Appointment, or Phone Call). The due date for activities is stored in the Actual End field for the composite Activity entity. Appointment activities have a Start Date and End Date. Because the due date for the activities list is retrieved from the Actual End field, the time that an appointment ends is displayed in the Activities list. This means an appointment that starts at 1pm and ends at 2pm will show a time of 2pm on the tile for the appointment in the activities simple list.
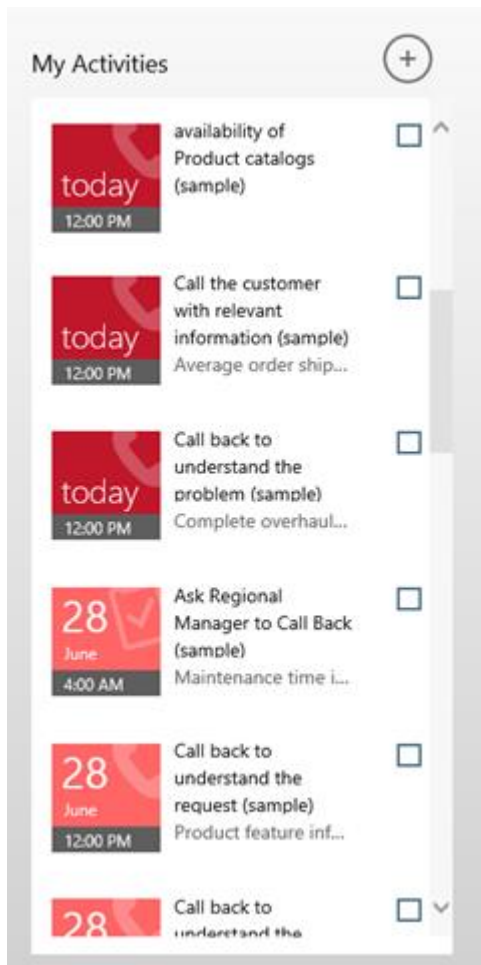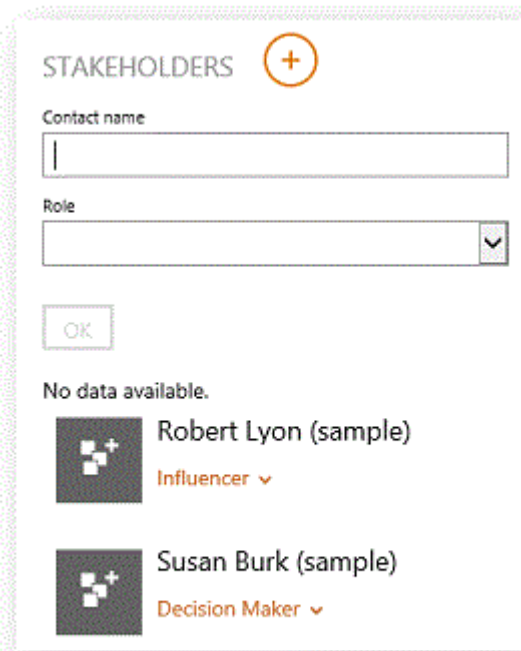
Some more things to note:

- The Description field for emails will not appear in lists.

- For Activities, the **New Item** button + opens a flyout so you can select the type of activity to create. This flyout contains a list of all the read/write enabled activities.

Stakeholders and Sales Team Lists

The Stakeholders and Sales Team lists that appear in an Opportunity display the primary field and role. These two entity lists have inline create and editing. When you tap the **New Item** button + on these lists, the existing list items move down, and a lookup and a drop-down list appear. Now you can select (or create) an entity to add to the list through the lookup, and assign a role through the drop-down list.

Editing is an inline experience as well. If you tap the down arrow next to the role name, the drop-down list appears in edit mode and you can change roles.

Select View

To change the view used to display a list of records, tap and hold the name of the list. The command bar appears, which includes the **Select View** button. Tap the **Select View** button to select a different view.

Personal views are listed before system views. You can't create new views within Microsoft Dynamics CRM.

Charts

All the charts you can create in the Chart Designer, such as Bar, Line, Pie, and Funnel charts, are viewable in CRM for phones and CRM for tablets.

Some more things to note:

- Open a chart from the Sales Dashboard to get a page with a chart and the records used to generate the chart.

- Choose the chart sections to see the records filtered for that part of the chart.

- Charts are not available offline with CRM for phones and CRM for tablets.

Forms

Forms in CRM for tablets are based on the development principle of "Design once and deploy across clients." Entity behavior and business processes in CRM for tablets forms function similarly to forms in the web application, but with a flow tailored for a tablet. In Microsoft Dynamics CRM Online 2016 Update and Microsoft Dynamics CRM 2016 (on-premises) or later, you can preview how forms look on tablets and phones when you customize them in the web app.

✎ **Note**

Forms work a bit differently for CRM for phones. See the section below Things to know about CRM for phones.

Sales Lead form in web application

Sales Lead form in CRM for tablets
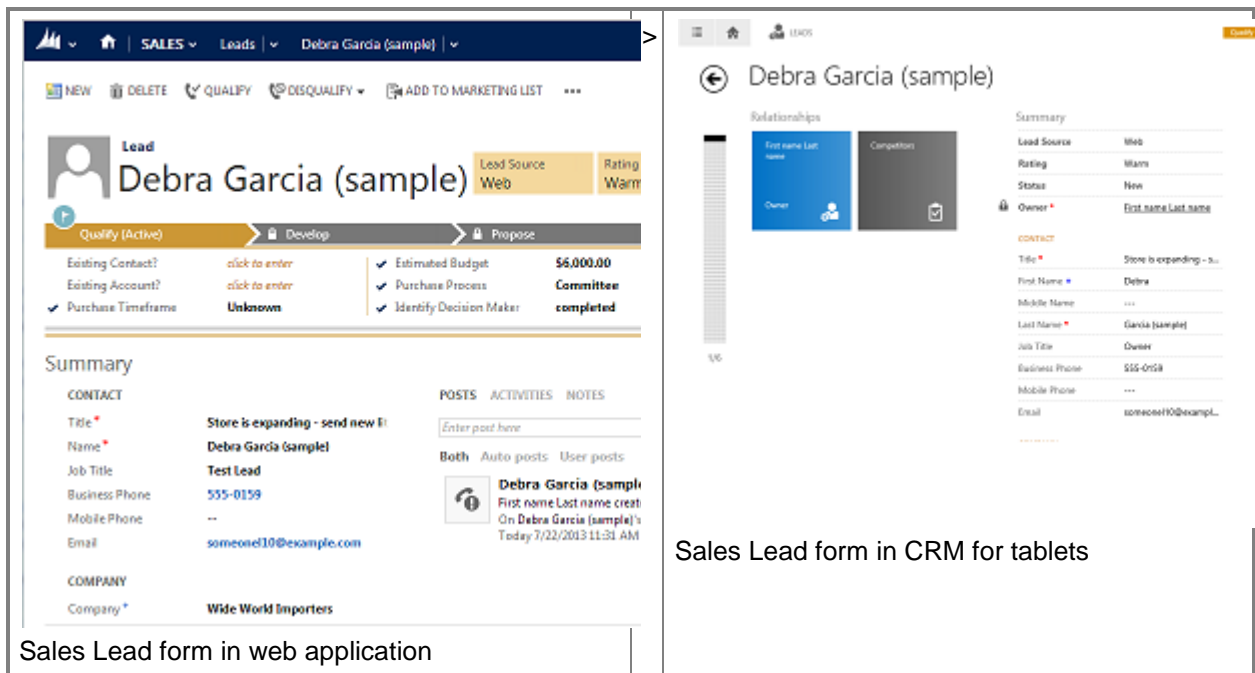
This diagram shows common parts of the updated entity forms in the web application.
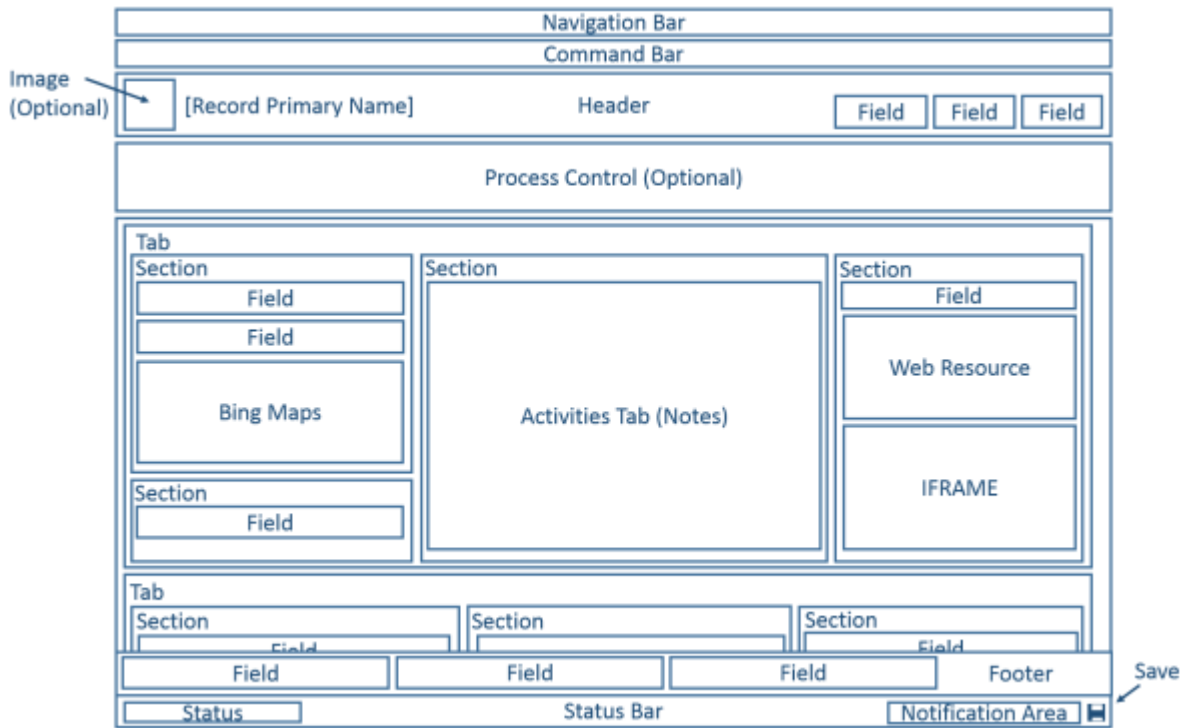
Microsoft Dynamics CRM for tablets takes many of the Main form elements and presents them in a way that is optimized for tablets, as shown in the following diagram.
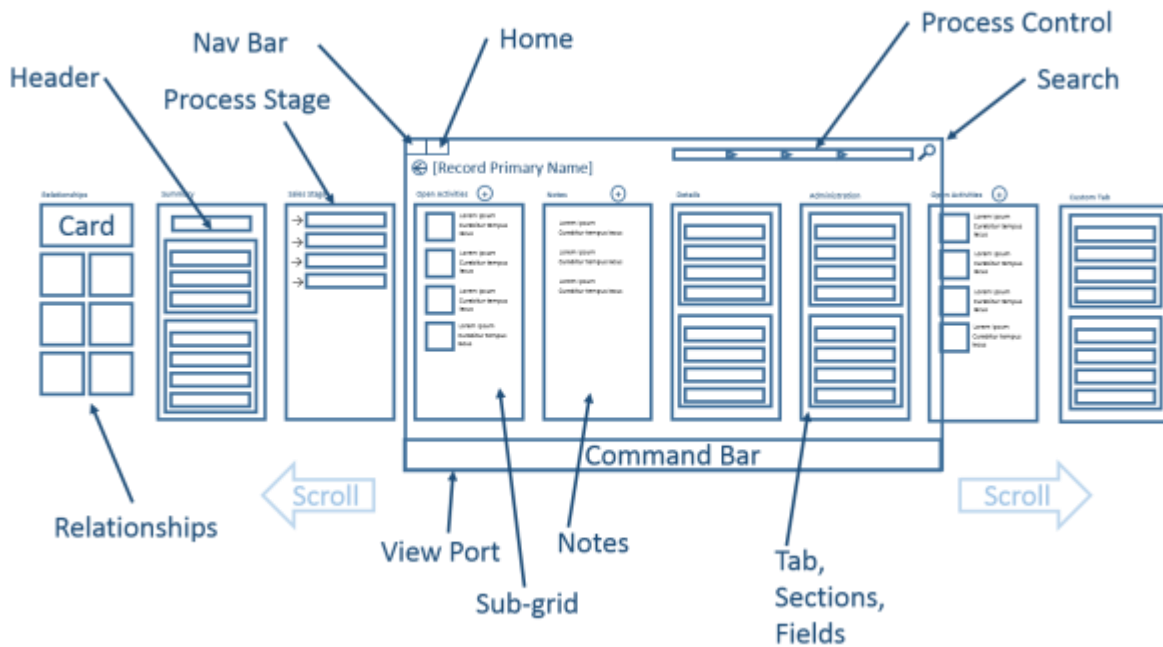
Relationships

The Relationships area of the form displays entity relationships that are configured in the Navigation area of a form. If an entity relationship is configured to appear in the Navigation area within the form customization, and the entity is enabled for CRM for tablets, the entity relationship will appear in the Relationships section. The Connections relationship tile is not displayed in CRM for tablets.

The relationships section also has a tile that represents the owner of the record, which is a Lookup field. In addition to the Owner tile, there are some other examples of hardcoded tiles that represent Lookup fields. For example, the Contact form has a tile for the parent account. You cannot choose additional Lookup fields as tiles in this section.

Form customization that shows navigation items on the left side of the screen
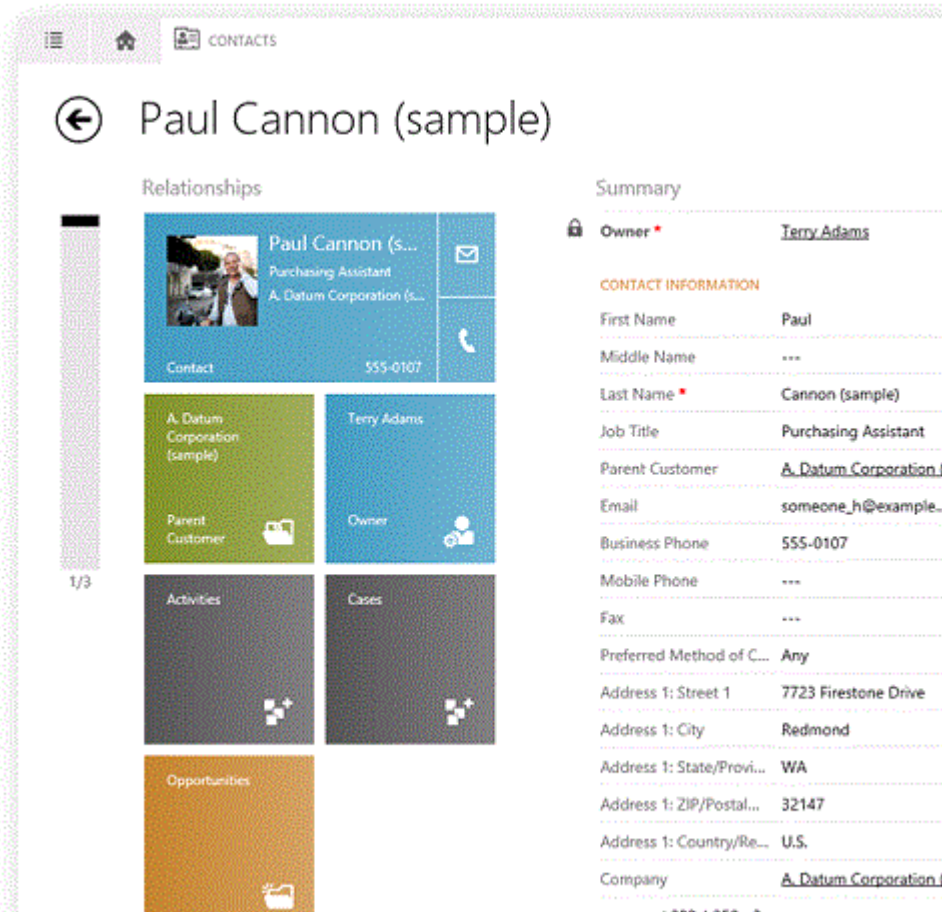
Relationships section within a form

Some more things to note:

- Forms in CRM for tablets are limited to 5 tabs (or 75 fields and 10 lists). This limit includes hidden fields.
- Activity Feeds and Yammer are not supported in CRM for tablets.

Things to know about CRM for phones

Forms

Forms in CRM for phones use the Main form type. Entity behavior and business processes in CRM for phones forms function similarly to forms in the web application, but with a flow tailored for a phone.

To further simplify forms, you can hide components from appearing in the phone app. You can hide tabs, sections, subgrids, fields, and charts. For example, to hide the Details tab in the Contact form,

click **Settings** > **Customizations** > **Customize the System** > **Components** > expand **Entities** > expand the **Contact** entity > **Forms**. Select the **Contact** form, then scroll down and click **Details**. Click **Change Properties** and clear the **Available on phone** check box to hide the Detail tab from appearing on the Contact form for phone users.
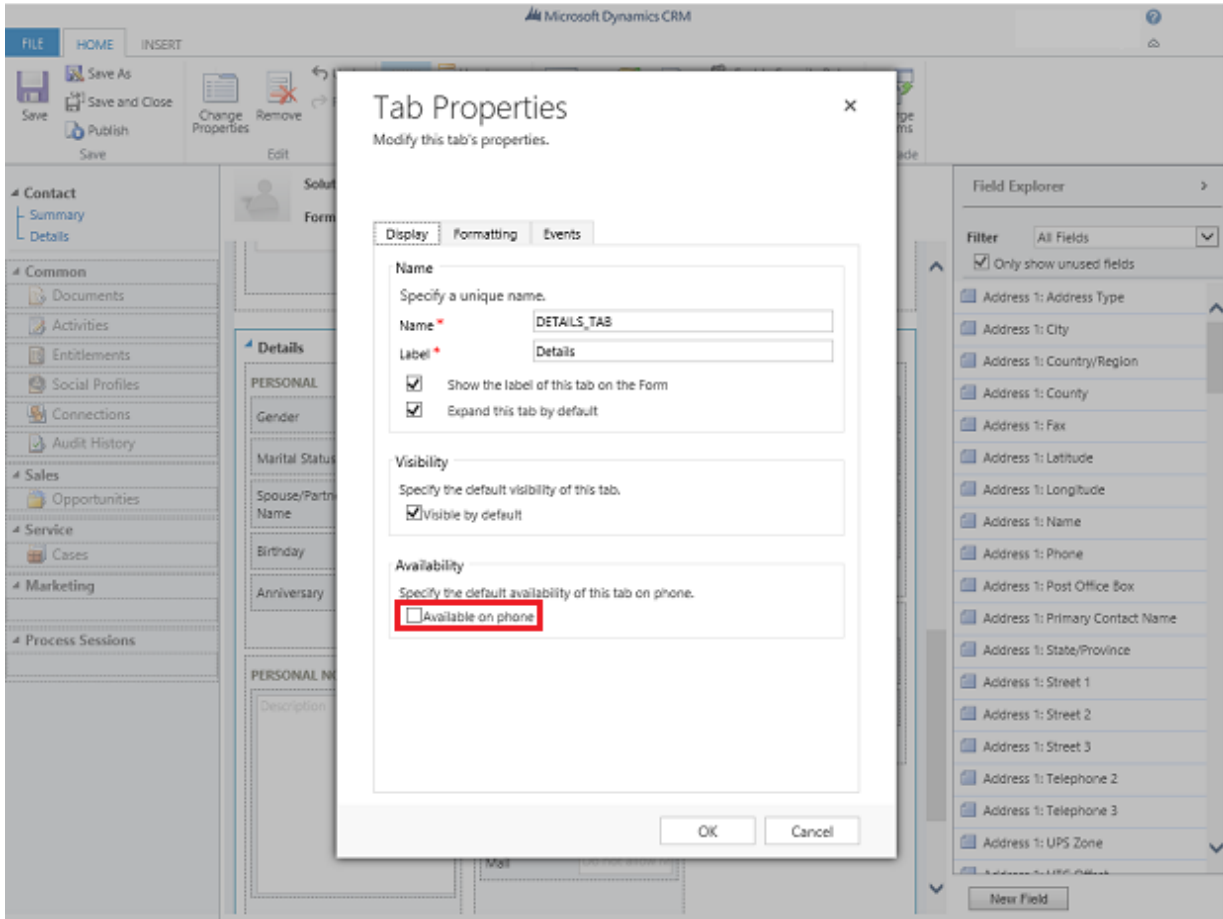
Other differences with CRM for tablets

There are a few differences between CRM for phones and CRM for tablets:

- Simple lists are not available in CRM for phones. Instead use the command bar **…** and click **Select View** to change your view.

- Duplicate detection is not available.

- The **Open in browser** feature is not available.

Supported languages for CRM for phones and CRM for tablets

CRM for phones and CRM for tablets support the following languages:

- Basque (Basque) - 1069
- Bulgarian (Bulgaria) - 1026
- Catalan (Catalan) - 1027
- Chinese (Hong Kong S.A.R.) - 3076
- Chinese (People's Republic of China) - 2052
- Chinese (Simplified) - 2052
- Chinese (Taiwan) - 1028
- Chinese (Traditional) - 1028
- Croatian (Croatia) - 1050
- Czech (Czech Republic) - 1029
- Danish - 1030
- Dutch - 1043
- English - 1033
- Estonian - 1061
- Finnish - 1035
- French - 1036
- Galician
- German - 1031
- Greek - 30
- Hindi (India) - 91
- Hungarian - 36
- Indonesian - 62
- Italian - 1040
- Japanese - 1041
- Kazakh - 705
- Korean - 82
- Latvian - 371
- Lithuanian - 370
- Norwegian - 47
- Polish - 48
- Portuguese (Brazil) - 55

- Portuguese (Portugal) - 2070

- Romanian - 40

- Russian - 7

- Serbian

- Slovak - 421

- Slovenian - 386

- Spanish - 3082

- Swedish - 46

- Thai - 66

- Turkish - 90

- Ukrainian - 380

When the application first loads after installation, it will determine the device language and load the user interface in that language. If the device language is not one of the supported languages, the application will load in English. When the application has been configured in a Microsoft Dynamics CRM organization, the application will load in the language specified in the user's personal options. If the user language is not one of the supported languages, the application will fall back to the base language of the CRM organization, if it is in the supported language list. If the organization's base language isn't supported, English will be the final fallback if it is enabled on the server.

Entities and CRM for phones and CRM for tablets

You can enable a limited set of entities for CRM for phones and CRM for tablets. To see if an entity is enabled or to enable an entity, click **Settings** > **Customizations** > **Customize the System** > **Entities**. Select an entity and review the **Outlook & Mobile** settings.

Some more things to note:

- All custom entities can be enabled for CRM for phones and CRM for tablets.

- You can use the Lookup for entities that are not enabled for CRM for phones and CRM for tablets from a record that is enabled and see the data. However, you won't be able to edit the entity.

Entities that are visible and read/write in CRM for phones and CRM for tablets

Entity Name	CRM for phones and CRM for tablets Visibility Property	CRM for phones and CRM for tablets Read-only Property
Account	Modifiable	Modifiable
Activity	Not modifiable	Not modifiable
Appointment	Modifiable	Modifiable
Case	Modifiable	Modifiable
Competitor	Modifiable	Modifiable
Connection	Not modifiable	Modifiable
Contact	Modifiable	Modifiable

Entity Name	CRM for phones and CRM for tablets Visibility Property	CRM for phones and CRM for tablets Read-only Property
Lead	Modifiable	Modifiable
Note	Not modifiable	Not modifiable
Opportunity	Modifiable	Modifiable
Opportunity Product	Modifiable	Modifiable
Phone Call	Modifiable	Modifiable
Queue Item	Modifiable	Modifiable
Social Activity	Modifiable	Modifiable
Social Profile	Modifiable	Modifiable
Task	Modifiable	Modifiable

Entities that are visible and read-only in CRM for phones and CRM for tablets

Entity Name	CRM for phones and CRM for tablets Visibility Property	CRM for phones and CRM for tablets Read-only Property
Attachment	Not modifiable	Not modifiable
Email	Modifiable	Not modifiable
Entitlement	Not modifiable	Not modifiable
Knowledge Base Record	Modifiable	Not modifiable
Product	Modifiable	Not modifiable
Queue	Modifiable	Not modifiable
SLA KPI Instance	Not modifiable	Modifiable
Team	Not modifiable	Not modifiable
User	Not modifiable	Not modifiable
Web Resource	Not modifiable	Not modifiable

Authentication and CRM for phones and CRM for tablets

CRM for phones and CRM for tablets authenticate users with browser-based authentication, which means no credentials are stored on the phone.

Microsoft Dynamics CRM Online

CRM for phones and CRM for tablets users transitioned to Microsoft Dynamics CRM Online on Microsoft Online Services environment will automatically renew their sign-in for **up to** 30 days.

Microsoft Dynamics CRM 2015 or later (on-premises versions)

CRM for tablets connections to Microsoft Dynamics CRM 2015 or later require an Internet-facing deployment.

 Note

Microsoft Dynamics CRM 2013 or later is required for CRM for tablets users to connect to their Microsoft Dynamics CRM organization. Organizations that are using earlier versions of on-premises editions of Microsoft Dynamics CRM will need to upgrade.

Considerations and best practices for securing CRM data on CRM for phones and CRM for tablets

Consider the following when planning security for CRM for tablets:

- **Data transmission**. CRM for tablets requires an Internet-facing deployment (IFD), so when your organization's mobile devices synchronize CRM data with your online or on-premises CRM, the data is encrypted with Transport Layer Security (TLS) or Secure Sockets Layer (SSL).

- **Cached data**. CRM for phones and CRM for tablets only cached records and lists that you've recently accessed in the app. To clear cached data, users can either sign out or reconfigure. More information: see "What's the difference between sign out and reconfigure?" in Help & Training: Sign out or reconfigure CRM for tablets

- **Encrypting cached data**. Cached data is not encrypted. You can use BitLocker to encrypt the entire hard drive on a Windows 8 or later device. For Apple and Android devices, consider Windows Intune or a product from another company to encrypt the hard drive on the mobile device.

Other features

Save

Records are saved in CRM for tablets based on how you configured autosave in your organization settings. To view your save settings, click **Settings** > **Administration** > **System Settings** > **General** tab. View the settings under **Select the default save option for forms**.

If autosave is:

- Enabled for the organization, changes to forms are saved when users leave forms.

- Disabled for the organization, users must use the command bar and click **Save** to save form changes.

Images

Images, such as contact photos, are not stored in the browser cache. Images may not be displayed when users work offline with CRM for tablets.

Privacy notice

Licensed Dynamics CRM Online users with specific Security Roles (CEO – Business Manager, Sales Manager, Salesperson, System Administrator, System Customizer, and Vice President of Sales) are automatically authorized to access the service by using CRM for tablets, as well as other clients.

An administrator has full control (at the user security role or entity level) over the ability to access and the level of authorized access associated with the tablet client. Users can then access CRM Online by using CRM for tablets, and Customer Data will be cached on the device running the specific client.

Based on the specific settings at the user security and entity levels, the types of Customer Data that can be exported from CRM Online and cached on an end user's device include record data, record metadata, entity data, entity metadata, and business logic.

See Also

Secure and manage CRM for phones and tablets
Things to know about CRM for phones and tablets
Help & Training: Install CRM for tablets and phones
Help & Training: CRM for Phones and Tablets User's Guide
Watch Microsoft Dynamics CRM videos on YouTube

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Support for CRM for phones and CRM for tablets

Applies To: CRM 2016 on-prem, CRM Online

You can access Microsoft Dynamics CRM data from mobile devices in different ways. You can install and use the apps for Windows, iOS, and Android mobile devices, or you can run the CRM web app on the device's preferred browser for those devices described here.

CRM Online 2015 Update 1 introduced a new version of CRM for phones that's based on and shares many of the features of CRM for tablets. To use this new version of CRM for phones, you must be running CRM Online 2015 Update 1 or later or Microsoft Dynamics CRM 2016 on-premises or later. If you're not running either of these, or you want to use the previous phone app—now called CRM for phones express—see Set up CRM for phones express.

 Note

Tablet support requires Microsoft Dynamics CRM Online Fall '13 or later, or Microsoft Dynamics CRM 2015 or later.

For on-premises deployments of CRM, the mobile apps require an Internet-facing deployment of Microsoft Dynamics CRM Server that uses claims-based authentication.

The mobile apps are compatible with the devices and operating systems that they are specifically designed for. These apps may not be compatible with other mobile devices that aren't listed in this

documentation.

In this topic

Support for CRM for phones

Version support

CRM for phones requires and can only connect to Microsoft Dynamics CRM Online 2015 Update 1 or later (Windows Phone, iPhone, and Android) or Microsoft Dynamics CRM 2016 on-premises (iPhone and Android). CRM for phones can't connect to previous versions of Dynamics CRM Online or CRM on-premises.

Device support

Platform	Versions	RAM (minimum)
iOS	7.x, 8.x, and 9.x*	1 GB
Android	4.4 and 5.0*	1 GB
Windows Phone	8.1 and 10*	512MB, 1 GB recommended

 Note

* These versions are supported in Microsoft Dynamics CRM Online 2016 Update and Microsoft Dynamics CRM 2016 (on-premises) or later.

Support for CRM for tablets

Windows tablets

You can run the CRM for Windows tablets app on devices that meet the following requirements. You can also run the CRM web app on a supported web browser on these devices. For more information about web browser support, see Web application requirements for Microsoft Dynamics CRM.

Download the Microsoft Dynamics CRM app from the Windows Marketplace

Operating system	Windows 8 or later
Memory	1 GB

Resolution	1366 x 768 resolution (720p)

♦ Important

For on-premises deployments, support requires a Microsoft Windows registry modification on the user's Windows 8.1 device. For more information, see "Get your on-premises deployment ready for CRM for Windows 8.1 tablets" in <u>What admins need to do</u>.

The Microsoft Dynamics CRM app isn't compatible with Windows 8.

Additional screen sizes and resolutions are supported because Windows can use system scaling.

Apple iPad

You can run the CRM for iPad app on devices that meet the following requirements.

<u>Download Microsoft Dynamics CRM for iPad from the Apple Store</u>

- Device: iPad third generation or later

- Screen: 9-inch (diagonal) or larger

♦ Important

For CRM 2015, this app is supported on iOS 6, 7, and 8.

For Microsoft Dynamics CRM Online 2016 Update and Microsoft Dynamics CRM 2016 (on-premises), this app is supported on iOS 6, 7, 8, and 9.

How to find the version of your Microsoft Dynamics CRM for iPad app

1. In the CRM for tablets app, go to the home screen, and then open the command bar. Tap **Settings**, and then tap **About**.

Android

You can run the CRM for Android app on devices that meet the following requirements.

<u>Download Microsoft Dynamics CRM for Android from Google play</u>

Android versions 4.2, 4.3, 4.4*, and 5.0** are supported for tablets with screens larger than 7 inches (optimized for 9 to 10 inches) using Microsoft Dynamics CRM for Android.

The following tablet model, screen, and Android versions have been tested for installing and running CRM for Android or running Microsoft Dynamics CRM in the tablet's web browser.

Model	CRM for Android supported operating system
Samsung Galaxy Tab 4	4.4*
Samsung Galaxy Tab S	4.4*
Google Nexus 10	Android 4.2, 4.4*, and 5.0**
Samsung Galaxy Tab 3	Android 4.2.2

Model	CRM for Android supported operating system
Asus Transformer Pad Infinity TF700	Android 4.2
Samsung Galaxy Note 10	Android 4.3

 Note

*This feature is available only if your organization has updated to Microsoft Dynamics CRM 2015 Update 0.1 or later.

**This feature is available only if your organization has updated to Microsoft Dynamics CRM 2015 Update 1.1 or later.

Web browser support for tablets

You can run Microsoft Dynamics CRM in the default web browser on any of the supported Windows tablets tablets listed earlier. For Apple iPad tablets, iOS 6, iOS 7, iOS 8, and iOS 9 are supported. For Android, versions 4.2.2, 4.3, 4.4, and 5.0 are supported for the tablets listed earlier.

Using Microsoft Dynamics CRM on a web browser on an Apple or Android mobile device provides a similar experience to using it with a web browser on a desktop or laptop computer. However, some features are not available, including:

- Pinch and zoom
- Yammer
- Reports
- Customization/Editors
- System Settings
- Advanced Find
- Process dialogs
- Skype for Business presence
- Adding attachments to Notes—for Apple iPad users with Microsoft Dynamics CRM (on-premises)
- Entities that use classic forms such as Goal and Order Product (see Entities using classic forms)

See Also

Set up and manage phones and tablets
Web application requirements for Microsoft Dynamics CRM
Support for CRM for phones express
Update Rollup 1 for Microsoft Dynamics CRM 2013 (KB 2891271)

Secure and manage CRM for phones and tablets

Applies To: Dynamics CRM 2016, Dynamics CRM Online

You can secure and manage Microsoft Dynamics CRM for phones and Microsoft Dynamics CRM for tablets with the following technologies:

1. **Microsoft Intune**. You can use Microsoft Intune to manage CRM for phones and CRM for tablets on Apple and Android tablets and phones. Intune provides mobile device management, mobile application management, and PC management capabilities from the cloud. Using Intune, you can provide your users with access to corporate applications, data, and resources from virtually anywhere on almost any device, while helping to keep corporate information secure.

◆ **Important**

This feature was introduced in CRM Online 2016 Update and CRM 2016 (on-premises).

Interested in getting this feature? [Find your CRM administrator or support person.](#)

2. **Microsoft Dynamics CRM for Good**. Microsoft Dynamics CRM for Good, integrated with Good Dynamics, protects your CRM data even if your users lose or leave their mobile devices somewhere. For example, if someone leaves their device in a taxi cab and can't get it back right away, CRM data is protected by Good encryption. If someone loses their device entirely, all they have to do is notify you so you can remotely wipe Microsoft Dynamics CRM for Good data from their device.

◆ **Important**

This feature was introduced in CRM Online 2015 Update and CRM 2015 (on-premises).
Interested in getting this feature? [Find your CRM administrator or support person.](#)

Manage CRM on mobile devices with Microsoft Intune

If your organization is set up with IIntune, you can use it to manage the CRM for phones and tablets apps on Apple, Android, and Windows 10 tablets and phones. IIntune manages encryption at the device level, as well as app-to-app communications. With Intune, you can selectively wipe managed apps and related data on devices that are unenrolled, no longer compliant, lost, stolen, or retired from use.

With Microsoft Dynamics CRM 2016 Update 1.1, you can use Intune mobile application management (MAM) to manage CRM mobile applications for Apple and Android without enrolling the device.   This protects company data in CRM without requiring you to enroll and deeply manage the end user's entire device. This is particularly useful for bring-your-own-device (BYOD) scenarios where end users don't

want to or can't enroll their devices for IT management. This capability is also useful if a device is already enrolled in another Microsoft Dynamics Marketing solution.

More information

For more information about getting and using Intune, see:

- [Microsoft Intune](#)
- [Documentation for Microsoft Intune](#)

Set up conditional access to CRM Online

You can use System Center Configuration Manager conditional access to manage access to CRM from mobile devices based on conditions you specify. For more information about setting up conditional access, see [Conditional Access in Configuration Manager](#).

📝 Note

To use conditional access, you must have an Azure Active Directory premium subscription.

🔷 Important

This feature was introduced in CRM Online 2016 Update 1 and CRM 2016 Service Pack 1 (on-premises).

Secure CRM on mobile devices with Microsoft Dynamics CRM for Good

Microsoft Dynamics CRM for Good is a special version of CRM for tablets that works with the Good Technology mobile security platform. Microsoft Dynamics CRM for Good is currently supported for Apple iPad and Apple iPhone running iOS 7 or later. To use Microsoft Dynamics CRM for Good, you must have Good Dynamics server software and services from [Good Technology](#).

Prepare to use CRM for Good

Your organization should have services set up with Good Technology. Then follow the common directions for configuring CRM for tablets in [Set up CRM for phones and CRM for tablets](#).

In addition, the Good Dynamics admin should do the following:

1. Within the Good Control server, authorize the Microsoft Dynamics CRM for Good app for mobile users.

2. Within the Good Control server, add connection URLs to the allowed list. Any domain that the app needs to access for connection or content must be in the Allowed Domains list.

   If you are using an on-premises deployment, see [Configure a Microsoft Dynamics CRM Internet-facing deployment](#).

3. Send users the email address and access key they will need to set up the app, or set up another secured application to act as an authentication delegate.

What users need to do

Users should update to the latest version of the Dynamics CRM for Good application. On the Apple App store, the latest version is 1.1. On the Good Dynamics Marketplace or Good Control Console, the latest version is listed as 1.1.0.

Direct your users to Secure your mobile data with Microsoft Dynamics CRM for Good

Install CRM for Good

The app is listed in the Good Dynamics Marketplace and can be downloaded from the Apple App Store.

Supported languages for CRM for Good

Dynamics CRM for Good supports the same languages as CRM for tablets. However, when users are viewing Good Dynamics pages, only the following languages are supported:

- Dutch - 1043
- English - 1033
- French - 1036
- German - 1031
- Italian - 1040
- Spanish - 3082

While viewing Good Dynamics pages, if you're not using one of the languages listed, the screens will be in English.

Things to know about CRM for Good

- Requires Microsoft Dynamics CRM 2015 or later. Connecting to earlier versions is not a supported secure configuration.
- The Dynamics CRM for Good Apple app requires Microsoft Dynamics CRM Online 2015 Update 1 or later or Microsoft Dynamics CRM 2016 on-premises when running on an iPhone.
- Microsoft Dynamics CRM on-premises version requires an Internet-facing deployment to use this application.
- There are multiple policies Good Dynamics administrators set to control data sharing between apps on the mobile device.
  a. **Prevent click-to-call:** Prevents users from initiating a phone call from within the Dynamics CRM for Good app.
  b. **Prevent click for mapping:** Prevents users from opening an address in the mobile device's native maps application.

c. **Prevent opening OneNote:** Prevents users from opening Microsoft OneNote notebooks from external sources from within the Dynamics CRM for Good app.

d. **Prevent opening Word:** Prevents users from opening Word files from external sources within the Dynamics CRM for Good app.

e. **Prevent opening Excel:** Prevents users from opening Microsoft Excel files from external sources from within the Dynamics CRM for Good app.

f. **Prevent opening PowerPoint:** Prevents users from opening Microsoft PowerPoint files from external sources from within the Dynamics CRM for Good app.

g. **Require a secure browser for opening URLs:** Enable to ensure browser windows launched from the Dynamics CRM for Good app use a secure browser application.

Security Note

The policies for preventing opening Microsoft OneNote, Word, Microsoft Excel, and Microsoft PowerPoint files block opening these files on external sources such as Microsoft SharePoint, OneDrive for Business, and Office 365 Groups. These policies don't apply to items attached to notes in CRM or when exporting to Microsoft Excel, Microsoft Excel templates, and Word templates. These files download to Good-compliant encrypted file stores and require a Good-compliant application for viewing.

- Enable the **Prevent Data Leakage** setting in the **Security Policies** tab to cover other situations including using a secure app for email, and handling of copy/paste scenarios.
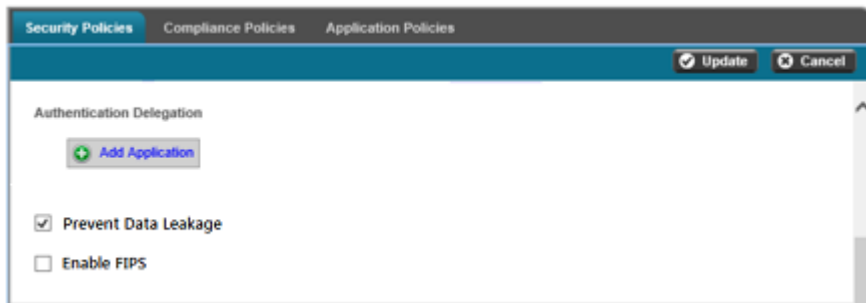
- All data stored on the client when using Dynamics CRM for Good is encrypted using Good Dynamics APIs.
- Remote wipe is available and will not affect non-secured apps leaving personal apps and information untouched.
- Contact Good Technology regarding the specific support that can be provided with your suite/pricing, as well as the correct server setup for your needs and situation.

More information

For more information, see:

- [Good Secure Mobility Platform](#)

- [Help & Training: CRM for Phones and Tablets User's Guide](#)

- [Secure your mobile data with CRM for Good](#)

Set up CRM for phones express

Applies To: CRM 2016 on-prem, CRM Online

◆ Important

This topic is for users of Microsoft Dynamics CRM for phones express. CRM for phones express is the CRM phone app designed to work with Microsoft Dynamics CRM 2013 and Microsoft Dynamics CRM 2015. If your organization has updated to Microsoft Dynamics CRM Online 2015 Update 1 or later or Microsoft Dynamics CRM 2016, we've got a great new phone app for you. See [Set up CRM for phones and CRM for tablets](#).

CRM for phones express will continue to be supported for Microsoft Dynamics CRM Online 2015 Update 1 users.

To determine your version, sign in to CRM, and in the upper-right side of the screen, click **Settings** (⚙) > **About**.

Terminology

With Microsoft Dynamics CRM Online 2015 Update 1, the terminology has changed for the CRM phone app.

Term	Usage
CRM for phones	The CRM phone app introduced with Microsoft Dynamics CRM Online 2015 Update 1.
CRM for phones express	The CRM phone app for Microsoft Dynamics CRM 2013 and Microsoft Dynamics CRM 2015. Versions prior to Microsoft Dynamics CRM Online 2015 Update 1 continue to refer to the CRM phone app as CRM for phones.

In addition to the information in this topic, be sure to review the information in [CRM for tablets and phones](#).

In This Topic

[Requirements for CRM for phones express](#)
[What users need to do](#)
[What the admin needs to do](#)
[Entities and CRM for phones express](#)

Requirements for CRM for phones express

CRM for phones express connections to Microsoft Dynamics CRM 2015 and Microsoft Dynamics CRM 2013 require an Internet Facing Deployment. You may need to make adjustments to your AD FS server. See Referenced topic '7c6a34c6-f67b-4b31-b5c6-f66f8d0c2db2' is not in the TOC..

Users must have an Internet or intranet connection and should install the CRM for phones express app. See "Installing CRM for phones express" later in this topic.

📝 **Note**

If users haven't installed the CRM for phones express app, they can access their data using their phone's browser. However, this isn't the recommended method to access data because they lose the advantages of using the app (see CRM for tablets and phones).

Microsoft Dynamics CRM supports popular versions of Windows Phone 8, Apple iPhone, and Android smartphones. For specific devices that are supported, see Support for CRM for phones express.

Required permissions

Microsoft Dynamics CRM uses a security privilege, **CRM for phones** (Microsoft Dynamics CRM Online 2015 Update 1) or **CRM for phone express** (Microsoft Dynamics CRM 2013 and Microsoft Dynamics CRM 2015), to provide access to CRM for phones express. Use the following process to check security privilege for a security role:

1. Go to **Settings** > **Security**.

2. Click **Security Roles**.

3. Choose a security role > **Business Management** tab.

4. In the **Privacy Related Privileges** section, review the **CRM for phones** or **CRM for phones express** privilege setting.

You can add or remove this privilege from custom or default security roles to meet your business needs. If a user does not have this privilege, they will receive the following error:

You haven't been authorized to use this app. Check with your system administrator to update your settings.

About CRM for phones express authentication

CRM for phones express authenticates users using browser-based authentication, which means no credentials are stored on the phone.

Microsoft Dynamics CRM Online

CRM for phones express users connected to Microsoft Dynamics CRM Online on the Microsoft Online Services environment will automatically renew their sign-in for up to 30 days. Users connected to Microsoft Dynamics CRM Online who aren't yet on Microsoft Online Services environment must renew their sign-in every 8 hours.

Microsoft Dynamics CRM 2015 (on-premises versions)

CRM for phones express connections to Microsoft Dynamics CRM 2015 require an [Internet-facing deployment](#).

Supported languages

CRM for phones express is available in the following languages:

CRM for Windows 8 Phones

- English
- French
- Italian
- German
- Spanish
- Portuguese (Portugal)
- Portuguese (Brazil)
- Chinese (Simplified)
- Chinese (Traditional)
- Czech
- Danish
- Dutch
- Finnish
- Greek
- Hungarian
- Japanese
- Korean
- Norwegian
- Polish
- Russian
- Swedish

CRM for iPhone

- English
- French
- Italian
- German
- Spanish
- Portuguese (Portugal)
- Chinese Simplified

- Chinese Traditional

- Japanese

CRM for Android

- English

- French

- German

- Italian

- Spanish

- Portuguese (Portugal)

- Chinese Simplified

- Chinese Traditional

- Japanese

 Note

BlackBerry devices don't have a CRM app and are only supported for running Microsoft Dynamics CRM by using the BlackBerry mobile browser.

When the application first loads after installation, it determines the device language and loads the user interface in that language. If the device language isn't one of the supported languages, the application loads in English. Once the application has been configured in a Microsoft Dynamics CRM organization, the application will load the application pages in the language specified in the user's personal options. If the user language is not one of the supported languages, the application will fall back to the base language of the CRM organization, if it is in the supported language list. If the organization's base language isn't supported, English will be the final fallback if it is enabled on the server.

This fallback logic will evaluate several language settings - such as the browser language - when it determines the fallback language. In the following scenario, the fallback will match the browser language:

- User language = Japanese

- Organization base language = Dutch (Set in Microsoft Dynamics CRM: **Settings** > **Administration** > **Languages**)

- Browser language = English (Set in browser)

In the scenario shown previously, English would be used as the fallback.

 Note

The parent language will be taken into account. For example, if the user's language is Spanish-Mexico, which isn't supported, the first fallback will be Spanish (3082), which is one of the supported languages.

If the server doesn't have a supported language enabled, the application's configuration will fail and it will show the following error message in the language of the device:

We're sorry

The language installed on your company's system isn't available on the app.

Please contact your system administrator to set up a supported language.

What users need to do

Installing CRM for phones express

See the Help & Training topic: [Install the CRM for phones express app](#)

💡 **Tip**

Be sure to provide users the URL and credentials they need to sign in.

What the admin needs to do

Enable CRM for phones express

CRM for phones express is enabled by default for many entities. To see if an entity is enabled or to enable an entity:

1. Go to **Settings** > **Customizations**.
2. In the Customizations window, click **Customize the System**.
3. In the navigation pane, expand **Entities**, and then choose the entity you want to enable access with CRM for phones express.
4. Under **Outlook and Mobile**, select the **CRM for phones** checkbox (Microsoft Dynamics CRM 2013 and Microsoft Dynamics CRM 2015). Or, if you are using Microsoft Dynamics CRM Online 2015 Update 1, select the **CRM for phones express** checkbox.
5. On the Actions toolbar, click **Save**.
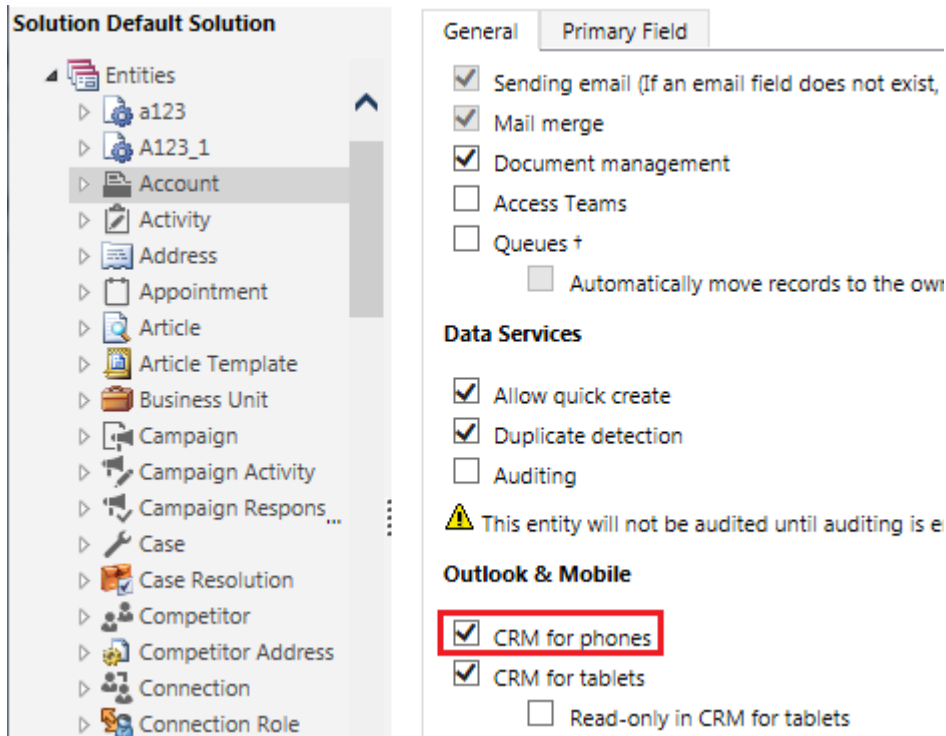
Disable CRM for phones express

CRM for phones express is enabled by default for Microsoft Dynamics CRM 2013, Microsoft Dynamics CRM 2015, and CRM Online users. As an admin, you can control what is available and who can view CRM for phones express using one of these methods.

Disable CRM for phones express for an entity

You can prevent record types (entities), such as accounts, from appearing in CRM for phones express.

1. Go to **Settings** > **Customizations**.
2. In the Customizations window, click **Customize the System**.
3. In the navigation pane, expand **Entities**, and then choose the entity you want to prevent users from accessing with CRM for phones express.
4. Under **Outlook and Mobile**, deselect **CRM for phones** checkbox (Microsoft Dynamics CRM 2013 and Microsoft Dynamics CRM 2015). Or, if you are using Microsoft Dynamics CRM Online 2015 Update 1, deselect the **CRM for phones express** checkbox.
5. On the Actions toolbar, click **Save**.
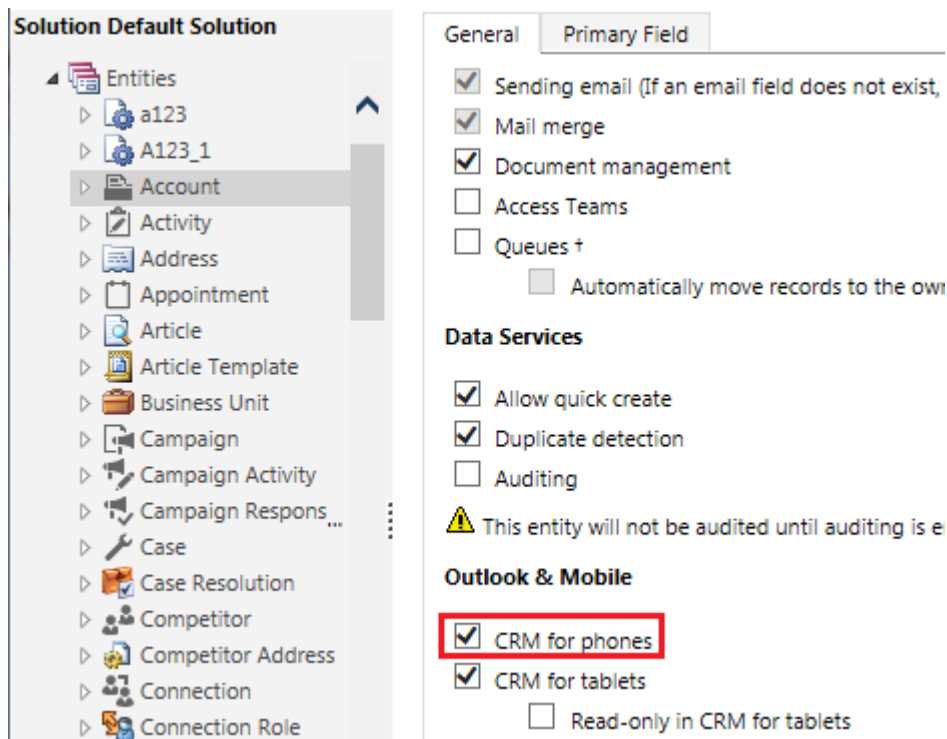
Disable CRM for phones express privilege

You can prevent users with a specific a security role (for example, Customer Service Representative) from having access to CRM for phones express.

1. Go to **Settings** > **Security**.

2. Under **Security**, click **Security Roles**.

3. Select the security role for which you want to prevent access to CRM for phones express.

4. Select the **Business Management** tab.

5. Under **Privacy Related Privileges**, clear **CRM for phones** (Microsoft Dynamics CRM 2013 and Microsoft Dynamics CRM 2015). Or, if you are using Microsoft Dynamics CRM Online 2015 Update 1, clear **CRM for phones express**.

Privacy Related Privileges

CRM for phones	●
Go Offline in Outlook	●
Print	●
Use CRM for tablets	●

6. On the Actions toolbar, click **Save and Close**.

Customize forms

You can set which fields appear or don't appear in Microsoft Dynamics CRM forms in CRM for phones express. To modify mobile forms:

1. Go to **Settings** > **Customizations**.
2. In the Customizations window, click **Customize the System**.
3. In the navigation pane, expand **Entities**, and then select an entity and expand it.
4. Click **Forms**, select the mobile form, and then add or remove the attributes.
5. On the Actions toolbar, click **Save and Close**.

📝 Note

If you change the availability of CRM for phones express for an entity – in the web application go to **Settings** > **Customizations** > **Customize the System** > select an entity > **CRM for phones** or **CRM for phones express** – once you click **Save**, your changes will go live. You don't have to publish the changes.

For more information, see [Create and edit mobile forms](#) in the Customization Guide.

Entities and CRM for phones express

You can enable a limited set of entities for CRM for phones express. To see if an entity is enabled or to enable an entity, click **Settings** > **Customizations** > **Customize the System** > **Entities**. Select an entity and review the **Outlook & Mobile** settings.

Entities available by default

- **Create** – You can create these entities when using CRM for phones express.
- **Read** - You can view these entities when using CRM for phones express.
- **Edit** - You can edit these entities when using CRM for phones express.

- **Delete** - You can delete these entities when using CRM for phones express.

Entity Name	Create	Read	Edit	Delete
Account	Yes	Yes	Yes	Yes
Appointment	Yes	Yes	Yes	Yes
Campaign	No	Yes	Yes	No
Case	Yes	Yes	Yes	Yes
Competitor	No	Yes	No	No
Contact	Yes	Yes	Yes	Yes
Currency	No	Yes	No	No
Discount	Yes	Yes	Yes	Yes
Discount List	Yes	Yes	Yes	Yes
Email	No	Yes	No	No
Entitlement	No	Yes	No	No
Facility/Equipment	No	Yes	No	No
Lead	Yes	Yes	Yes	Yes
Letter	No	Yes	No	No
Mailbox	No	Yes	No	No
Note	Yes	Yes	Yes	No
Opportunity	Yes	Yes	Yes	Yes
Opportunity Close	No	Yes	No	No
Opportunity Product	No	Yes	No	No
Phone Call	Yes	Yes	Yes	Yes
Price List Item	Yes	Yes	Yes	Yes
Product Association	No	Yes	No	No
Quote Close	Yes	Yes	Yes	Yes
Service	No	Yes	No	No
Social Profile	Yes	Yes	Yes	Yes
Subject	No	Yes	No	No
Task	Yes	Yes	Yes	Yes
Unit	No	Yes	No	No
Unit Group	No	Yes	No	No
User	No	Yes	No	No

Entities available after enabling CRM for phones express

- **Create** – You can create these entities when using CRM for phones express.
- **Read** - You can view these entities when using CRM for phones express.
- **Edit** - You can edit these entities when using CRM for phones express.
- **Delete** - You can delete these entities when using CRM for phones express.

Entity Name	Create	Read	Edit	Delete
Custom Entities	Yes	Yes	Yes	Yes
Address	No	Yes	No	No
Campaign Activity	No	Yes	No	No
Campaign Response	No	Yes	No	No
Contract	No	Yes	No	No
Contract Line	No	Yes	No	No
Fax	No	Yes	No	No
Filter	No	Yes	No	No
Invoice	No	Yes	No	No
Marketing List	No	Yes	No	No
Opportunity Product	No	Yes	No	No
Order	No	Yes	No	No
Order Product	No	Yes	No	No
Post Configuration	No	Yes	No	No
Post Rule Configuration	No	Yes	No	No
Price List	No	Yes	No	No
Price List Item	No	Yes	No	No
Product	No	Yes	No	No
Profile Album	No	Yes	No	No
Queue	No	Yes	No	No
Queue Item	No	Yes	No	No
Quote	No	Yes	No	No
Quote Product	No	Yes	No	No
Service Activity	No	Yes	No	No

Entity Name	Create	Read	Edit	Delete
Territory	No	Yes	No	No
Wall View	No	Yes	No	No

Entities with default field changes in Microsoft Dynamics CRM 2015

The following fields visible by default in CRM 2013 CRM for phones express are not visible by default in CRM 2015 CRM for phones express.

Entity	Fields
Account	Website, Address 1: Street 2, Industry
Case	Subject, Severity, Origin, Case Stage, Case Type, Service Level
Contact	Address 1: Street 1, Address 1: Street 2, Address 1: City, Address 1: State/Province, Address 1: ZIP/Postal Code, Address 1: Country/Region
Email	Bcc, Direction, Due Date
Lead	Customer, Priority, Rating
Opportunity	Potential Customer, Budget Amount, Priority, Rating **Note:** Account and Contact fields have been added to replace Potential Customer.
Phone Call	Phone Number, Direction, Due
Social Profiles	Full Name, Blocked
Users	Primary Email Status, Outgoing Email Delivery Method, Incoming Email Delivery Method

To add fields to a mobile form, click **Settings** > **Customizations** > **Customize the System** > **Entities**. Expand an entity and click **Forms** > the **Information** form of type **Mobile** or **Mobile – Express** > an Attribute > **Add** > **Save and Close**.

Troubleshooting

For information on known issues with CRM for phones express, see <u>Troubleshooting and things to know about CRM for phones and tablets</u>. Here are some things to try to diagnose and fix issues.

Test in the browser

To determine if the problem exists with the CRM for phones express app, try viewing your organization in a browser – first on a computer and then on your phone. If the problem persists in a browser, then the app might not be the issue.

Rule out customizations

Some customizations may conflict with CRM for phones express. Try connecting to another organization without customizations. Also, make sure you synchronize CRM for phones express to catch any customization changes.

Is it a permissions issue?

To check if the issue is related to permissions, try accessing Microsoft Dynamics CRM with a different user and different security role.

Privacy notices

Licensed Dynamics CRM Online users with specific Security Roles (CEO – Business Manager, Sales Manager, Salesperson, System Administrator, System Customizer, and Vice President of Sales) are automatically authorized to access the service by using CRM for phones, as well as other clients.

An administrator has full control (at the user security role or entity level) over the ability to access and the level of authorized access associated with the phone client. Users can then access CRM Online by using CRM for phones, and Customer Data will be cached on the device running the specific client.

Based on the specific settings at the user security and entity levels, the types of Customer Data that can be exported from CRM Online and cached on an end user's device include record data, record metadata, entity data, entity metadata, and business logic.

Cortana does not have access to the data stored in the CRM database. Cortana only captures your voice commands. When you make a voice command through Cortana, in order to both understand the request and improve Microsoft speech recognition-related products and services, Microsoft uses proprietary technologies such as, for example, acoustic and natural language processing models to record and interpret your user's request. Voice-dictated Bing search queries are treated like other text-based search requests and may be used to improve Bing search results; however, the CRM-voice-dictated commands listed here are not used to provide advertising. For more information about privacy and Cortana, see [Cortana and my privacy FAQ](#).

If you are an administrator, you can manage enterprise access to Cortana with the PolicyManager configuration service provider through a separate device management service. The policy for this is set at the phone level and can't be set just for the CRM for phones app. For more information, see the MSDN topic [PolicyManager configuration service provider](#).

See Also

[Set up and manage phones and tablets](#)
[Troubleshooting and things to know about CRM for phones express](#)
[Create and edit mobile forms](#)

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Support for CRM for phones express

Applies To: CRM 2016 on-prem, CRM Online

◆ Important

This topic is for users of Microsoft Dynamics CRM for phones express. CRM for phones express is the CRM phone app designed to work with Microsoft Dynamics CRM 2013 and Microsoft Dynamics CRM 2015. If your organization has updated to Microsoft Dynamics CRM Online 2015 Update 1 or later or Microsoft Dynamics CRM 2016, we've got a great new phone app for you. More information: Set up CRM for phones and CRM for tablets

CRM for phones express will continue to be supported for Microsoft Dynamics CRM Online 2015 Update 1 users.

To determine your version, sign in to CRM, and in the upper-right side of the screen, click **Settings** ⚙ > **About**.

Terminology

With Microsoft Dynamics CRM Online 2015 Update 1, the terminology has changed for the CRM phone app.

Term	Usage
CRM for phones	The CRM phone app introduced with Microsoft Dynamics CRM Online 2015 Update 1.
CRM for phones express	The CRM phone app for Microsoft Dynamics CRM 2013 and Microsoft Dynamics CRM 2015. Versions prior to Microsoft Dynamics CRM Online 2015 Update 1 continue to refer to the CRM phone app as CRM for phones.

You can access data from Microsoft Dynamics CRM Online or Microsoft Dynamics CRM 2015 with your mobile phone by using one of the following methods:

- Microsoft Dynamics CRM phone apps. Download the app for your phone.
- Your phone's web browser.

CRM for phones express app

CRM phone apps are available for popular mobile phones. The following smartphone operating systems are supported with Microsoft Dynamics CRM Online and Microsoft Dynamics CRM 2015. If you're using Microsoft Dynamics CRM 2013 or Microsoft Dynamics CRM 2015, see Set up CRM for phones express. If you're using Microsoft Dynamics CRM Online 2015 Update 1, see Set up CRM for phones and CRM for tablets.

CRM for iPhones

iOS version	Example device
iOS 6	iPhone 5
iOS 7	iPhone 5s

iOS version	Example device
	iPhone 5c
iOS 8	iPhone 6

Download Microsoft Dynamics CRM for iPhone.

For a list of the supported languages available for this app, see "Supported languages" in Requirements for CRM for phones express.

CRM for Android

Android version	Example device
4.1, 4.2, 4.3, and 4.4	Galaxy S3
4.0	Galaxy S3

Download Microsoft Dynamics CRM for Android.

For a list of the supported languages available for this app, see "Supported languages" in Requirements for CRM for phones express.

CRM for Windows Phone 8

Windows Phone version	Example device
Windows Phone 8.0 and 8.1	HTC Windows Phone 8X, Nokia Lumia, Samsung ATIV

Download Dynamics CRM for Windows Phone 8.

BlackBerry

BlackBerry devices don't have an app but Microsoft Dynamics CRM can be accessed by using the BlackBerry mobile browser. The following tables lists the devices supported to run Microsoft Dynamics CRM in the BlackBerry mobile browser.

BlackBerry version	Example device
10	BlackBerry Z10
7	BlackBerry Torch 9860, BlackBerry Curve 9370
6	BlackBerry Bold 9780, BlackBerry Bold 9900

Your mobile browser

In most cases, devices not listed earlier in this topic can use the smartphone's web browser. CRM through your web browser offers great device flexibility because it runs on any browser that supports common standards: HTML 4.0 and JavaScript.

See Also

[Set up and manage phones and tablets](#)
[Support for CRM for phones and CRM for tablets](#)

Things to know about CRM for phones and tablets

Applies To: CRM 2016 on-prem, CRM Online

This section contains information about issues and limitations that you may experience when you run Microsoft Dynamics CRM for tablets, when you use a tablet and run Microsoft Dynamics CRM in a web browser, or when you use Microsoft Dynamics CRM for phones.

In This Section

[Troubleshooting and things to know about CRM for phones and tablets](#)
[Troubleshooting and things to know about CRM for phones express](#)

See Also

[Set up and manage phones and tablets](#)

Troubleshooting and things to know about CRM for phones and tablets

Applies To: CRM 2016 on-prem, CRM Online
The following are known issues with Microsoft Dynamics CRM for tablets.

Important considerations

Before you begin to configure CRM for tablets, it's important to review the requirements:

- **Understand what operating systems, devices, and languages are supported**. Review the requirements in [Support for CRM for phones and CRM for tablets](#).

- **Be aware that Internet-facing deployment (IFD) is required if you're using Microsoft Dynamics CRM 2015 (on-premises version)**. The system administrator must configure claims-based authentication before users can access Microsoft Dynamics CRM data with CRM for tablets. If you have your Microsoft Dynamics CRM website available over the Internet but it is not using the Microsoft Dynamics CRM IFD configuration, **it is not supported**. To verify that your on-premises deployment is configured for IFD, open Microsoft Dynamics CRM Deployment Manager on your Microsoft Dynamics CRM server. The Authentication Summary section should show that both claims-based authentication and Internet-facing deployment are enabled. More information: [Referenced topic 'eee528fb-ef2f-4a77-ad0f-3d29bcb42351' is not in the TOC.](#)

Potential issues and resolutions

Use the error message that appears in the app to identify a potential fix listed in this topic. Be aware that an error may have multiple causes. To narrow down the possibilities, system administrators can use tracing to capture details for analysis. More information: [Bookmark link 'BKMK_MoCA_tracing' is broken in topic '{"project_id":"d1ee8af7-0e8f-4e94-9793-0d06bbfa9b16","entity_id":"5622050b-a0e8-40ca-9ed5-fc082d5212a8","entity_type":"Article","locale":"en-US"}'. Rebuilding the topic '{"project_id":"d1ee8af7-0e8f-4e94-9793-0d06bbfa9b16","entity_id":"5622050b-a0e8-40ca-9ed5-fc082d5212a8","entity_type":"Article","locale":"en-US"}' may solve the problem.](#)

Errors and connection issues

Error message: "This record is unavailable."

If this message appears when a user starts the mobile app, taps the **Home** button, or selects **Dashboards** from the menu, the user likely doesn't have access to the expected dashboards.

If you're an admin, you can avoid users getting this error by making sure all mobile users have access to the sales dashboard:

1. In the web app, go to **Settings > Customizations > Customize the System**.

2. Click **Dashboards**.

3. Select **Sales Dashboard**.

4. Click **Enable Security Roles**.

5. Select **Display to everyone** and then click **OK**. If you prefer to display only to select security roles, be sure to select your user's security role.

6. Click **Publish**.

7. Have your user close and open the mobile app so your dashboard changes will download.

If you're an end user and you're seeing this message on your home page, you can choose a different dashboard and set it as your home page:

1. From the mobile app, tap the menu and then tap **Dashboards**.

2. On the command bar, tap **Select Dashboard** and then select the dashboard you would like to use as your home page.

3. On the command bar, tap **Set as Home**.

If you're an end user and you're seeing this message on the dashboards page, you can create a personal dashboard through the web app and enable it for mobile:

1. In the web app, go to **Sales > Dashboards**.

2. Click **New**.

3. Click **Properties**.

4. Enter a name for your dashboard and select **Enable for mobile**.

5. Add the components you want on your dashboard and click **Save**.

6. In the mobile app, follow the previous procedure to select your new dashboard and set it as your home page.

Error message: "Your server is not available or does not support this application."

Cause 1: The CRM server is down. Verify that the server is on and connected to your network.

Sample Trace Message for Cause 1:

`"Dynamics CRM [Error] | Connection error: 404"`

Cause 2: Your CRM organization isn't updated to Microsoft Dynamics CRM Online Spring '14 or Microsoft Dynamics CRM 2013 Service Pack 1 (SP1) and your users are using the CRM for Windows 8.1 or the CRM for Android app. You'll need to update your organization.

Cause 3: The CRM organization isn't updated to Microsoft Dynamics CRM 2013 or CRM Online Fall '13. Prior versions of Microsoft Dynamics CRM aren't supported with CRM for tablets.

Cause 4: This error can also occur if you enter an invalid URL. Make sure the same URL you have provided works to access Microsoft Dynamics CRM in your browser on your device.

Sample Trace Messages for Cause 4:

`"XMLHttpRequest: Network Error 0x2ee7, Could not complete the operation due to error 00002ee7."`
`"Dynamics CRM [Error] | Connection error: 0"`

Cause 5: If you connect to a Microsoft Dynamics CRM on-premises organization, this error can occur if the certificate from the Microsoft Dynamics CRM website is not trusted by the device. To avoid this

scenario make sure to use a publicly trusted certificate. For more information, see [Your server is not available or does not support this application](#).

Sample Trace Messages for Cause 5:

Windows 8: "`XMLHttpRequest: Network Error 0x800c0019, Security certificate required to access this resource is invalid`"

iPad: "`[ERROR] Loading app failed due to SSL error`"

Error message: "You haven't been authorized to use this app. Check with your system administrator to update your settings."

Cause 1: Verify that your Microsoft Dynamics CRM security role includes the **Use CRM for Tablets** privilege.

Cause 2: This error can occur if you configured CRM for tablets with a certain organization and are now trying to configure against another CRM organization. You must uninstall and reinstall the application to configure to another organization or as another user.

Cause 3: This error can occur if you have a Microsoft Dynamics CRM Online organization and your user has not been assigned a Microsoft Dynamics CRM Online license. If you add a Microsoft Dynamics CRM Online subscription to an existing Microsoft Office 365 tenant, your user may not have a Microsoft Dynamics CRM Online license assigned. If the user has the Global Administrator or Service Administrator role in the [Microsoft Online Service Portal](#), you're able to sign in to the Microsoft Dynamics CRM web application to perform certain administrative actions, but you can't perform end user tasks, such as creating records (for example, accounts, contacts, and leads) or configuring CRM for tablets. When you sign in to the web application, you may notice that not all areas appear within the navigation (for example, Sales and Marketing are missing):
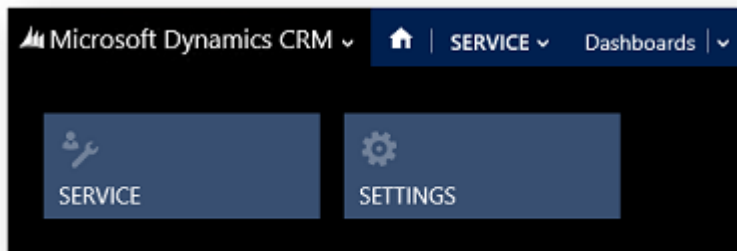
Access the **Users and Groups** section within the [Microsoft Online Service Portal](#) and verify you have a Microsoft Dynamics CRM Online license assigned to your user record.
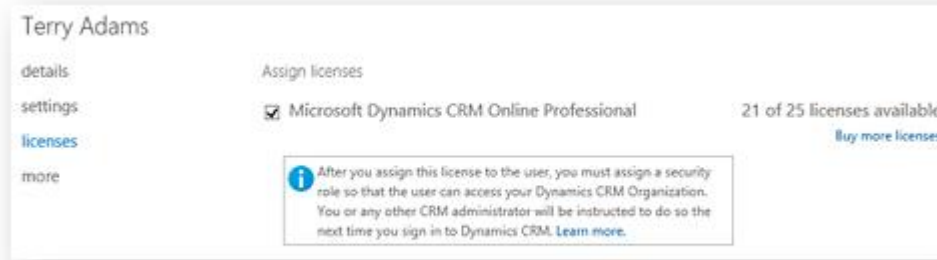
Error message: "We can't connect to the service you need right now. Check your network connection or try this again later."

Cause 1: This error can occur when connecting to a CRM on-premises organization that is not configured for IFD. For more information, see Referenced topic 'eee528fb-ef2f-4a77-ad0f-3d29bcb42351' is not in the TOC.

Error message: "Server certificate can't be verified"

You can't connect to the server because it doesn't have a trusted TLS/SSL certificate. This error can occur when connecting to a CRM on-premises organization that does not have a certificate configured correctly. For more information, see "Certificate selection and requirements" in the whitepaper Configuring Claims-based Authentication for Microsoft Dynamics CRM Server.

Error message: "You need an internet connection to use this app. Reconnect and try again."

Cause 1: This error can occur if you do not have an internet connection. Verify you are connected to the internet and can access the same URL in your web browser.

Cause 2: Check if you are using a preview build of Windows 8.1. So far this issue has only been reported with the preview version of Windows 8.1.

Error message: "Sorry, something went wrong while initializing the app. Please try again, or restart the app."

Cause 1: See the following KB article:

An error occurs in the Microsoft Dynamics CRM app for users in child business units. For more information, see Sorry, something went wrong while initializing the app.

Sample Trace Message for Cause 1:
```
Error Message:System.NullReferenceException: Object reference not set to an instance of an
object.
Microsoft.Crm.Application.WebServices.ApplicationMetadataService.<>c__DisplayClass30.<UserRoles
Changed>b__2d(Entity role)
at System.Linq.Enumerable.Any[TSource](IEnumerable`1 source, Func`2 predicate)
at Microsoft.Crm.Application.WebServices.ApplicationMetadataService.UserRolesChanged(Guid[]
clientUserRoles, DateTime syncTime, ExecutionContext context)
at
Microsoft.Crm.Application.WebServices.ApplicationMetadataService.RetrieveUserContext(UserContex
tRetrieveRequest userContextRetrieveRequest)
```

Cause 2: This can occur if the download of the metadata failed. The next attempt to connect will fully regenerate the metadata and successfully connect. Microsoft is aware of an issue where metadata may fail to download due to a timeout and plans to address this issue in a future update.

Sample Trace Messages for Cause 2:

```
"Error occurred during complete refresh of Application/Entity/Attribute metadata"
"XMLHttpRequest: Network Error 0x2ef3, Could not complete the operation due to error 00002ef3."
```

Cause 3: This issue can occur if the telephone fields on the Contact or User entity have the format set as text instead of phone. The format may be set this way after you import a solution that was created in Microsoft Dynamics CRM 2011. If the error message in the trace matches the one shown here and you're using Microsoft Dynamics CRM (on-premises), apply [Microsoft Dynamics CRM Update Rollup 1](#) on the Microsoft Dynamics CRM server to prevent this error. If your organization uses Microsoft Dynamics CRM Online, this update has already been applied.
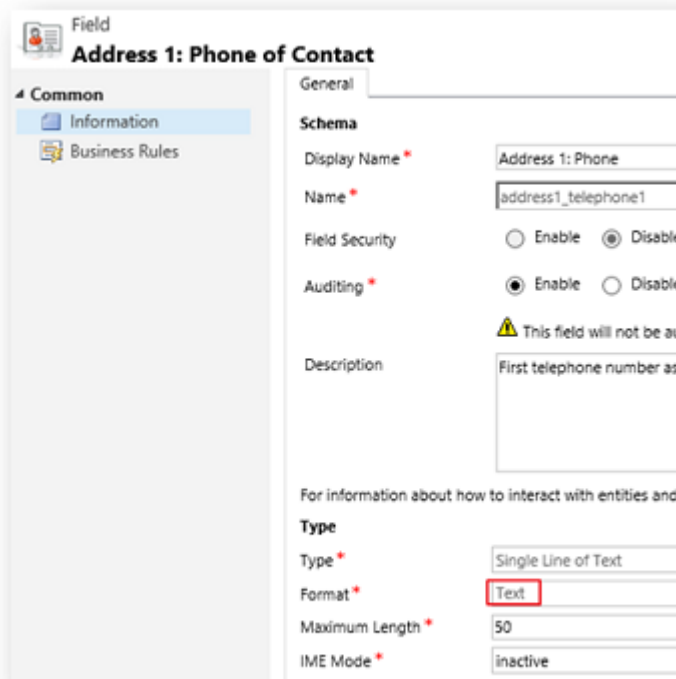
Sample Trace Message for Cause 3:

```
Message Dynamics CRM [PAL] | Error Message:System.NullReferenceException: Object reference not
set to an instance of an object.
at
Microsoft.Crm.ObjectModel.ApplicationMetadata.Tiles.Builders.EntityFormCommunicationCardBuilder
.Build()
at Microsoft.Crm.ObjectModel.FormConverter.ConvertFormToJson(EntityMetadata entityMetadata,
Dictionary`2 savedQueryIds)
at
Microsoft.Crm.Application.WebServices.ApplicationMetadata.ApplicationMetadataFormConverter.Conv
ert(ApplicationMetadataSourceObjectModel source)
at
Microsoft.Crm.Application.WebServices.ApplicationMetadata.ApplicationMetadataSourceRetrieverBas
```

```
e.RegenerateApplicationMetadataRecords(IEnumerable`1 sourceObjectModels, Boolean
createOrUpdateInDb)
at
Microsoft.Crm.Application.WebServices.ApplicationMetadataService.RetrieveUserContext(UserContex
tRetrieveRequest userContextRetrieveRequest)
```

Error message: "The language installed on your company's system isn't available on the app. Please contact your system administrator to set up a supported language."

Cause: This error will occur if one of the supported languages is not enabled in Microsoft Dynamics CRM. For more information on the supported languages, see Help & Training: CRM for tablets: Set up and use and expand **What you need to use CRM for tablets** and **Supported Languages**.

Error message: "The process assigned to this record is unavailable or has been deleted."

If you receive this message for a record which has a non-deleted process assigned to it, you should manually synchronize CRM for tablets with your Microsoft Dynamics CRM data. Close the CRM for tablets app, reopen, and then choose to download the latest customizations. This procedure forces CRM for tablets to check for updated customizations. Recently viewed data while you were connected is cached and synched. Record data like Accounts or Contacts are not synched. You can't choose which data synchronizes to the device like you can with Microsoft Dynamics CRM for Outlook.

Error message: "This operation failed because you're offline. Reconnect and try again."

This error may occur for the following scenarios when you are using a Windows 88 device and you have a Microsoft Dynamics CRM Online organization that uses Microsoft account (formerly named Live ID). This issue doesn't occur for organizations provisioned through Office 365.

Cause 1: You are automatically authenticated as a different Microsoft account that is not a member of the Microsoft Dynamics CRM organization. This may happen if you sign into your Windows 8 device and your domain account is connected to a Microsoft account. For example: you sign in to your device as *<userid>*@contoso.com (your domain account) and that account is connected to *<userid>*@live.com (a Microsoft account). If your connected account (for example, *<userid>*@live.com) is not a member of the Microsoft Dynamics CRM organization, you will encounter this error. In this scenario, the error occurs after providing your URL, but you are never prompted for credentials. When you connect your domain account to a Microsoft account, that account will be used to automatically sign in to apps and services that use Microsoft account for authentication. If you're using a Windows 8 device, use the steps listed here to check if your domain account is connected to a Microsoft account. If you're using a Windows RT device, see the **Windows RT** section.

Windows 8

1. Swipe from the right side of the screen to access the charms bar and then tap **Settings**.
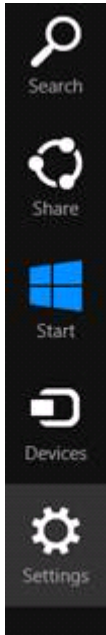
2. Tap **Change PC settings**.
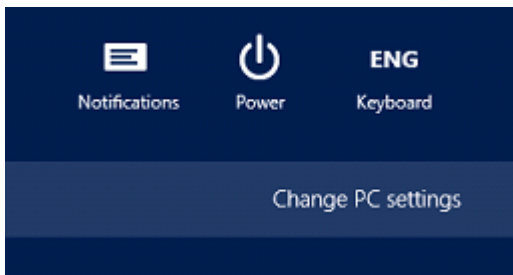
3. Tap **Users**.
4. Check to see if under the **Your Account** section it says "This domain account is connected to *<Your Microsoft account>*"

Windows RT

If you are using a Windows RT device and need to authenticate as a Microsoft account that is different than the one you use to log on to your device, you must create another account and switch to that account when using the app. For example: you currently sign in to your Windows RT device as *<userid>*@live.com, but want to access your Microsoft Dynamics CRM organization via the tablet app

as *<userid>*@outlook.com. For more information on how to create a new account on your device, see Vidddeeeo: Create a user account.

Sample Trace Message for Cause 1:

```
The app couldn't navigate to
https://port.crm.dynamics.com/portal/notification/notification.aspx?lc=1033&organizationid=<Org
anizationId> because of this error: FORBIDFRAMING.
```

Cause 2: This error may occur if you previously authenticated to the app as a different Microsoft account and chose the option "Keep me signed in". Even after uninstalling and reinstalling the app, the token for the previous credentials is still stored on your device. If you are trying to connect as a different user, you will need to remove the token. To completely clear the app, after you uninstall the app, you must clear the Indexed DB folder (Drive:\Users\%USERNAME%\AppData\Local\Microsoft\Internet Explorer\Indexed DB). You may have to sign in as a different user and use the command prompt as an administrator to clear the Indexed DB folder. That is because some files in this folder can be held by the Host Process for Windows Tasks. Once the token is successfully removed, you should see the sign-in page after you enter your URL in the app.
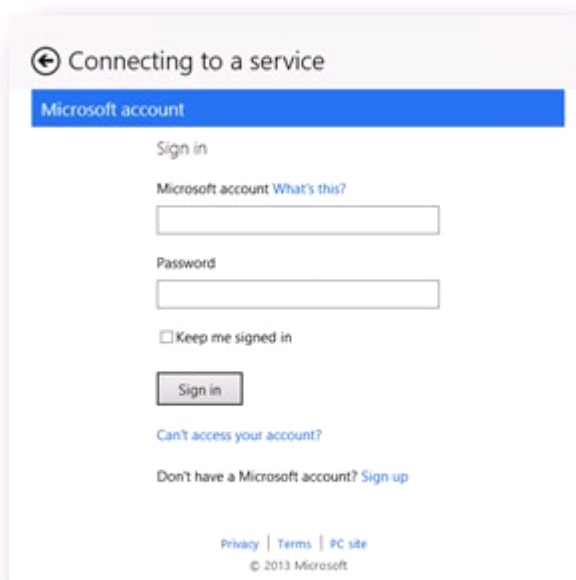
The same error as Cause 1 may be found in the traces.

Cause 3: You have not accepted your invitation to the Microsoft Dynamics CRM organization. If you attempt to access the same URL through your browser, you see a notification that you are invited to the organization but need to accept the invitation. Once you accept the invitation, you are able to configure the app successfully.

Sample Trace Message for Cause 3:

```
The app couldn't navigate to
https://port.crm.dynamics.com/portal/response/Response.aspx?token=KFES-CK5C-NL8R-
X1U0&expiration=635211904207200000&cs=Lkya6zs9EeOtJXjjtRc6AeZa5xqt94YAppfqrXFgZa5slinq2iaabTmwf
X0AR4HLGvz&cb=invite&cbcxt=invite&wlid=<username>%40live.com&lc=1033 because of this error:
FORBIDFRAMING.
```

For each of the causes listed previously, you may also see the following event logged in the traces:

“Authentication: Failed - cookie setup”

Error message, CRM for Good: “We're sorry. Your server is not available or does not support this application”

Users must update to the latest version of the Microsoft Dynamics CRM for Good application prior to updating to Microsoft Dynamics CRM Online 2015 Update 1. On the Apple App store, the version the users need is 1.1. On the Good Dynamics Marketplace or (Good Control Console), the version needed is listed as 1.1.0.

Users who have not updated their app prior to connecting to Microsoft Dynamics CRM Online 2015 Update 1, will likely see the following error approximately 2 minutes after connecting to Microsoft Dynamics CRM Online 2015 Update 1.

Error: We're sorry. Your server is not available or does not support this application.

To fix this error, the user must uninstall and reinstall the Microsoft Dynamics CRM for Good app using the version listed above.

Error message: “Additional steps may be needed to configure Microsoft Dynamics CRM for this organization”

If you're using a computer or tablet, you need to make some configuration changes to enable the Microsoft Dynamics CRM for Windows 8.1 app for on-premises CRM deployments. More information: Set up CRM for phones and tablets

❖ Important

If you're using a Windows Phone, you received this error because Windows Phones aren't currently supported for on-premises CRM deployments. More information: Support for CRM for phones and tablets

Event 10001 messages appear in the Event Log when you run CRM for Windows 8

The following event may be recorded multiple times to the Event Log, when **Show Analytic and Debug Logs** is enabled, on the device where Microsoft Dynamics CRM for Windows 8 is running. Notice that, by default, **Show Analytic and Debug Logs** is disabled in Event Viewer and these messages won't be recorded. More information: Enable Analytic and Debug Logs

- Event Id: 10001

- Message: `SEC7131 : Security of a sandboxed iframe is potentially compromised by allowing script and same origin access.`

Verify the source of the messages. If the source is Microsoft Dynamics CRM Server, these events don't pose a security threat and can be ignored.

By design: “—d” added to URL

For Microsoft Dynamics CRM Online users

To improve the reliability of DNS resolutions to Microsoft Dynamics CRM Online organizations, CRM for tablets modifies the organization URL used when signing in. When a user signs in, CRM for tablets

adds "—d" (two dashes + d) to the URL. For example, if the organization URL is **https://contoso.crm.dynamics.com**, CRM for tablets will change the URL to **https://contoso--d.crm.dynamics.com**.

If a user needs to retry signing in, they'll see "—d" in the web address. They can sign in with the modified URL or reset it to the URL normally used.

After providing credentials the app appears to load indefinitely and never completes

This can occur if the time on the device is not within a certain variance of the Microsoft Dynamics CRM server. For example: you may encounter this issue if the time on the server is 2 PM on November 11th but the device is set to 2 PM on November 12th.

You may see events like the following logged multiple times in the trace files:

```
Dynamics CRM [PAL] | Authentication: Token Expired with Token Timeout value (-255674015) ---
Retrieving new Auth Token from shim
```

For possible resolution, see Microsoft Dynamics CRM for Phone and Tablets cannot connect to Dynamics CRM organization due to length of TokenLifetime

CRM for tablets users are repeatedly prompted for sign-in credentials and can't sign in

Cause: This can occur if certain directories under the Microsoft Dynamics CRM website have Windows Authentication enabled. For CRM for tablets to successfully connect to a new deployment of Microsoft Dynamics CRM Server 2013 or Microsoft Dynamics CRM Server 2015, you must run a **Repair** of Microsoft Dynamics CRM Server 2013 or Microsoft Dynamics CRM Server 2015, on the server running IIS where the Web Application Server role is installed after the Internet-Facing Deployment Wizard is successfully completed.

For repair instructions, see Referenced topic '61d9bddb-f1ee-4765-97e4-6c87f3fbf545' is not in the TOC..

◆ Important

To resolve this issue by running **Repair**, the Microsoft Dynamics CRM deployment must already be configured for claims-based authentication and IFD.

✎ Note

When the logon prompt appears, it is an Active Directory logon prompt instead of the sign-in page of your Secure Token Service (STS) such as Active Directory Federation Services (AD FS). The prompt looks like the one shown here.
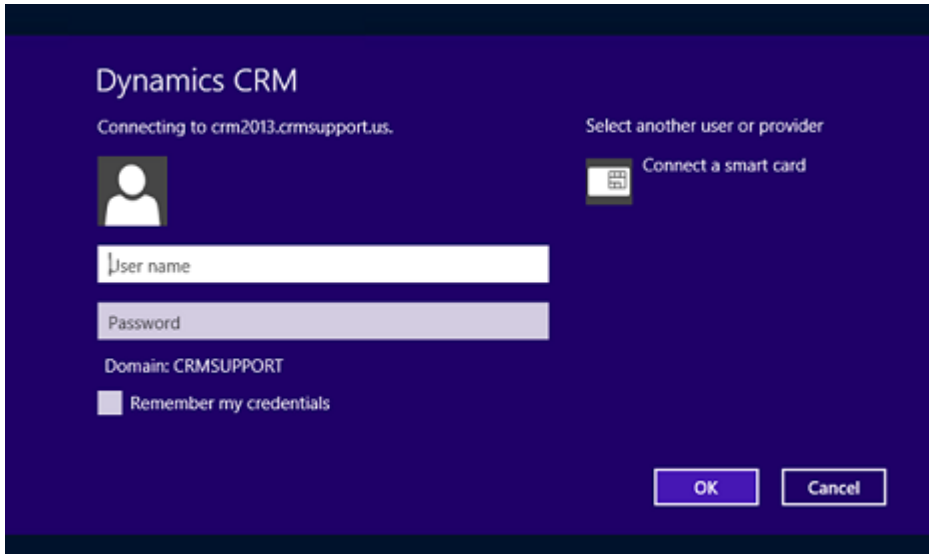
After you tap **Cancel** or enter credentials 3 times, you see the correct sign-in prompt.
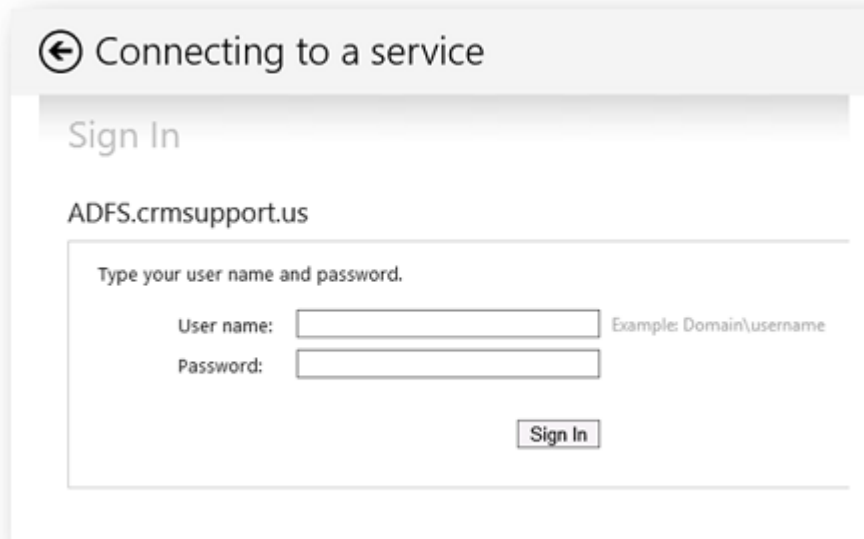
Redirected URLs do not work when you configure CRM for tablets or CRM for phones

URLs that redirect, such as IIS host headers or link-shortening websites such as tinyurl or bitly, do not work when you use the URL in the **CRM web address** field with Microsoft Dynamics CRM for tablets or CRM for phones during configuration.

For example, an *https://www.contosocrm.com* host header for a Microsoft Dynamics CRM (on-premises) website URL that is actually *https://crm.contososerver001.com*, will not work and will display an error message. To work around this behavior, you must enter the actual web address for the Microsoft Dynamics CRM Online organization or Microsoft Dynamics CRM server (on-premises).When this issue occurs and you have enabled logging, the information logged is similar to the following. Notice that the URLs in lines 2 and 3 are different. That difference indicates a redirected URL.

1. User entered URL: *https://URL_entered*

2. Constructed server URL: *https://URL_after_CRMforTablets_processing*

3. HTTP Response location: *https://URL_that_the_response_came_from*

To enable logging, see Bookmark link 'BKMK_MoCA_tracing' is broken in topic '{"project_id":"d1ee8af7-0e8f-4e94-9793-0d06bbfa9b16","entity_id":"5622050b-a0e8-40ca-9ed5-fc082d5212a8","entity_type":"Article","locale":"en-US"}'. Rebuilding the topic '{"project_id":"d1ee8af7-0e8f-4e94-9793-0d06bbfa9b16","entity_id":"5622050b-a0e8-40ca-9ed5-fc082d5212a8","entity_type":"Article","locale":"en-US"}' may solve the problem..

Windows Server 2012 R2 required for multi-factor authentication (MFA) with Microsoft Dynamics CRM (on-premises) mobile apps

For on-premises deployments, Microsoft Dynamics CRM web application and mobile clients are capable of multi-factor authentication (MFA) using Windows Server 2012 R2 or another authentication provider that supports MFA. Using MFA can help make client authentication more secure.

Notice that using MFA requires that the device, operating system, and web browser are all MFA-capable. We recommend that you thoroughly test your MFA-capable devices running Microsoft Dynamics CRM to verify that your environment works correctly before deploying in a production environment. More information: [Overview: Manage Risk with Additional Multi-Factor Authentication for Sensitive Applications](#).

Regarding customization

Users not getting customizations

Users will not get customizations made to CRM if there are draft records present. Users should be encouraged to save records as soon as they go online.

Data cached for offline viewing remains after the entity is no longer enabled for CRM for tablets

In CRM for tablets, record data is cached as the user visits the record so the user can access the data when going offline.

This cached data persists after the entity is no longer enabled for CRM for tablets (**Settings** > **Customizations** > **Customize the System** > [select an entity] > under **Outlook & Mobile**, deselect **CRM for tablets**).

To remove the cached data, the user must sign out of CRM for tablets, or CRM for tablets must be reconfigured or uninstalled.

Customization changes do not appear in CRM for tablets

Cause 1: The customizations (metadata) from your Microsoft Dynamics CRM organization are cached on your device. The app checks for updated metadata after 24 hours or any time you reopen the app. For customization changes to become available immediately, you must completely close and then reopen the app. If new metadata is found, you will be prompted to download it. For more information on how to completely close an app, refer to the help for your operating system or reference one of the articles provided:

- **Windows 8**: [How do I close an app?](#)
- **iPad**: [Force an app to close](#)
- **Android**: [How to force close Android apps](#)

Cause 2: You may be seeing a different form than the one you customized. If you have multiple forms for an entity, you will see the first form in the form order that you have access to. This is different than the web application where you see the last form you used and have the ability to change between forms.

Regarding mobile browser

Private Browsing not supported in Safari

If you enable Private Browsing on your iPad in your Safari browser, you will see the following error message when you attempt to connect to your CRM organization: "Microsoft Dynamics CRM has encountered an error." You will need to disable Private Browsing. Tap the address bar, and then tap **Private**.

CRM (on-premises) URL doesn't resolve on Nexus tablets

When you try to access Microsoft Dynamics CRM (on-premises) using an internal URL on a Nexus 10 tablet in the Chrome web browser, the URL doesn't resolve and you can't access the site. For example, a URL in the form of https:// *servername*:5555 doesn't resolve.

This is a known issue with Android devices accessing IIS intranet sites. To work around this issue, select one of the following solutions.

- Use the fully qualified domain name to resolve the address, such as https://*servername.contoso*.com:5555.

- Use the server IP address, such as https://10.0.0.1:5555.

Web app differences in mobile browsers

For differences you can expect to find in the web app when you're accessing it from a mobile device, see [Support for CRM for phones and CRM for tablets](#).

Other

Clipboard data – available to admins and customizers

Microsoft Dynamics CRM System Administrators or System Customizers can access other users' Clipboard data for users of Windows 8 and 8.1 devices.

Users can view queue items in another person's queue

A user viewing records in CRM for tablets can view records in another user's queue.

Update the Microsoft Dynamics CRM for Good app before updating to CRM Online 2015 Update 1

Users must update to the latest version of the Microsoft Dynamics CRM for Good application prior to updating to Microsoft Dynamics CRM Online 2015 Update 1. On the [Apple App store](#), the version the users need is 1.1. On the [Good Dynamics Marketplace](#) or Good Control Console, the version needed is listed as 1.1.0.

Users who haven't updated their app prior to connecting to Microsoft Dynamics CRM Online 2015 Update 1, will likely see the following error approximately 2 minutes after connecting to Microsoft Dynamics CRM Online 2015 Update 1.

Error: We're sorry. Your server is not available or does not support this application.

To fix this error, the user must uninstall and reinstall the Microsoft Dynamics CRM for Good app using the version listed previously.

App restart required after reconfiguring Dynamics CRM for Good

After you reconfigure Microsoft Dynamics CRM for Good, the app can get stuck in a loop. You need to close and reopen the app.

1. On your iPad, press the **Home** button two times quickly. You'll see small previews of your recently used apps.

2. Swipe to find the Dynamics CRM for Good app.

3. Swipe up on the app's preview to close it.

4. Tap the Dynamics CRM for Good app icon to launch the app and configure for the new org.

Prevent click for mapping and Microsoft Dynamics CRM Online 2015 Update 1

For users of version 1.0 (1.0.0) of the Microsoft Dynamics CRM for Good app that have updated to Microsoft Dynamics CRM Online 2015 Update 1, note that the **Prevent click for mapping** setting does not work.

To prevent click for mapping in version 1.0 (1.0.0), admins should enable the **Require a secure browser for opening URLs** setting in the Good Control server, as shown here.

The **Prevent click for mapping** setting works as expected in Microsoft Dynamics CRM for Good app version 1.1 (1.1.0). We recommend updating to the latest version of the Dynamics CRM for Good app rather than applying this workaround.

Issue still not resolved?

If the information provided previously doesn't resolve your issue, either Post your issue in the Dynamics CRM Community or Help & Training: Contact Technical Support. The following are some suggested details to provide:

• What are the specific symptoms you encounter? For example, if you encounter an error, what is the exact error message?

• Does the issue only occur for users with certain Microsoft Dynamics CRM security roles?

• Does the issue only occur on certain devices but works correctly for the same user on another device?

- If you attempt to connect to a different Microsoft Dynamics CRM organization that does not include your customizations, does the same issue occur? If the issue only occurs with your customizations, provide a copy of the customizations if possible.

- Does the issue still occur after uninstalling the app and reinstalling it?

- Please provide traces. See [Bookmark link 'BKMK_MoCA_tracing' is broken in topic '{"project_id":"d1ee8af7-0e8f-4e94-9793-0d06bbfa9b16","entity_id":"5622050b-a0e8-40ca-9ed5-fc082d5212a8","entity_type":"Article","locale":"en-US"}'. Rebuilding the topic '{"project_id":"d1ee8af7-0e8f-4e94-9793-0d06bbfa9b16","entity_id":"5622050b-a0e8-40ca-9ed5-fc082d5212a8","entity_type":"Article","locale":"en-US"}' may solve the problem.](#).

- What type of device (ex. iPad 4th Generation, Microsoft Surface, etc…) are you using and what is the version of the operating system (ex. iOS 6.0, Windows 8, etc…)?

See Also

[Set up CRM for phones and CRM for tablets](#)
[Set up CRM for phones express](#)
[Help & Training: Get started with CRM for tablets](#)

Troubleshooting and things to know about CRM for phones express

Applies To: CRM 2016 on-prem, CRM Online

The following are known limitations and known issues with CRM for phones express.

Error code: 800c0019

If you get error code 800c0019 when you try to sign in to your Microsoft account while using the CRM for phones express app, chances are that you have the wrong date and time settings on your Windows 8 phone. This can occur after updating your Windows 8 phone, removing and replacing the battery, or after a time change.

In most cases, your phone's date and time is set automatically by your mobile operator. If it's not, you need to set it manually so you can log in to your Microsoft account successfully. Here's how:

1. On **Start**, flick left to the **App** list and choose **Settings**.

2. Click **Date+time**.

3. Turn off **Set automatically**.

4. Set the correct values for **Time zone**, **Date**, and **Time**.

Windows Server 2012 R2 required for multi-factor authentication (MFA) with Microsoft Dynamics CRM (on-premises) mobile apps

For on-premises deployments, Microsoft Dynamics CRM web application and mobile clients are capable of multi-factor authentication (MFA) using Windows Server 2012 R2 or another authentication provider that supports MFA. Using MFA can help make client authentication more secure.

Notice that using MFA requires that the device, operating system, and web browser are all MFA-capable. We recommend that you thoroughly test your MFA-capable devices running Microsoft Dynamics CRM to verify that your environment works correctly before deploying in a production environment. More information: [Overview: Manage Risk with Additional Multi-Factor Authentication for Sensitive Applications](#).

Redirected URLs don't work when you configure CRM for tablets or CRM for phones express

URLs that redirect, such as IIS host headers or link-shortening websites such as tinyurl or bitly, do not work when you use the URL in the **CRM web address** field with Microsoft Dynamics CRM for tablets or CRM for phones during configuration.

For example, an *https://www.contosocrm.com* host header for a Microsoft Dynamics CRM (on-premises) website URL that is actually *https://crm.contososerver001.com*, will not work and will display an error message. To work around this behavior, you must enter the actual web address for the Microsoft Dynamics CRM Online organization or Microsoft Dynamics CRM server (on-premises).When this issue occurs and you have enabled logging, the information logged is similar to the following. Notice that the URLs in lines 2 and 3 are different. That difference indicates a redirected URL.

1. User entered URL: *https://URL_entered*

2. Constructed server URL: *https://URL_after_CRMforTablets_processing*

3. HTTP Response location: *https://URL_that_the_response_came_from*

To enable logging, see [Bookmark link 'BKMK_MoCA_tracing' is broken in topic '{"project_id":"d1ee8af7-0e8f-4e94-9793-0d06bbfa9b16","entity_id":"5622050b-a0e8-40ca-9ed5-fc082d5212a8","entity_type":"Article","locale":"en-US"}'. Rebuilding the topic '{"project_id":"d1ee8af7-0e8f-4e94-9793-0d06bbfa9b16","entity_id":"5622050b-a0e8-40ca-9ed5-fc082d5212a8","entity_type":"Article","locale":"en-US"}' may solve the problem.](#).

Changes in the web application aren't changed in CRM for phones express

For Windows Phone users, changes made in the web application may not immediately appear when you use Windows Phone. To force the change to appear in Windows Phone:

- For organization settings such as customization changes, clear the cache on your Windows Phone by tapping the **gear** icon and then tapping **clear local cache**.

Organization settings are commonly managed using **Microsoft Dynamics CRM** > **Settings** > **Administration**.

- For user settings changes such as language settings, you must uninstall and reinstall Windows Phone.

    User settings are commonly managed by clicking the **gear** icon > **Options**.

See Also

Things to know about CRM for phones and tablets
Set up and manage phones and tablets
CRM for tablets and phones

Integrate your email system with Microsoft Dynamics CRM

Applies To: CRM 2016 on-prem, CRM Online

One of the main reasons people use Microsoft Dynamics CRM is to store all customer email so anyone with the appropriate permissions can see all relevant customer communications in one place. For example, you can see all email associated with a particular contact or account, or for a particular opportunity or case.

To store email and other messaging records in CRM, you need to synchronize your email system with CRM. There are three ways to do this:

- Server-side synchronization

- Microsoft Dynamics CRM for Outlook

- Microsoft Dynamics CRM Email Router

You can also use server-side synchronization together with Dynamics CRM for Outlook.

◆ **Important**

Internet Message Access Protocol (IMAP) email servers are not currently supported by server-side synchronization or the Email Router.

In This Topic

When to use server-side synchronization
When to use CRM for Outlook
When to use the Email Router

When to use server-side synchronization

Server-side synchronization is the preferred synchronization method for the following reasons:

- **Enables Microsoft Dynamics CRM App for Outlook (CRM Online only)**. CRM Online 2016 Update includes a new lightweight email tracking app called Dynamics CRM App for Outlook. With Dynamics CRM App for Outlook, CRM information appears inline next to a user's Outlook email messages. For example, people can preview information about contacts and leads stored in CRM and add CRM contacts directly from an email message. They can also track incoming and outgoing email messages and (optionally) link them to new or existing CRM records. Dynamics CRM App for Outlook is very simple to deploy and it works with Outlook on the web (included in Microsoft Office 365) or the Outlook desktop client. Learn more about CRM App for Outlook.

- **Enables email folder tracking**. With folder tracking, users can simply drag email to an Exchange folder to track it automatically in CRM. Folder tracking works on any mobile device that supports Microsoft Exchange, which means users can track email from just about any device. Learn more about folder tracking.

- **Automatic synchronization**. When you synchronize records with server-side synchronization, the synchronization happens automatically at the server level. This isn't true if you synchronize records with Dynamics CRM for Outlook. In this case, the user has to have Dynamics CRM for Outlook open to synchronize records.

📝 Note

Your users can still use Dynamics CRM for Outlook to manually track records (using the **Track** button or the **Set Regarding** button) even if synchronization happens through server-side synchronization. Using server-side synchronization together with Dynamics CRM for Outlook can also boost the performance of Dynamics CRM for Outlook.

- **Synchronize appointments, contacts, and tasks**. In addition to email, you can synchronize Outlook appointments, contacts, and tasks. You can also synchronize appointments, contacts, and tasks with Dynamics CRM for Outlook, but not with the Email Router.

- **Synchronize with POP3 email servers**. You can use server-side synchronization to synchronize CRM with Gmail, Outlook.com, Yahoo, and other POP3 email servers. Note, however, that you can't synchronize appointments, contacts, and tasks with POP3 email servers.

- **Enables multiple scenarios, including hybrid scenarios**. You can use server-side synchronization to connect:
  - CRM Online to Exchange Online
  - CRM Online to Exchange Server (on-premises)
  - CRM Server (on-premises) to Exchange Server (on-premises)

- **Integrated mailbox management and resource utilization**. You can use the server-side synchronization performance dashboard to quickly monitor mailbox performance across the organization. You can also troubleshoot errors through error logging and reporting.

More information: Set up server-side synchronization of email, appointments, contacts, and tasks

When to use CRM for Outlook

CRM for Outlook is a full CRM client that includes offline capabilities. Users can do almost anything in CRM for Outlook that they can do in the web client, so it's possible to work exclusively in the familiar Outlook interface, which cuts down on training time.

CRM for Outlook includes its own synchronization agent that runs on the user's computer, so it doesn't require server-side sync or the Email Router for synchronization, but it's best to do the synchronization through server-side synchronization for the reasons mentioned in the previous section. Learn more about Dynamics CRM for Outlook

When to use the Email Router

The Email Router is an earlier synchronization method, so it's mostly useful for legacy scenarios. If you want to synchronize records between CRM Server (on-premises) and Exchange Online, you must use the Email Router, however. You can't synchronize appointments, contacts, and tasks with the Email Router.

💡 Tip

If you're using Microsoft Dynamics CRM Online 2016 Update or Microsoft Dynamics CRM 2016 (on-premises), you can use server-side synchronization to synchronize records between CRM Online and Microsoft Exchange Server (on-premises). More information: Set up server-side synchronization

More information: Set up Email Router

See Also

Server-side synchronization

Applies To: CRM 2016 on-prem, CRM Online

Server-side synchronization is the preferred option for organizations with users who run Microsoft Dynamics CRM in a web browser or on a mobile device, such as a tablet or smartphone. Server-side synchronization provides direct Microsoft Dynamics CRM-to-email server synchronization. When you use Exchange, this includes bi-directional synchronization of email, contacts, tasks, and appointments. The data synchronized for each user can be controlled by using synchronization filters that are available from the **Synchronization** tab in the Microsoft Dynamics CRM user options dialog.

If you use a POP3 email server, the data that is synchronized includes email only.

Using server-side synchronization makes messaging data available to a web browser, tablet, or smartphone that is running Microsoft Dynamics CRM.

For more information about server-side synchronization, see Set up server-side synchronization of email, appointments, contacts, and tasks.
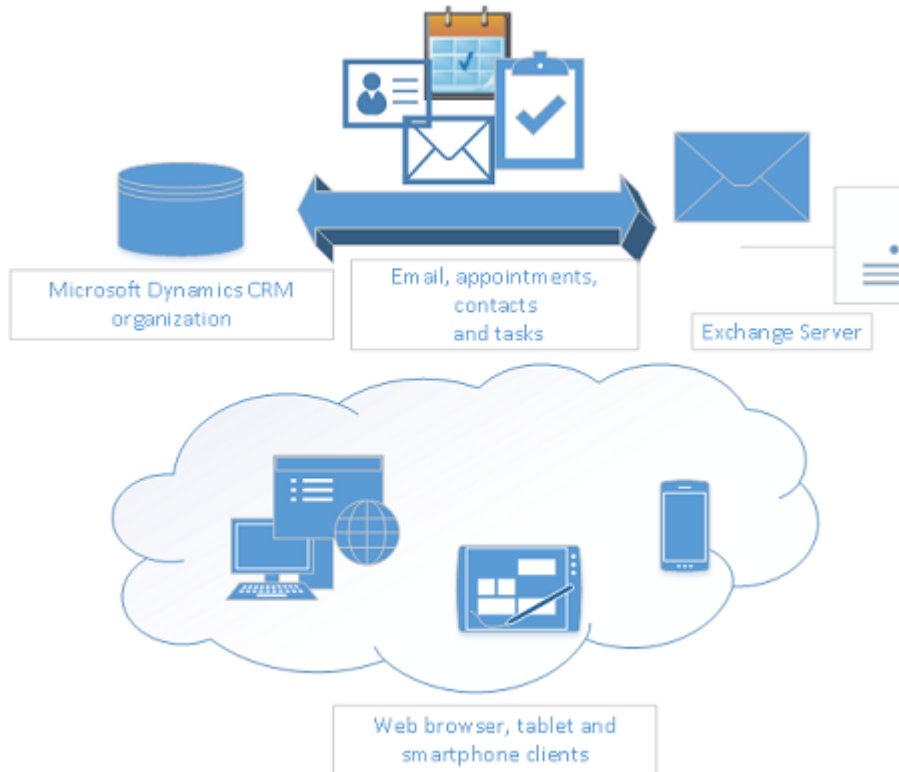
☑ **Note**

A Microsoft Dynamics CRM user can only map to a single Exchange or POP3 mailbox. Similarly, an Exchange or POP3 mailbox can only be mapped to a single Microsoft Dynamics CRM user. When Microsoft Dynamics CRM detects that an Exchange or POP3 mailbox has already been mapped to a Microsoft Dynamics CRM user, a dialog box is displayed to present a choice to the user whether to map the Microsoft Dynamics CRM user to the Exchange mailbox. When the user selects yes, it breaks the previous Microsoft Dynamics CRM user to Exchange mailbox mapping and subsequently the synchronization that would occur between the Microsoft Dynamics CRM user and the Exchange

mailbox.

Server-side synchronization frequency

When synchronization by using server-side synchronization occurs, the process is dynamic and unique to each user's mailbox. Normally, synchronization occurs every 15 minutes. However, the synchronization frequency is determined based on the activity and load of the user's mailbox. So, if a user's mailbox is idle for a long period of time, the synchronization frequency will automatically increase, and may increase by hours. Notice that the synchronization frequency will also change based on the load and network connectivity of the user's environment.

Features available with server-side synchronization in Microsoft Dynamics CRM Online

Some features offered by server-side synchronization include the following:

1. **Email folder tracking.** You can simply drag email to a folder to track it. Folder tracking works on any mobile device that supports Microsoft Exchange, which means you can track email from just about any device.

2. **Doesn't require Outlook.** You don't have to have the CRM for Outlook add-in open to synchronize records. You can still use CRM for Outlook to track records manually even if you do the synchronization through server-side sync. This also helps to boost the performance of the Outlook add-in.

3. **Support for CRM App for Outlook.** You can track incoming email with the new Dynamics CRM App for Outlook. Dynamics CRM App for Outlook works with Outlook on the web. So all you need is a browser to track incoming email.

Features available with server-side synchronization in both Microsoft Dynamics CRM Online and Microsoft Dynamics CRM (on-premises)

Some features offered by server-side synchronization include the following:

- **Efficient resource utilization.** Server-side synchronization provides integrated mailbox management. You can disable inactive mailboxes that have permanent errors. It prevents resource hogging by applying an upper limit on the allocated capacity and time-out requests.

- **Connection throttling.** Server-side synchronization provides a way to control the number of parallel connections opened against an email server to prevent overloading the mail server.

- **Data migration.** Server-side synchronization supports migrating configuration data from Email Router to server-side synchronization by using the migration wizard. More information: [Migrate settings from the Email Router to server-side synchronization](#), [Merge email server profiles for migration](#).

- **Service isolation.** Server-side synchronization has separate queue-management and configuration settings for asynchronous operations, outgoing activities, and mailboxes. It is based off asynchronous service architecture and may share the same process. In all cases, it manages server resources while maintaining isolation with the asynchronous service.

- **Error reporting for users and administrators.** Server-side synchronization supports logging and reporting of errors specific to an email or one or more mailboxes. More information: Error logging for server-side synchronization.

 Note

- In Microsoft Dynamics CRM, you can synchronize emails using Dynamics CRM for Outlook or server-side synchronization. If server-side synchronization is selected, the synchronization does not require running Dynamics CRM for Outlook. You will, however, still need Dynamics CRM for Outlook to promote an item from Outlook.

Features available with server-side synchronization in Microsoft Dynamics CRM (on-premises)

Some features offered by server-side synchronization with Microsoft Dynamics CRM (on-premises) include the following:

- **Performance counters.** Performance counters are added to Activity and mailbox queue for Asynchronous service and server-side synchronization.

- **Server role deployment.** Server-side synchronization leverages the Asynchronous Service server role on the Microsoft Dynamics CRM server.

See Also

Integrate your email system with Microsoft Dynamics CRM
Set up server-side synchronization of email, appointments, contacts, and tasks
Help & Training: Synchronizing data with Outlook or Exchange FAQ

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Supported email service configurations for server-side synchronization

Applies To: CRM 2016 on-prem, CRM Online

Depending on your Microsoft Dynamics CRM installation, you may be deciding whether to use server-side synchronization or the Email Router/Outlook synchronization. This following table lists what is

supported by server-side synchronization for each type of installation. Later in this topic, you can read about the scenarios that aren't supported by server-side synchronization.

◆ **Important**

- The information here includes the POP3/SMTP systems supported by Microsoft. Although other POP3/SMTP systems may work with Microsoft Dynamics CRM, those systems were not tested by Microsoft and are not supported.

- Outlook on the web is not supported in a hybrid deployment: Microsoft Dynamics CRM (on-premises) with Exchange Online.

- You can create two different email server profiles: one for online mailboxes, and another for on-premises mailboxes. Associate the mailboxes with the correct email server profile.

- Manual tracking in CRM for Outlook is not supported when a user's mailbox is configured to use server-side synchronization with the POP/SMTP protocol.

CRM deployment	Email system	Email synchronization	Appointments, contacts, and tasks synchronization	Protocol
CRM (on-premises)	- Exchange Server 2010 - Exchange Server 2013 - Exchange Server 2016	Yes	Yes	Exchange Web Services
CRM (on-premises)	- Gmail - Yahoo! Mail - MSN1 - Outlook.com1 - Windows Live Mail1	Yes	No	POP3/SMTP
Microsoft Dynamics CRM Online	1. Exchange Online 2. Exchange Server 2010 SP3 3. Exchange Server 2013 SP1 4. Exchange Server 2016	Yes	Yes	Exchange Web Services
Microsoft Dynamics CRM	Gmail	Yes	No	POP3/SMTP

CRM deployment	Email system	Email synchronization	Appointments, contacts, and tasks synchronization	Protocol
Online	• Yahoo! Mail			

1 May be unsupported for FIPS-compliancy. See the following section for more information.

Using Exchange Online with CRM Online

If your company is using Exchange Online with CRM Online, note the following:

CRM Online supports server-side synchronization with Exchange Online in the same tenant in Office 365 with Server to Server Authentication. Other authentication methods or settings are not recommended or supported, including:

- Using credentials specified by a user or queue

- Using credentials specified in an email server profile

- Using Impersonation

- Setting Auto Discover Server Location to No

- Using an email server profile other than Microsoft Exchange Online

- Using non-default network ports

Connecting CRM Online with Exchange Online in different tenant is not supported.

Unsupported email service configurations

 Server-side synchronization doesn't support the following scenarios:

- Hybrid deployment: Microsoft Dynamics CRM (on-premises) with Exchange Online

- Mix of Exchange/SMTP and POP3/Exchange

- Creation of mass email marketing campaigns

- Extensibility scenarios like extending EWS/POP3/SMTP protocols and creating custom email providers

- Exchange Server 2003 and Exchange Server 2007

- Server-side synchronization in CRM Online, or in a Microsoft Dynamics CRM (on premises) deployment that is configured for FIPS 140-2 compliancy, requires a POP3/SMTP email server that is also FIPS 140-2 compliant. Some email servers are not FIPS 140-2 compliant, such as MSN, Outlook.com, or Windows Live Mail.

For most situations not supported by server-side synchronization, you can use the Microsoft Dynamics CRM Email Router. More information: Integrate your email system with Microsoft Dynamics CRM

📝 Note

We recommend that you don't use a mixed configuration of Outlook synchronization and server-side synchronization for appointments, contacts, and tasks in the same organization, because it may result

in updated CRM data not synchronizing to all attendees.

See Also

Server-side synchronization
Set up server-side synchronization of email, appointments, contacts, and tasks

Email Router

Applies To: CRM 2016 on-prem, CRM Online

The Microsoft Dynamics CRM Email Router acts as an intermediary application that provides server-to-server synchronization between Microsoft Dynamics CRM and Exchange or POP3/SMTP based email servers. The Email Router only synchronizes email messages. It doesn't synchronize appointments, contacts, or tasks.
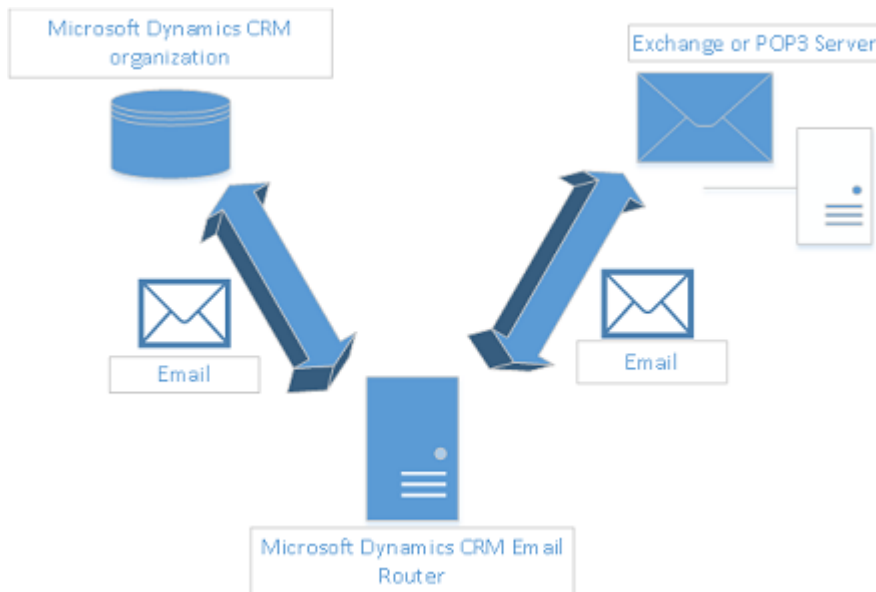
The Email Router enables you to configure an interface between your Microsoft Dynamics CRM deployment and one or more servers running Exchange Server, Exchange Online accounts, or POP3 servers, for incoming email. For outgoing email, one or more SMTP servers, Exchange Web Services (EWS), or Exchange Online accounts are supported. Email messages come into the Microsoft Dynamics CRM system through the Email Router. More information: Microsoft Dynamics CRM Email Router software requirements

◆ **Important**

Although it is supported, we do not recommend that you install the Email Router on a computer that is

running Microsoft Exchange Server.

After you install the Email Router, you must run the Email Router Configuration Manager, an application that is installed during Microsoft Dynamics CRM Email Router Setup. You can use the Email Router Configuration Manager to configure the following:

- **One or more incoming profiles.** An incoming profile contains the information about the email systems that will be used to process incoming email messages.

- **One or more outgoing profiles.** An outgoing profile contains the information about the email systems that will be used to process outgoing email messages.

- **One or more deployments.** The Deployments area contains information about the Microsoft Dynamics CRM deployment and maps to an incoming and outgoing profile.

- **Users, queues, and forward mailboxes.** This area contains information about each user that will use the Email Router for email tracking. You can also configure email routing for queues and define a forward mailbox.

For more information about the Email Router Configuration Manager, see the following resources:

- [Install Email Router for Microsoft Dynamics CRM 2016 and CRM Online](#)

- [Use Email Router Configuration Manager](#)

See Also

[Integrate your email system with Microsoft Dynamics CRM](#)
[Set up Email Router](#)

Supported email systems and network topology

Applies To: CRM 2016 on-prem, CRM Online

The Email Router is an optional interface component that integrates your email system with Microsoft Dynamics CRM, and routes qualified email messages to and from your Microsoft Dynamics CRM organization. This section provides guidelines for analyzing your organization's requirements for integrating email with Microsoft Dynamics CRM, and outlines the things to consider when you plan, install, and configure an Email Router deployment.

Supported email systems

The Email Router can connect to one or more email servers running Microsoft Exchange Server or Exchange Online. The Email Router can also connect to POP3-compliant servers to provide incoming email routing. For outgoing email, you can use SMTP and EWS (Exchange Online only). For more information about the email server versions and protocols that Microsoft Dynamics CRM supports, see [Microsoft Dynamics CRM Email Router software requirements](#) in this guide.

Exchange Server is an enterprise messaging system with the versatility to support various organizations. As with Active Directory and Microsoft Dynamics CRM, Exchange Server requires planning before it is deployed. Many documents are available from Microsoft that explain how to plan, deploy, and operate Exchange Server. More information: [Exchange](#).

Network topology and email traffic

The overall requirements to deploy and configure an effective Microsoft Dynamics CRM email solution for a small business are similar to those of a large enterprise. However, a small business might not have an IT department. As you plan your email solution, consider the details of your particular IT environment, such as who is responsible for network administration, what is allowed for Email Router placement, use of forward mailbox, and forwarding rules.

To optimize performance, carefully consider the size, complexity, and geographical distribution of your network. The location of your email servers, the number of users who will route email to and from Microsoft Dynamics CRM, expected traffic levels, and the frequency and size of attachments should help guide your decisions.

For example, an international enterprise-level Microsoft Dynamics CRM deployment might have user and queue mailboxes in multiple sites, regions, or countries. Such a deployment may accommodate multiple Microsoft Dynamics CRM organizations and multiple email server configurations. The email servers might be located inside or outside the corporate domain, separated by firewalls.

A small business deployment, on the other hand, will typically have a relatively small number of users and significantly less email traffic. Frequently, there will be no full-time IT department to configure and maintain an Email Router deployment.

Avoid mailbox storage problems

Every organization has its own unique requirements for email message routing and storage. To avoid problems that can result from overtaxing your system's storage capacity, consider the following when you plan an Email Router deployment:

- All email messages

- Email messages in response to CRM email

- Email messages from CRM Leads, Contacts, and Accounts

- Email messages from CRM records that are email enabled

For more information, see [Email message filtering and correlation](#) in this guide.

- **What storage quotas should be applied to each mailbox?** For more information about how to apply mailbox storage quotas and managing automated messages that are sent to mailbox owners when their size limit is exceeded, see the documentation for your email system.

- **How long should email messages be stored?** For more information about automatically archiving or deleting email messages, see the documentation for your email system.

Like server-side synchronization and Microsoft Dynamics CRM for Outlook, the Microsoft Dynamics CRM Online Email Router lets you track CRM-related information automatically. The email tracking functionality in the Email Router operates in the manner described in the [Email message filtering and correlation](#) topic. The Email Router also lets you send and receive emails through CRM Online.

See Also

Email Router tasks and components

Applies To: CRM 2016 on-prem, CRM Online

The Email Router performs the following tasks:

- Routes incoming email messages to Microsoft Dynamics CRM.

- Sends email messages generated from CRM.

The Email Router is required to route email messages for organizations that don't use server-side synchronization or Microsoft Dynamics CRM for Outlook. The Email Router can be installed on various versions of the Microsoft Windows operating system. For a list of supported Windows versions, see [Microsoft Dynamics CRM Email Router software requirements](#). The computer on which you install the Email Router must have a connection to a Microsoft Exchange Server or to a POP3/SMTP email server.

The Email Router contains the following components:

- The Email Router service ("Microsoft CRM Email Router") and the Email Router configuration files.

- The Email Router Configuration Manager. You use this wizard to configure the Email Router service.

- The Rule Deployment Wizard. This wizard lets you deploy rules that are used to route email messages to a forward mailbox from the mailbox of a user or queue. The Rule Deployment Wizard doesn't work with POP3/SMTP email servers. More information: [Bookmark link 'BKMK_DeployInboxRules' is broken in topic '{"project_id":"d1ee8af7-0e8f-4e94-9793-0d06bbfa9b16","entity_id":"c578a81c-1b30-4ff3-b392-6ff1b78ce6e0","entity_type":"Article","locale":"en-US"}'. Rebuilding the topic '{"project_id":"d1ee8af7-0e8f-4e94-9793-0d06bbfa9b16","entity_id":"c578a81c-1b30-4ff3-b392-6ff1b78ce6e0","entity_type":"Article","locale":"en-US"}' may solve the problem.](#)

✏ Note

Only message class types **IPM.Note** and **IPM.NOTE.Rules.OofTemplate.Microsoft** are tracked and saved in Microsoft Dynamics CRM. For a list of known message class types, see [Office Dev Center: Item Types and Message Classes](#).

See Also

Microsoft Dynamics CRM Email Router hardware requirements

Applies To: CRM 2016 on-prem, CRM Online

The following table lists the minimum and recommended hardware requirements for Microsoft Dynamics CRM Email Router.

Component	*Minimum	*Recommended
Processor (32-bit)	750-MHz CPU or comparable	Multi-core 1.8-GHz CPU or higher
Processor (64-bit)	x64 architecture or compatible 1.5 GHz processor	Multi-core x64 architecture 2GHz CPU or higher
Memory	1-GB RAM	2-GB RAM or more
Hard disk	100 MB of available hard disk space	100 MB of available hard disk space

*Actual requirements and product functionality may vary based on your system configuration and operating system.

Running Microsoft Dynamics CRM Email Router on a computer that has less than the recommended requirements may result in inadequate performance.

See Also

Microsoft Dynamics CRM Email Router software requirements

Applies To: CRM 2016 on-prem, CRM Online

This topic lists the software and application software requirements for Microsoft Dynamics CRM Email Router.

Microsoft Dynamics CRM Email Router Setup consists of two main components: the Email Router and the Rule Deployment Wizard. The Email Router component installs the Email Router service and Email Router Configuration Manager. You use the Email Router Configuration Manager to configure the Email Router. The Rule Deployment Wizard component deploys the rules that enables received email messages to be tracked.

Microsoft Dynamics CRM version support

Be aware of the following requirements for Email Router:

- Microsoft Dynamics CRM 2013 Email Router requires CRM 2013

- Microsoft Dynamics CRM 2015 Email Router requires CRM 2015

- Microsoft Dynamics CRM 2016 Email Router requires CRM 2016

◆ **Important**

For Microsoft Dynamics CRM applications, we recommend using the latest version and service pack (SP) for all required components, such as Windows Server, Microsoft SQL Server, Microsoft Office, Internet Explorer, and Microsoft Exchange Server. In some cases, there might be a delay between the availability of a component update and support for the update in CRM applications. However, you should always apply the latest CRM update for CRM to fully support the latest version of a required component.

Supported Windows operating systems

You can install the Email Router and Rule Deployment Wizard on any computer that is running one of the following operating systems, and that has network access to both Microsoft Dynamics CRM and the email server:

- Windows 8.1 or Windows 8 (64-bit and 32-bit versions)

- Windows 7 (64-bit and 32-bit versions)

- Windows Server 2012

◆ **Important**

- After Microsoft Dynamics CRM Server Setup is finished, apply the latest update rollup, if any.

- Running Microsoft Dynamics CRM Email Router and Email Router Configuration Manager (32-bit) is not supported on a Windows Server 64-bit operating system, in Windows-On-Windows (WOW) mode. Install and run the 64-bit version of the Microsoft Dynamics CRM Email Router.

- The Microsoft Dynamics CRM Email Router is not supported for use with Windows 10.

Rule Deployment Wizard Requires MAPI
The Rule Deployment Wizard requires the Microsoft Exchange Server Messaging API (MAPI) client runtime libraries. To install the MAPI client runtime libraries, see Microsoft Exchange Server MAPI Client and Collaboration Data Objects 1.2.1.

◆ **Important**

Installing and running the Rule Deployment Wizard on a computer that has Microsoft Office Outlook installed is not supported. Both applications use a different version of MAPI that are incompatible.

Note

MAPI versions 6.5.8147 (or later) are supported by Microsoft Exchange Server 2010.

If you already have a version of the MAPI download installed, you must uninstall it before installing the new version.

If you are installing the Rule Deployment Wizard on a system that uses Microsoft Exchange Server 2010 as its email server, you must also have installed Update Rollup 2 (or later) of Microsoft Exchange Server 2010. For more information, see Update Rollup 2 for Exchange Server 2010 (KB979611).

In This Topic

Exchange Server

Messaging and transport protocols

Exchange Online

Additional Email Router software requirements

Exchange Server

Microsoft Exchange Server is only required if you want to use the Email Router to connect to an Exchange Server email messaging system. To do this, you can install the Email Router on any of the supported Windows or Windows Server operating systems that have a connection to the Exchange Server. The Email Router supports the following versions of Exchange Server:

- Microsoft Exchange Server 2010 Standard and Enterprise editions

- Exchange Server 2013 Standard and Enterprise editions

- Microsoft Exchange Online

 Important

If missing, Microsoft Dynamics CRM Email Router Setup installs the Microsoft .NET Framework 4 on the computer where you install the Email Router.

The Rule Deployment Wizard component must be installed on a computer that is running any of the supported Windows or Windows Server operating systems and that has the MAPI client runtime libraries installed.

Download the MAPI client runtime libraries from the Microsoft Download Center.

Messaging and transport protocols

Microsoft Dynamics CRM Email Router supports a variety of email messaging and transport options.

POP3

POP3-compliant email systems are supported for incoming email message routing.

 Important

When you use the **Forward Mailbox** option on the **User** form, the POP3 email server must provide support where an email message can be sent as an attachment to another email message.

If you configure the Microsoft Dynamics CRM Email Router to connect to a POP3-compliant email server, the server must support RFC 1939.

Transport protocols

Both SMTP and Exchange Online with Exchange Web Services (EWS) are messaging transport protocols that are supported for outgoing email message routing.

If you configure the Microsoft Dynamics CRM Email Router to use an SMTP-compliant transport service, the server must support RFC 2821 and RFC 2822.

Exchange Online

Microsoft Exchange Online is a hosted enterprise messaging service from Microsoft. It provides the robust capabilities of Microsoft Exchange Server as a cloud-based service. To learn more, see [Exchange Online](#).

Additional Email Router software requirements

If the following components are missing, they will be installed by Microsoft Dynamics CRM Email Router Setup:

- Microsoft .NET Framework 4

- Microsoft Visual C++ Redistributable

- Microsoft Application Error Reporting

- Windows Identity Foundation (WIF)

- Windows Live ID Sign-in Assistant 6.5

- Microsoft Online Services Sign-in Assistant (Required for Microsoft Dynamics CRM Online when you subscribe through Microsoft Office 365.)

See Also

[Email Router](#)
[Referenced topic '1f5d3be8-bec4-44b2-86c7-e4dbd18a8eae' is not in the TOC.](#)

CRM for Outlook

Applies To: CRM 2016 on-prem, CRM Online

Microsoft Dynamics CRM for Outlook can synchronize email messages, contacts, tasks, and appointments between Microsoft Office Outlook and Microsoft Dynamics CRM (client-to-server synchronization). Similar to server-side synchronization, synchronization filters are used to synchronize messaging data from Microsoft Dynamics CRM to Outlook or Exchange. Manually tracked or Inbox-rule based tracking is used to synchronize messaging data from Exchange or Outlook to Microsoft Dynamics CRM.
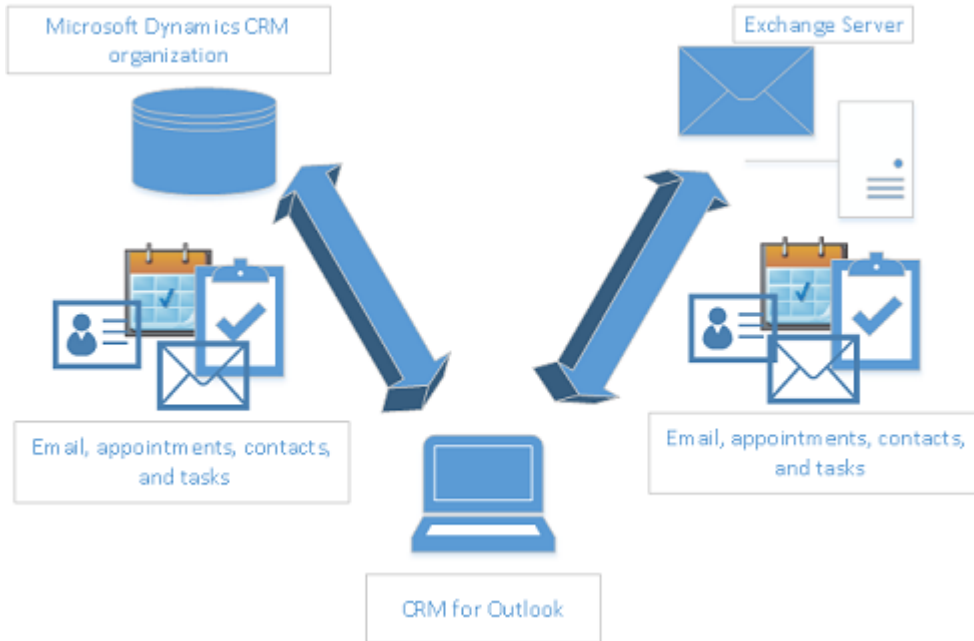
When you use Dynamics CRM for Outlook, there are a few synchronization concepts that are helpful to understand. Notice that, to have any of this Dynamics CRM for Outlook functionality, each Microsoft Dynamics CRM user must run the Dynamics CRM for Outlook add-in and the Microsoft Dynamics CRM user mailbox record must be configured appropriately.

When you select Dynamics CRM for Outlook as the messaging data synchronization method in the user mailbox record, email, contacts, appointments, and tasks created in Outlook are synchronized with Microsoft Dynamics CRM Online or Microsoft Dynamics CRM (on-premises).

CRM for Outlook synchronization concepts

Note the following concepts when you use Dynamics CRM for Outlook as the synchronizing agent:

1. **Synchronizing organization**. Only one organization can be designated as the synchronizing organization. If you have more than one Microsoft Dynamics CRM organization configured, you can view the synchronizing organization in the Microsoft Dynamics CRM Configuration Wizard. The Configuration Wizard is an application included with Dynamics CRM for Outlook. Notice that you can still connect to additional organizations by using Dynamics CRM for Outlook. However, when an organization is not defined as the synchronizing organization in Dynamics CRM for Outlook, messaging data in Outlook does not synchronize with that organization.

2. **Synchronizing mailbox**. Only one Exchange or POP3 mailbox can be designated for a single Microsoft Dynamics CRM user. You cannot designate multiple mailboxes and you cannot map more than one Microsoft Dynamics CRM user to a single Exchange or POP3 email mailbox. This mailbox is referred to as the primary mailbox.

3. **Synchronizing CRM for Outlook instance**. Only one Dynamics CRM for Outlook instance can be designated as the Synchronizing Dynamics CRM for Outlook instance. When you sign-in to an organization from another PC that is running Dynamics CRM for Outlook that is not the synchronizing Dynamics CRM for Outlook instance you will receive a dialog message asking whether you want to designate the current Dynamics CRM for Outlook instance as the synchronizing Dynamics CRM for Outlook instance. Notice that, when you choose not to set the Dynamics CRM for Outlook instance as the synchronizing instance, you can still connect to the Microsoft Dynamics CRM organization and perform tasks, but messaging data in Outlook will not synchronize with the Microsoft Dynamics CRM organization.

4. **Go Offline data sync**. Go offline capability uses Microsoft SQL Server Express as the local data store. When you go offline or come back online, Dynamics CRM for Outlook synchronizes the records for the entity types you choose with the Microsoft Dynamics CRM Online or Microsoft Dynamics CRM (on-premises). When you go offline or come back online, a separate synchronization process takes place that is not part of the messaging data synchronization described here. Go offline capability allows users to create, modify, or delete records offline that can be later synchronized to Microsoft Dynamics CRM Online or Microsoft Dynamics CRM (on-premises) when Dynamics CRM for Outlook comes online again.

See Also

Set up CRM for Outlook
Help & Training: Synchronizing data with Outlook or Exchange FAQ

Microsoft Dynamics CRM for Outlook hardware requirements

Applies To: CRM 2016 on-prem, CRM Online

The following table lists the minimum recommended hardware requirements when you run Microsoft Dynamics CRM for Outlook in either online only or go offline enabled modes.

Component	Online only mode	Go Offline enabled mode
Processor	x86- or x64-bit 1.9 gigahertz (GHz) or faster dual core processor with SSE2 instruction set	x86- or x64-bit 1.9 gigahertz (GHz) or faster dual core processor with SSE2 instruction set

Component	Online only mode	Go Offline enabled mode
Memory	2-GB RAM or more	4-GB RAM or more
Hard disk	1.5 GB of available hard disk space	2 GB of available hard disk space 7200 RPM or more
Display	Super VGA with a resolution of 1024 x 768	Super VGA with a resolution higher than 1024 x 768

 Note

 Actual requirements and product functionality may vary based on your system configuration and operating system.

Running Microsoft Dynamics CRM on a computer that has less than the minimum recommended requirements may result in inadequate performance. For the best performance, we recommend running 64-bit versions of Microsoft Windows, Microsoft Office, and Dynamics CRM for Outlook.

Network requirements

Microsoft Dynamics CRM is designed to work best over networks that have the following elements:

- Bandwidth greater than 50 KBps (400 kbps)

- Latency under 150 ms

These values are recommendations and don't guarantee satisfactory performance. The recommended values are based on systems using out-of-the box forms that aren't customized. If you significantly customize the out-of-box forms, we recommend that you test the form response to understand bandwidth needs. More information: Verify network capacity and throughput for Dynamics CRM clients

 Note

Successful network installation of Dynamics CRM for Outlook requires a reliable and high-throughput network. Otherwise, installation might fail. The recommended minimum available bandwidth of the network connection is 300 Kbps.

See Also

CRM for Outlook
Set up CRM for Outlook

Microsoft Dynamics CRM for Outlook software requirements

Applies To: Dynamics CRM 2016, Dynamics CRM Online

Dynamics CRM for Outlook works the way that you do by providing a seamless combination of Microsoft Dynamics CRM features in the familiar Microsoft Outlook environment. This section lists software requirements for Dynamics CRM for Outlook and Microsoft Dynamics CRM for Microsoft Office Outlook with Offline Access.

One of the following operating systems is required:

- Windows 10 (64-bit and 32-bit versions)*

- Windows 8.1 or Windows 8 (64-bit and 32-bit versions)

- Windows 7 Service Pack 1 (64-bit and 32-bit versions)

- Windows Server 2012 and Windows Server 2012 R2 when running as a Remote Desktop Services application

*This feature is available only if your organization has updated to Microsoft Dynamics CRM Online 2015 Update 1.1, Microsoft Dynamics CRM 2015 Update 0.2 or Microsoft Dynamics CRM 2016.

In this topic

Microsoft Dynamics CRM for Outlook software feature prerequisites
Additional Microsoft Dynamics CRM for Outlook software requirements

Microsoft Dynamics CRM for Outlook software feature prerequisites

The following software must be installed and running on the computer before you run Microsoft Dynamics CRM for Outlook Setup:

Web Browser. One of the following:

- Internet Explorer 11

- Internet Explorer 10

♦ **Important**

Internet Explorer 9 or earlier versions are not supported for use with Dynamics CRM for Outlook.

Microsoft Office. One of the following:

- Microsoft Office 2016*

- Microsoft Office 2013

- Microsoft Office 2010

*This feature is available only if your organization has updated to Microsoft Dynamics CRM Online 2015 Update 1.1, Microsoft Dynamics CRM 2015 Update 0.2 or Microsoft Dynamics CRM 2016.

◆ **Important**

Dynamics CRM for Outlook isn't supported with Office for Mac versions of Microsoft Office Outlook.

To install and run the 64-bit version of Dynamics CRM for Outlook, a 64-bit version of Microsoft Office is required.

Before you run the Configuration Wizard to configure Dynamics CRM for Outlook, a Microsoft Office Outlook profile must exist for the user. Therefore, Microsoft Outlook must be run at least once to create the user's Microsoft Outlook profile.

Both the web application and Dynamics CRM for Outlook require JavaScript enabled for certain features, such as Activity Feeds, dashboard areas, and the display of certain panes or menus. Although the web application displays error messages when JavaScript is disabled, Dynamics CRM for Outlook doesn't. To verify if JavaScript is enabled in Internet Explorer, start Internet Explorer, on the **Tools** menu click or tap **Internet options**. On the **Security** tab, click or tap **Internet**, and then click or tap **Custom level**. In the **Security Settings** dialog box under **Scripting**, **Active scripting** must be set to **Enable**.

The Indexing Service (now known as the Windows Search Service, or WSS) is required by users who will set up and use Dynamics CRM for Outlook and its Help file in offline mode.

Microsoft Dynamics CRM. One of the following editions of Microsoft Dynamics CRM must be available so that Dynamics CRM for Outlook can connect to it:

- On-premises editions of Microsoft Dynamics CRM Server

- Microsoft Dynamics CRM Online

Additional Microsoft Dynamics CRM for Outlook software requirements

If needed, the following software will be installed by Microsoft Dynamics CRM for Outlook Setup:

- Microsoft SQL Server 2012 Express

📝 **Note**

Installed from Microsoft Dynamics CRM for Microsoft Office Outlook with Offline Access only.

- Microsoft .NET Framework 4.5.2.

- Microsoft Windows Installer 4.5.

- Microsoft Visual C++ Redistributable.

- Microsoft Report Viewer 2010.

- Microsoft Application Error Reporting.

- Windows Identity Foundation (WIF).

- Microsoft Azure AppFabric SDK V1.0.

- Windows Live ID Sign-in Assistant 6.5.

- Microsoft Online Services Sign-in Assistant 2.1.

- Microsoft SQL Server Native Client.

- Microsoft SQL Server Compact 4.0.

- Reporting Services Microsoft ActiveX control. If not installed on the computer, the user will be prompted to install the software at first attempt to print a report. This installer package is named RSClientPrint.cab and can found on the Microsoft SQL Server Reporting Services server at <drive>:\Program files\Microsoft SQL Server\<MSSQL>\Reporting Services\ReportServer\bin.

See Also
CRM for Outlook
CRM for Outlook support

CRM for Outlook support

Applies To: CRM 2016 on-prem, CRM Online

This topic contains links to information about the supported software requirements for Microsoft Dynamics CRM for Outlook.

◆ Important

For Microsoft Dynamics CRM applications, we recommend using the latest version and service pack (SP) for all required components, such as Windows Server, Microsoft SQL Server, Microsoft Office, Internet Explorer, and Microsoft Exchange Server. In some cases, there might be a delay between the availability of a component update and support for the update in CRM applications. However, you should always apply the latest update for Microsoft Dynamics CRM to fully support the latest version of a required component.

For up-to-date compatibility information about CRM 2016, see Compatibility with Microsoft Dynamics CRM 2016.
For up-to-date compatibility information about CRM 2015, see Compatibility with Microsoft Dynamics CRM 2015.
For up-to-date compatibility information about CRM 2013, see Compatibility with Microsoft Dynamics CRM 2013.

Microsoft Office

For versions of Microsoft Office that are supported for Dynamics CRM for Outlook, see Microsoft Dynamics CRM for Outlook software requirements.

Microsoft Windows

For versions of Microsoft Windows that are supported for Dynamics CRM for Outlook, see Microsoft Dynamics CRM for Outlook software requirements.

See Also

Microsoft Dynamics CRM for Outlook hardware requirements
CRM for Outlook

Set up server-side synchronization of email, appointments, contacts, and tasks

Applies To: CRM 2016 on-prem, CRM Online

You can use server-side synchronization to synchronize your email system with Microsoft Dynamics CRM at the server level. For example, you can synchronize CRM Online with Microsoft Exchange Online (hosted email server) or Microsoft Exchange Server (on-premises). If you synchronize Microsoft Dynamics CRM with Exchange Online or Exchange Server, in addition to Outlook email, you can synchronize Outlook appointments, contacts, and tasks.

You can also use server-side synchronization to synchronize Microsoft Dynamics CRM with a POP3 email server for web-hosted email like Gmail or Outlook.com. If you synchronize email with a POP3 email server, you can't synchronize appointments, contacts, and tasks, however.

 Note

You can also synchronize email, appointments, contacts, and tasks with Microsoft Dynamics CRM for Outlook, or synchronize email with the Microsoft Dynamics CRM Email Router, but server-side synchronization is the preferred synchronization method. More information: Integrate your email system with Microsoft Dynamics CRM

Synchronization scenarios

Choose one of the following scenarios to configure server-side synchronization for your organization:

- Connect CRM Online to Exchange Online

- Connect CRM Online to Exchange Server (on-premises)

- Connect CRM to POP3/SMTP servers

 Note

If you want to connect CRM server (on-premises) to Exchange Online, you'll need to use the Email Router. More information: Set up Email Router

Privacy notice

If you use Microsoft Dynamics CRM, when you use server-side sync, CRM contacts and activities (including emails, appointments, contacts, and tasks) are synchronized to your specified email system (such as Exchange).

An administrator can configure server-side sync functionality to specify which users have the ability to send emails or appointments from CRM or synchronize activities and contacts between CRM and the user's mailbox. Both the administrator and end users can further customize filter criteria, and administrators can even define which entity fields synchronize.

Connect CRM Online to Exchange Online

Applies To: CRM Online

With both Microsoft Dynamics CRM Online and Microsoft Exchange Online hosted as online services, connecting the two is a simpler, more straightforward configuration.

 Tip

 Check out the following video: Connect CRM Online to Exchange Online using server-side sync

 Important

This feature requires that you have an Office 365 subscription or a subscription to an online service such as SharePoint Online or Exchange Online. For more information, see What is Office 365 and how does it relate to CRM Online?

In This Topic

Get Exchange ready

Verify you have the profile: Microsoft Exchange Online

Configure default email processing and synchronization

Configure mailboxes

Approve email

Test configuration of mailboxes

Test email configuration for all mailboxes associated with an email server profile

Get Exchange ready

To use Exchange Online with CRM Online, you must have an Exchange Online subscription that comes as part of an Office 365 subscription or that can be subscribed to separately. For information on Exchange Online, see:

- Exchange Online

- Exchange Online Service Description

- Office 365 service comparison

💡 **Tip**

To make sure you've got a good connection to Exchange Online, run the Microsoft Remote Connectivity Analyzer. For information on what tests to run, see Test mail flow with the Remote Connectivity Analyzer.

Verify you have the profile: Microsoft Exchange Online

If you have an Exchange Online subscription in the same tenant as your CRM Online subscription, CRM Online creates a default profile for the email connection: **Microsoft Exchange Online**. To verify this profile:

1. Go to **Settings** > **Email Configuration** > **Email Server Profiles**.

2. Click **Active Email Server Profiles** and check that the **Microsoft Exchange Online** profile is in the list.
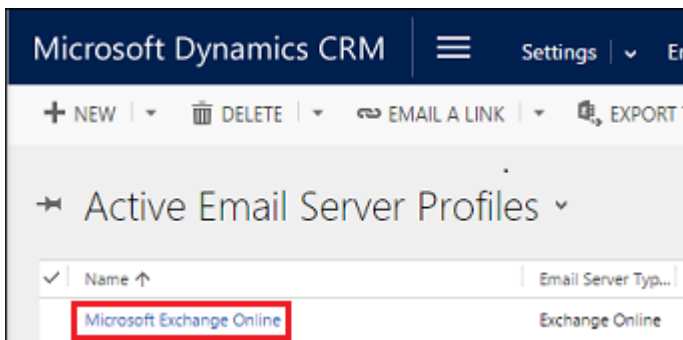
   If the Microsoft Exchange Online profile is missing, verify you have an Exchange Online subscription and that it exists in the same tenant as your CRM Online subscription.

3. If there are multiple profiles, click the **Microsoft Exchange Online** profile and set it as default.

Configure default email processing and synchronization

Set server-side synchronization to be the default configuration method for newly created users.

1. Go to **Settings** > **Email Configuration** > **Email Configuration Settings**.

2. Set the processing and synchronization fields as follows:

   - **Server Profile**: Microsoft Exchange Online

   - **Incoming Email**: Server-Side Synchronization or Email Router

   - **Outgoing Email**: Server-Side Synchronization or Email Router

   - **Appointments, Contacts, and Tasks**: Server-Side Synchronization or Email Router

   📝 **Note**

   If your users primarily use Dynamics CRM for Outlook on their desktop computers, **Microsoft Dynamics CRM for Outlook** might be a better choice.
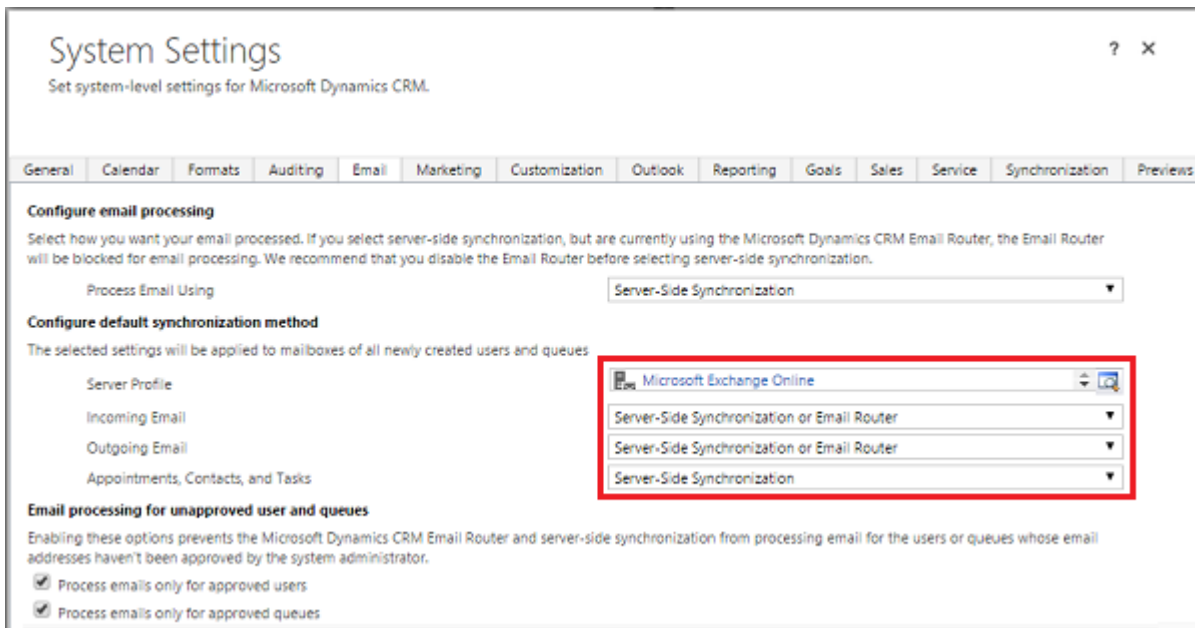
3. Click **OK**.

All new users will have these settings applied to their mailbox.

Configure mailboxes

New users will have their mailboxes configured automatically with the settings you made in the prior section. For existing users added prior to the above settings, you must set the Server Profile and the delivery method for email, appointments, contacts, and tasks.

In addition to administrator permissions, you must have Read and Write privileges on the Mailbox entity to set the delivery method for the mailbox.

Choose **one** of the following methods:

Set mailboxes to the default profile

1. Go to **Settings** > **Email Configuration** > **Mailboxes**.

2. Choose **Active Mailboxes**.

3. Select all the mailboxes that you want to associate with the Microsoft Exchange Online profile, click **Apply Default Email Settings**, verify the settings, and then click **OK**.
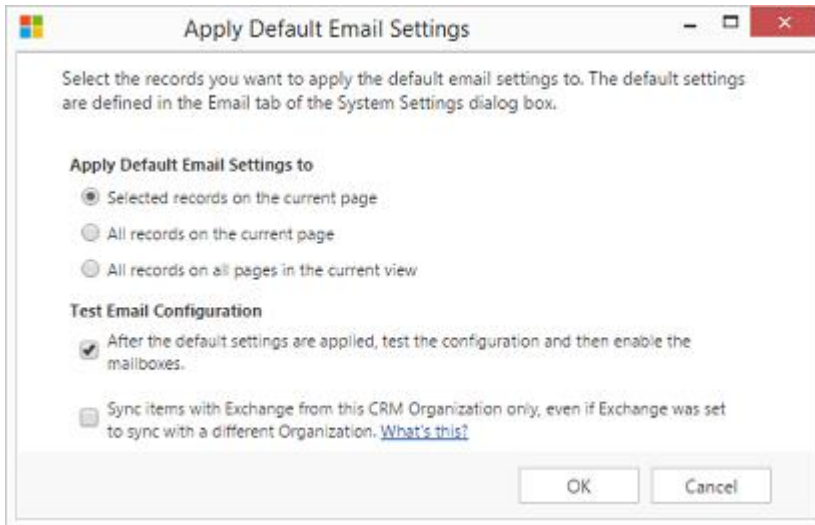
By default, the mailbox configuration is tested and the mailboxes are enabled when you click **OK**.

Edit mailboxes to set the profile and delivery methods

1. Go to **Settings** > **Email Configuration** > **Mailboxes**.

2. Click **Active Mailboxes**.

3. Select the mailboxes that you want to configure, and then click **Edit**.

4. In the **Change Multiple Records** form, under **Synchronization Method**, set **Server Profile** to **Microsoft Exchange Online**.

5. Set **Incoming** and **Outgoing Email** to **Server-Side Synchronization or Email Router**.

6. Set **Appointments, Contacts, and Tasks** to **Server-Side Synchronization**.

☑ Note

If your users primarily use Dynamics CRM for Outlook on their desktop computers, **Microsoft Dynamics CRM for Outlook** might be a better choice.

7. Click **Change**.

Approve email

You need to approve each user mailbox or queue before that mailbox can process email.

 Note

You must be an Office 365 Global administrator to approve mailboxes.

1. Go to **Settings** > **Email Configuration** > **Mailboxes**.
2. Click **Active Mailboxes**.
3. Select the mailboxes that you want to approve, and then click **More Commands** (**…**) > **Approve Email**.
4. Click **OK**.

Test configuration of mailboxes

1. Go to **Settings** > **Email Configuration** > **Mailboxes**.
2. Click **Active Mailboxes**.
3. Select the mailboxes you want to test, and then click **Test & Enable Mailboxes**.

   This tests the incoming and outgoing email configuration of the selected mailboxes and enables them for email processing. If an error occurs in a mailbox, an alert is shown on the Alerts wall of the mailbox and the profile owner. Depending on the nature of the error, Microsoft Dynamics CRM tries to process the email again after some time or disables the mailbox for email processing.

   To see alerts for an individual mailbox, open the mailbox and then under **Common**, click **Alerts**.

   The result of the email configuration test is displayed in the **Incoming Email Status**, **Outgoing Email Status**, and **Appointments, Contacts, and Tasks Status** fields of a mailbox record. An alert is also generated when the configuration is successfully completed for a mailbox. This alert is shown to the mailbox owner.

   You can find information on recurring issues and other troubleshooting information in CRM Blog: Test and Enable Mailboxes in Microsoft Dynamics CRM 2015 and Troubleshooting and monitoring server-side synchronization.

   Make sure you've got a good connection to Exchange Online by running the Microsoft Remote Connectivity Analyzer. For information on what tests to run, see Test mail flow with the Remote Connectivity Analyzer.

 Tip

If you're unable to synchronize contacts, appointments, and tasks for a mailbox, you may want to select the **Sync items with Exchange from this CRM org only, even if Exchange was set to sync with a different org** check box. Read more about this check box.

Test email configuration for all mailboxes associated with an email server profile

1. Go to **Settings** > **Email Configuration** > **Email Server Profiles**.

2. Select the Microsoft Exchange Online profile, and then click **Test & Enable Mailboxes**.

   When you test the email configuration, an asynchronous job runs in the background. It may take a few minutes for the test to be completed. Microsoft Dynamics CRM tests the email configuration of all the mailboxes associated with the Microsoft Exchange Online profile. For the mailboxes configured with server-side synchronization for synchronizing appointments, tasks, and contacts, it also checks to make sure they're configured properly.

💡 **Tip**

If you're unable to synchronize contacts, appointments, and tasks for a mailbox, you may want to select the **Sync items with Exchange from this CRM org only, even if Exchange was set to sync with a different org** check box. Read more about this check box.

See Also

Troubleshooting and monitoring server-side synchronization
Test mail flow with the Remote Connectivity Analyzer
Integrate your email system with Microsoft Dynamics CRM
Set up server-side synchronization of email, appointments, contacts, and tasks

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Connect CRM Online to Exchange Server (on-premises)

Applies To: CRM Online

With Microsoft Dynamics CRM Online 2016 Update, you can connect your CRM Online with Microsoft Exchange Server (on-premises).

Check out the following white paper: Setup Guide: Server-side synchronization for CRM Online and Exchange Server

In This Topic

Prerequisites

Prerequisites

1. **Microsoft Exchange Server**. The following versions are supported: Exchange Server 2010 SP3, Exchange Server 2013 SP1, or Exchange Server 2016.

2. **Basic authentication**. You need to create and configure a service account with the **ApplicationImpersonation** role in Microsoft Exchange. More information: [MSDN: Impersonation and EWS in Exchange](#).

3. **Secured connection**. The connection between CRM Online and Exchange must be encrypted via TLS/SSL (HTTPS).

4. **Exchange Web Services (EWS)**. Connections to EWS must be allowed through the firewall. Often a reverse proxy is used for the exterior facing connection.

💡 **Tip**

To make sure you've got a good connection to Exchange on-premises run the [Microsoft Remote Connectivity Analyzer](#). For information on what tests to run, see [Test mail flow with the Remote Connectivity Analyzer](#).

Create an email server profile

1. Go to **Settings** > **Email Configuration** > **Email Server Profiles**.

2. Click **New** > **Exchange Server**.

3. **For an Exchange email server profile, specify the following details:**

Fields	Description
General	
Name	Specify a meaningful name for the profile.
Description	Type a short description about the objective of the email server profile.
Auto Discover Server Location	Click **Yes** (recommended), if you want to use the automatically discover service to determine the server location. If you set this to **No**, you must specify the email server location manually.
Incoming Server Location and Outgoing Server Location	If you select **No** in **Auto Discover Server Location**, enter a URL for **Incoming Server Location** and **Outgoing Server Location**.
Credentials	
Authenticate Using Impersonation	Enter the credentials for the Exchange service account granted the **ApplicationImpersonation** role.
User Name	Type the user name for the Exchange service account.
Password	Type the password for the Exchange service account.
Advanced	
Additional Settings	
Process Email From	Select a date and time. Email received after the date and time will be processed by server-side synchronization for all mailboxes associated with this profile. If you set a value less than the current date, the change will be applied to all newly associated mailboxes and their earlier processed emails will be pulled.
Minimum Polling Intervals in Minutes	Type the minimum polling interval, in minutes, for mailboxes that are associated with this email server profile. The polling interval determines how often server-side synchronization polls your mailboxes for new email messages.
Maximum Concurrent Connections	Type the maximum number of simultaneous connections that can be made by CRM to the corresponding email server per mailbox. Increase the value to allow more parallel calls to Exchange to improve performance or reduce the value if there are errors on Exchange due to large number of calls from Microsoft Dynamics CRM. The default value of this field is 10. The maximum

Fields	Description
	number is considered per mailbox or per email server profile depending on whether the credentials are specified in a mailbox or email server profile.
Move Failed Emails to Undeliverable Folder	To move the undelivered email to the Undeliverable folder, click **Yes**. If there's an error in tracking email messages in CRM as email activities, and if this option is set to **Yes**, the email message will be moved to the Undeliverable folder.
Email Notifications	
Send an alert email to the owner of the email server profile reporting on major events	If you want the email server profile owner to be notified when more than 50% of the mailboxes fail, click **Yes**.

4. Click **Save**.
5. Click **Test Connection** and review the results. To diagnose issues, see the following section.

Troubleshooting the Exchange Server (Hybrid) profile connection

If you've run **Test Connection** and have issues with the Exchange Server (Hybrid) profile connection, use the information in the **Test Connection** dialog box to diagnose and fix the connection.
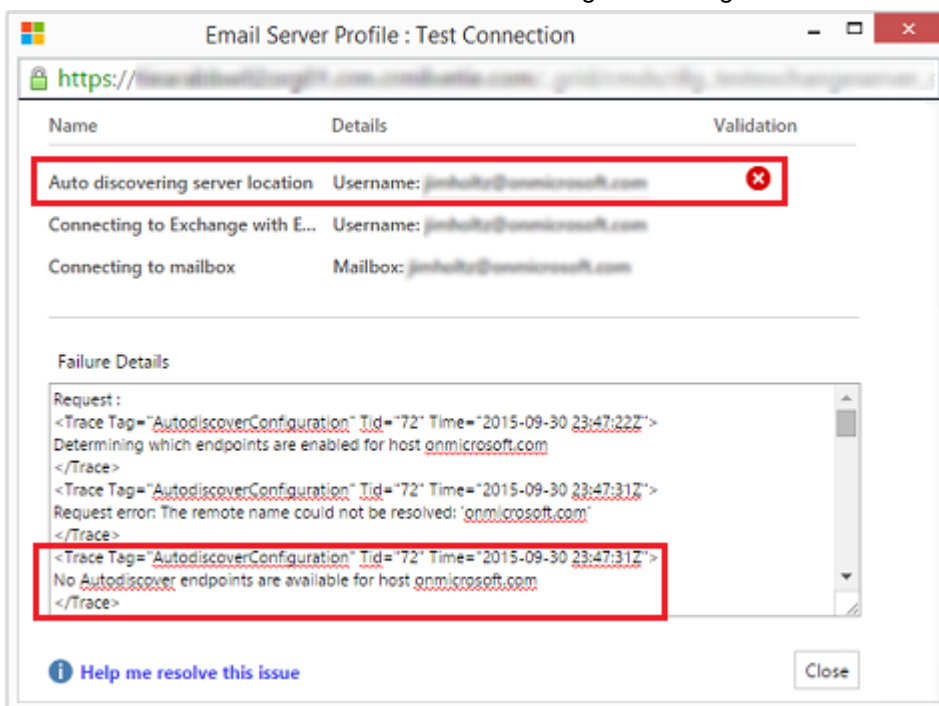
In this case, there's a problem with Auto Discover. The admin should review the user name and password used for **Authentication Using Impersonation** for the Exchange Server (Hybrid) profile.

You can find information on recurring issues and other troubleshooting information in Test and Enable Mailboxes in Microsoft Dynamics CRM 2015 and Troubleshooting and monitoring server-side synchronization.

Configure default email processing and synchronization

Set server-side synchronization to be the default configuration method.

1. Go to **Settings** > **Email Configuration** > **Email Configuration Settings**.

2. Set the processing and synchronization fields as follows:

    *   **Server Profile**: The profile you created in the above section.

    *   **Incoming Email**: Server-Side Synchronization or Email Router

    *   **Outgoing Email**: Server-Side Synchronization or Email Router

    *   **Appointments, Contacts, and Tasks**: Server-Side Synchronization or Email Router

    📝 **Note**

    If your users primarily use Dynamics CRM for Outlook on their desktop computers, **Microsoft Dynamics CRM for Outlook** might be a better choice.

    If you leave the **Email processing form unapproved user and queues** at the default values (checked), you will need to approve emails and queues for user mailboxes as directed below in **Approve Email**.

3. Click **OK**.

Configure mailboxes

To set mailboxes to use the default profile, you must first set the Server Profile and the delivery method for email, appointments, contacts, and tasks.

In addition to administrator permissions, you must have Read and Write privileges on the Mailbox entity to set the delivery method for the mailbox.

Select **one** of the following methods:

Set mailboxes to the default profile

1. Go to **Settings** > **Email Configuration** > **Mailboxes**.

2. Click **Active Mailboxes**.

3. Select all the mailboxes that you want to associate with the Exchange Server profile you created, click **Apply Default Email Settings**, verify the settings, and then click **OK**.

By default, the mailbox configuration is tested and the mailboxes are enabled when you click **OK**.

Edit mailboxes to set the profile and delivery methods

1. Go to **Settings** > **Email Configuration** > **Mailboxes**.

2. Click **Active Mailboxes**.

3. Select the mailboxes that you want to configure, and then click **Edit**.

4. In the **Change Multiple Records** form, under **Synchronization Method**, set **Server Profile** to the Exchange Server profile you created earlier.

5. Set **Incoming** and **Outgoing Email** to **Server-Side Synchronization or Email Router**.

6. Set **Appointments, Contacts, and Tasks** to **Server-Side Synchronization**.

If your users primarily use Dynamics CRM for Outlook on their desktop computers, **Microsoft Dynamics CRM for Outlook** might be a better choice.

7. Click **Change**.

Approve email

You need to approve each user mailbox or queue before that mailbox can process email.

1. Go to **Settings** > **Email Configuration** > **Mailboxes**.

2. Click **Active Mailboxes**.

3. Select the mailboxes that you want to approve, and then click **More Commands** (**…**) > **Approve Email**.

4. Click **OK**.

Test configuration of mailboxes

1. Go to **Settings** > **Email Configuration** > **Mailboxes**.

2. Click **Active Mailboxes**.

3. Select the mailboxes you want to test, and then click **Test & Enable Mailboxes**.

   This tests the incoming and outgoing email configuration of the selected mailboxes and enables them for email processing. If an error occurs in a mailbox, an alert is shown on the Alerts wall of the mailbox and the profile owner. Depending on the nature of the error, Microsoft Dynamics CRM tries to process the email again after some time or disables the mailbox for email processing.

   The result of the email configuration test is displayed in the **Incoming Email Status**, **Outgoing Email Status**, and **Appointments, Contacts, and Tasks Status** fields of a mailbox record. An alert is also generated when the configuration is successfully completed for a mailbox. This alert is shown to the mailbox owner.

💡 **Tip**

If you're unable to synchronize contacts, appointments, and tasks for a mailbox, you may want to select the **Sync items with Exchange from this CRM org only, even if Exchange was set to sync with a different org** check box. Read more about this check box.

Test email configuration for all mailboxes associated with an email server profile

1. Go to **Settings** > **Email Configuration** > **Email Server Profiles**.

2. Select the profile you created, and then click **Test & Enable Mailboxes**.

   When you test the email configuration, an asynchronous job runs in the background. It may take a few minutes for the test to be completed. Microsoft Dynamics CRM tests the email configuration of all the mailboxes associated with the Exchange Server profile. For the mailboxes configured with server-side synchronization for synchronizing appointments, tasks, and contacts, it also checks to make sure they're configured properly.

💡 **Tip**

If you're unable to synchronize contacts, appointments, and tasks for a mailbox, you may want to select the **Sync items with Exchange from this CRM org only, even if Exchange was set to sync with a different org** check box. Read more about this check box.

See Also

Troubleshooting and monitoring server-side synchronization
Test mail flow with the Remote Connectivity Analyzer
Integrate your email system with Microsoft Dynamics CRM
Set up server-side synchronization of email, appointments, contacts, and tasks
Server-side synchronization

Connect CRM (on-premises) to Exchange Server (on-premises)

Applies To: CRM 2016 on-prem

Follow these steps to connect Microsoft Dynamics CRM (on-premises) with Microsoft Exchange Server (on-premises).

In This Topic

Create an email server profile
Configure default email processing and synchronization
Configure mailboxes
Approve email

Create an email server profile

1. Go to **Settings** > **Email Configuration** > **Email Server Profiles**.
2. Click **New** > **Exchange Server**.
3. **For an Exchange email server profile, specify the following details:**

Fields	Description
General	
Name	Specify a meaningful name for the profile.
Description	Type a short description about the objective of the email server profile.
Auto Discover Server Location	Click **Yes** if you want to use the automatically discover service to determine the server location. If you set this to **No**, you must specify the email server location manually. ☑ **Note** If the server location doesn't change for mailboxes, we recommend that you don't use auto discover because it may affect performance.
Incoming Server Location and Outgoing Server Location	If you select **No** in **Auto Discover Server Location**, enter a URL for **Incoming Server Location** and **Outgoing Server Location**.
Credentials	
Authenticate Using	Select a method to authenticate while connecting to the specified email server. What's available depends on whether you are using an online or on-premises version of CRM. • **Credentials Specified by a User or Queue**. If you select this option, the credentials specified in the mailbox record of a user or queue are used for sending or receiving email for the respective user or queue. ☑ **Note** To ensure the credentials are secured in Microsoft Dynamics CRM, SQL encryption is used to encrypt the credentials stored in the mailbox. • **Credentials Specified in Email Server Profile**. If you select this option, the credentials specified in the email server

Fields	Description
	profile are used for sending or receiving email for the mailboxes of all users and queues associated with this profile. The credentials must have impersonation or delegation permissions on the mailboxes associated with profile. This option requires some configuration on the email server, for example, configuring impersonation rights on Exchange for the mailboxes associated with the profile. ✍ **Note** To ensure the credentials are secured in Microsoft Dynamics CRM, SQL encryption is used to encrypt the credentials stored in the email server profile if you're processing email by using server-side synchronization. • **Windows Integrated Authentication**. If you select this option, the credentials with which the Microsoft Dynamics CRM Asynchronous Service has been configured will be used. • **Without Credential (Anonymous)**. Not a valid setting.
User Name	Type the user name used to connect to the email server for sending or receiving email for the mailboxes of all users and queues associated with this profile. This field is enabled and valid only if **Authenticate Using** is set to **Credentials Specified in Email Server Profile**. The user name that you specify must have permission to send and receive email from the mailboxes of users and queues associated with this profile. ✍ **Note** If you're using HTTP for Microsoft Dynamics CRM, the **User Name** and **Password** fields will be disabled. To enable the option, change the value of the deployment property AllowCredentialsEntryViaNonSecureChannels to

Fields	Description
	1.

Fields	Description
Password	Specify the password of the user that will be used together with the user name to connect to the email server for sending or receiving email for the mailboxes of users and queues associated with this profile. The password is stored securely. 🖉 **Note** If you're using HTTP for Microsoft Dynamics CRM, the **User Name** and **Password** fields will be disabled. To enable the option, change the value of the deployment property AllowCredentialsEntryViaNonSecureChannels to 1.
Use same settings for Outgoing	If you want to use the same credential settings for the incoming and outgoing connections, click **Yes**.
Advanced	
Incoming Authentication Protocol and Outgoing Authentication Protocol	Select a protocol that will be used for authentication for incoming and outgoing email.
Additional Settings	
Process Email From	Select a date and time. Email received after the date and time will be processed by server-side synchronization for all mailboxes associated with this profile. If you set a value less than the current date, the change will be applied to all newly associated mailboxes and their earlier processed emails will be pulled.
Minimum Polling Intervals in Minutes	Type the minimum polling interval, in minutes, for mailboxes that are associated with this email server profile. The polling interval determines how often server-side synchronization polls your mailboxes for new email messages.
Maximum Concurrent Connections	Type the maximum number of simultaneous connections that can be made by CRM to the corresponding email server per mailbox. Increase the value to allow more parallel calls to Exchange to improve performance or reduce the value if there are errors on Exchange due to large number of calls from Microsoft Dynamics CRM. The default value of this field is 10. The maximum number is considered per mailbox or per email server profile depending on whether the credentials are specified in a mailbox or email server profile.

Fields	Description
Move Failed Emails to Undeliverable Folder	To move the undelivered email to the Undeliverable folder, click **Yes**. If there's an error in tracking email messages in CRM as email activities, and if this option is set to **Yes**, the email message will be moved to the Undeliverable folder. This option is available only for an Exchange email server profile.

4. Click **Save**.

Configure default email processing and synchronization

Set server-side synchronization to be the default configuration method.

1. Go to **Settings** > **Email Configuration** > **Email Configuration Settings**.

2. Set the processing and synchronization fields as follows:

- **Server Profile**: The profile you created in the above section.

- **Incoming Email**: Server-Side Synchronization or Email Router

- **Outgoing Email**: Server-Side Synchronization or Email Router

- **Appointments, Contacts, and Tasks**: Server-Side Synchronization or Email Router

 Note

If your users primarily use Dynamics CRM for Outlook on their desktop computers, **Microsoft Dynamics CRM for Outlook** might be a better choice.

If you leave the **Email processing form unapproved user and queues** at the default values (checked), you will need to approve emails and queues for user mailboxes as directed below in **Approve Email**.
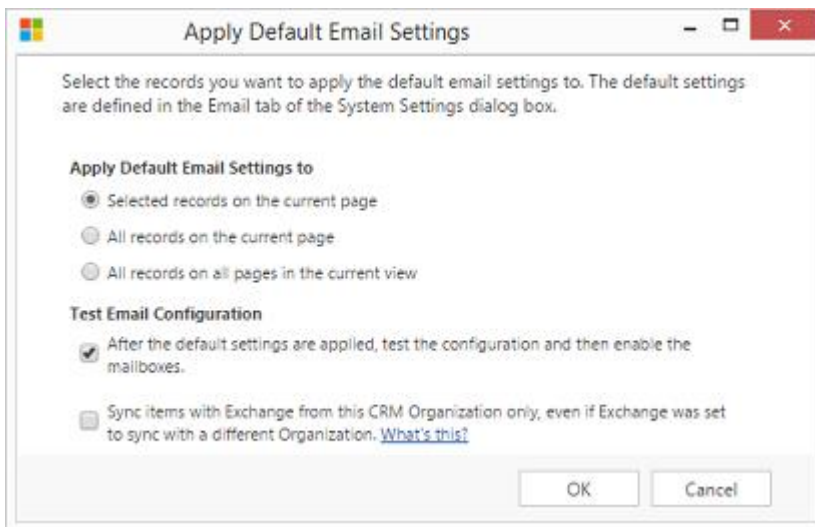
3. Click **OK**.

Configure mailboxes

To set mailboxes to use the default profile, you must first set the Server Profile and the delivery method for email, appointments, contacts, and tasks.

In addition to administrator permissions, you must have Read and Write privileges on the Mailbox entity to set the delivery method for the mailbox.

Select **one** of the following methods:

Set mailboxes to the default profile

1. Go to **Settings** > **Email Configuration** > **Mailboxes**.

2. Click **Active Mailboxes**.

3. Select all the mailboxes that you want to associate with the Exchange Server profile you created, click **Apply Default Email Settings**, verify the settings, and then click **OK**.

By default, the mailbox configuration is tested and the mailboxes are enabled when you click **OK**.

Edit mailboxes to set the profile and delivery methods

1. Go to **Settings** > **Email Configuration** > **Mailboxes**.
2. Click **Active Mailboxes**.
3. Select the mailboxes that you want to configure, and then click **Edit**.
4. In the **Change Multiple Records** form, under **Synchronization Method**, set **Server Profile** to the Exchange Server profile you created earlier.
5. Set **Incoming** and **Outgoing Email** to **Server-Side Synchronization or Email Router**.
6. Set **Appointments, Contacts, and Tasks** to **Server-Side Synchronization**.

📝 **Note**

If your users primarily use Dynamics CRM for Outlook on their desktop computers, **Microsoft Dynamics CRM for Outlook** might be a better choice.

7. Click **Change**.

Approve email

You need to approve each user mailbox or queue before that mailbox can process email.

1. Go to **Settings** > **Email Configuration** > **Mailboxes**.
2. Click **Active Mailboxes**.
3. Select the mailboxes that you want to approve, and then click **More Commands** (**…**) > **Approve Email**.

4. Click **OK**.

Test configuration of mailboxes

1. Go to **Settings** > **Email Configuration** > **Mailboxes**.
2. Click **Active Mailboxes**.
3. Select the mailboxes you want to test, and then click **Test & Enable Mailboxes**.

   This tests the incoming and outgoing email configuration of the selected mailboxes and enables them for email processing. If an error occurs in a mailbox, an alert is shown on the Alerts wall of the mailbox and the profile owner. Depending on the nature of the error, Microsoft Dynamics CRM tries to process the email again after some time or disables the mailbox for email processing.

   The result of the email configuration test is displayed in the **Incoming Email Status**, **Outgoing Email Status**, and **Appointments, Contacts, and Tasks Status** fields of a mailbox record. An alert is also generated when the configuration is successfully completed for a mailbox. This alert is shown to the mailbox owner.

   You can find information on recurring issues and other troubleshooting information in MSDN: Test and Enable Mailboxes in Microsoft Dynamics CRM 2015 and Troubleshooting and monitoring server-side synchronization.

💡 **Tip**

If you're unable to synchronize contacts, appointments, and tasks for a mailbox, you may want to select the **Sync items with Exchange from this CRM org only, even if Exchange was set to sync with a different org** check box. Read more about this check box.

Test email configuration for all mailboxes associated with an email server profile

1. Go to **Settings** > **Email Configuration** > **Email Server Profiles**.
2. Select the profile you created, and then click **Test & Enable Mailboxes**.

   When you test the email configuration, an asynchronous job runs in the background. It may take a few minutes for the test to be completed. Microsoft Dynamics CRM tests the email configuration of all the mailboxes associated with the Exchange Server profile. For the mailboxes configured with server-side synchronization for synchronizing appointments, tasks, and contacts, it also checks to make sure they're configured properly.

💡 **Tip**

If you're unable to synchronize contacts, appointments, and tasks for a mailbox, you may want to select

the **Sync items with Exchange from this CRM org only, even if Exchange was set to sync with a different org** check box. [Read more about this check box](#).

See Also

[Troubleshooting and monitoring server-side synchronization](#)
[Test mail flow with the Remote Connectivity Analyzer](#)
[Integrate your email system with Microsoft Dynamics CRM](#)
[Set up server-side synchronization of email, appointments, contacts, and tasks](#)
[Server-side synchronization](#)

Connect CRM (on-premises) to Exchange Online

Applies To: Dynamics CRM 2016

This topic describes how to configure server-based authentication between Microsoft Dynamics CRM (on-premises) and Exchange Online. The diagram below illustrates the communication between Microsoft Dynamics CRM (on-premises), [Azure Active Directory Access Control Services (ACS)](#), and Exchange Online.

In This Topic

Permissions required

Microsoft Dynamics CRM

- System Administrator security role.
- If you are using a self-signed certificate for evaluation purposes, you must have local Administrators group membership on the computer where Microsoft Dynamics CRM Server is running.

Exchange Online

- Office 365 Global Administrators membership. This is required for administrative-level access to the Office 365 subscription and to run the Microsoft Azure PowerShell cmdlets.

Set up server-based authentication with Microsoft Dynamics CRM and Exchange Online

Follow the steps in the order provided to set up Microsoft Dynamics CRM (on-premises) with Exchange Online.

◆ Important

- The steps described here must be completed in the order provided. If a task is not completed, such as a Windows PowerShell command that returns an error message, the issue must be resolved before you continue to the next command, task, or step.

Verify prerequisites

Before you configure Microsoft Dynamics CRM (on-premises) and Exchange Online for server-based authentication, the following prerequisites must be met.

- The Microsoft Dynamics CRM (on-premises) deployment must already be configured and available through the Internet. More information: Referenced topic 'eee528fb-ef2f-4a77-ad0f-3d29bcb42351' is not in the TOC.
- Microsoft Dynamics CRM Hybrid Connector. The Microsoft Dynamics CRM Hybrid Connector is a free connector that lets you use server-based authentication with Microsoft Dynamics CRM on-premises and Exchange Online. More information: Microsoft Dynamics CRM Hybrid Connector
- An x509 digital certificate issued by a trusted certificate authority that will be used to authenticate between Microsoft Dynamics CRM (on-premises) and Exchange Online. If you are evaluating server-based authentication, you can use a self-signed certificate.

The following software features are required to run the Windows PowerShell cmdlets described in this topic.

- Microsoft Online Services Sign-In Assistant for IT Professionals Beta
- Azure Active Directory Module for Windows PowerShell (64-bit version)

At the time of this writing, there is an issue with the RTW version of Microsoft Online Services Sign-In Assistant for IT Professionals. Until the issue is resolved, we recommend that you use the Beta version. More information: Microsoft Azure Forums: Cannot install Azure Active Directory Module for Windows PowerShell. MOSSIA is not installed.

Set up server-based authentication

1. On the Microsoft Dynamics CRM Server where the deployment tools server role is running, start the Azure Active Directory Module for Windows PowerShell.

The computer where you run the following PowerShell commands must have the prerequisite software features described earlier in Verify prerequisites.

2. Prepare the certificate. Replace *contoso\adminstrator* with your domain\account.

```
$CertificateScriptWithCommand = ".\CertificateReconfiguration.ps1 -certificateFile
c:\Personalcertfile.pfx -password personal_certfile_password -updateCrm -
certificateType S2STokenIssuer -serviceAccount contoso\administrator -storeFindType
FindBySubjectDistinguishedName"


Invoke-Expression -command $CertificateScriptWithCommand
```

Run the ConfigureCRMServerSideSync command

Run ConfigureCRMServerSideSync command to do the following:

1. Set up the CRM Principal Name in Azure Active Directory Access Control Services (ACS).
2. Configure CRM for server-based authentication with Exchange Online.
3. Set the Exchange Online tenant ID.

To run the ConfigureCRMServerSideSync command

1. In Windows PowerShell, change your directory to the folder that contains ConfigureCRMServerSideSync.ps1. For example:

```
cd C:\Program Files\Microsoft Dynamics CRM\Tools
```

2. Run the **ConfigureCrmServerSideSync.ps1** script. Type the following command, and press ENTER:

```
.\ConfigureCrmServerSideSync.ps1
```

3. Enter the following parameters:

Parameter	Description
rootDomainName	The name of the server running CRM on-premises.
privateKeyPassword	The password you used for your x509 digital certificate used to authenticate between Microsoft Dynamics CRM (on-premises) and Exchange Online.
cerFilePath	The path to the security certificate file. For example: c:\Personalcertfile.cer
pfxFilePath	The path to the Personal Information Exchange file. For example: c:\Personalcertfile.pfx
organizationName	The name of your CRM organization. For example: Contoso
O365AdminEmail	The Office 365 tenant email address. For example: user@contoso.onmicrosoft.com

Troubleshooting enable server-based authentication wizard validation issues

Failed Authentication. This error can be returned when the certificate used for server-to-server authentication is missing or invalid.

Create an email server profile

1. Go to **Settings** > **Email Configuration** > **Email Server Profiles**.
2. Click **New** > **Exchange Online (Hybrid)**.
3. **For an Exchange email server profile, specify the following details:**

Fields	Description
General	
Name	Specify a meaningful name for the profile.
Description	Type a short description about the objective of the email server profile.
Server Type	Pre-populated with Exchange Online (Hybrid)
Owner	Pre-populated with the name of the owner of the email server profile.
Use Default Tenant ID	If you've used the PowerShell commands above to set the Exchange Online tenant ID (recommended), click **Yes** to use that ID. If you set this to **No**, you must specify the Exchange Online tenant ID manually (not recommended!).
Exchange Online Tenant ID	If you've used the PowerShell commands above to set the Exchange Online tenant ID (recommended), the ID is pre-populated in this field.
Auto Discover Server Location	Pre-populated with the Exchange Online URL. Click **Yes** (recommended), if you want to use the automatically discover service to determine the server location. If you set this to **No**, you must specify the email server location manually.
Incoming Server Location and Outgoing Server Location	If you select **No** in **Auto Discover Server Location**, enter a URL for **Incoming Server Location** and **Outgoing Server Location**.
Advanced	
Additional Settings	
Process Email From	Select a date and time. Email received after the date and time will be processed by server-side synchronization for all mailboxes associated with this profile. If you set a value less than the current date, the change will be applied to all newly associated mailboxes and their earlier processed emails will be pulled.
Minimum Polling Intervals in Minutes	Type the minimum polling interval, in minutes, for mailboxes that are associated with this email server profile. The polling interval determines how often server-side synchronization polls your mailboxes for new email messages.
Move Failed Emails to Undeliverable Folder	To move the undelivered email to the Undeliverable folder, click **Yes**. If there's an error in tracking email messages in CRM as email

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Fields	Description
	activities, and if this option is set to **Yes**, the email message will be moved to the Undeliverable folder.

4. Click **Save**.

5. Click **Test Connection** and review the results. To diagnose issues, see the following section.

Troubleshooting the Exchange Online (Hybrid) profile connection

If you've run **Test Connection** and have issues with the Exchange Online (Hybrid) profile connection, use the information in the **Test Connection** dialog box to diagnose and fix the connection.

You can find information on recurring issues and other troubleshooting information in Test and Enable Mailboxes in Microsoft Dynamics CRM 2015 and Troubleshooting and monitoring server-side synchronization.

Configure default email processing and synchronization

Set server-side synchronization to be the default configuration method.

1. Go to **Settings** > **Email Configuration** > **Email Configuration Settings**.

2. Set the processing and synchronization fields as follows:

    - **Server Profile**: The profile you created in the above section.

    - **Incoming Email**: Server-Side Synchronization or Email Router

    - **Outgoing Email**: Server-Side Synchronization or Email Router

    - **Appointments, Contacts, and Tasks**: Server-Side Synchronization or Email Router

 Note

If your users primarily use Dynamics CRM for Outlook on their desktop computers, **Microsoft Dynamics CRM for Outlook** might be a better choice.

If you leave the **Email processing form unapproved user and queues** at the default values (checked), you will need to approve emails and queues for user mailboxes as directed below in **Approve Email**.

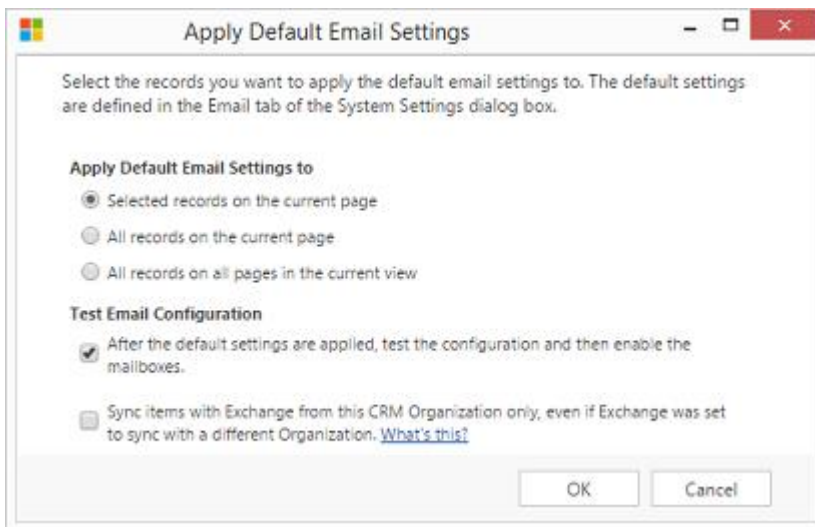3. Click **OK**.

Configure mailboxes

To set mailboxes to use the default profile, you must first set the Server Profile and the delivery method for email, appointments, contacts, and tasks.

In addition to administrator permissions, you must have Read and Write privileges on the Mailbox entity to set the delivery method for the mailbox.

Select **one** of the following methods:

Set mailboxes to the default profile

1. Go to **Settings** > **Email Configuration** > **Mailboxes**.

2. Click **Active Mailboxes**.

3. Select all the mailboxes that you want to associate with the Exchange Server profile you created, click **Apply Default Email Settings**, verify the settings, and then click **OK**.

By default, the mailbox configuration is tested and the mailboxes are enabled when you click **OK**.

Edit mailboxes to set the profile and delivery methods

1. Go to **Settings** > **Email Configuration** > **Mailboxes**.

2. Click **Active Mailboxes**.

3. Select the mailboxes that you want to configure, and then click **Edit**.

4. In the **Change Multiple Records** form, under **Synchronization Method**, set **Server Profile** to the Exchange Server profile you created earlier.

5. Set **Incoming** and **Outgoing Email** to **Server-Side Synchronization or Email Router**.

6. Set **Appointments, Contacts, and Tasks** to **Server-Side Synchronization**.

📝 Note

If your users primarily use Dynamics CRM for Outlook on their desktop computers, **Microsoft Dynamics CRM for Outlook** might be a better choice.

7. Click **Change**.

Approve email

You need to approve each user mailbox or queue before that mailbox can process email.

1. Go to **Settings** > **Email Configuration** > **Mailboxes**.

2. Click **Active Mailboxes**.

3. Select the mailboxes that you want to approve, and then click **More Commands** (**…**) > **Approve Email**.

4. Click **OK**.

Test configuration of mailboxes

1. Go to **Settings** > **Email Configuration** > **Mailboxes**.
2. Click **Active Mailboxes**.
3. Select the mailboxes you want to test, and then click **Test & Enable Mailboxes**.

    This tests the incoming and outgoing email configuration of the selected mailboxes and enables them for email processing. If an error occurs in a mailbox, an alert is shown on the Alerts wall of the mailbox and the profile owner. Depending on the nature of the error, Microsoft Dynamics CRM tries to process the email again after some time or disables the mailbox for email processing.

    The result of the email configuration test is displayed in the **Incoming Email Status**, **Outgoing Email Status**, and **Appointments, Contacts, and Tasks Status** fields of a mailbox record. An alert is also generated when the configuration is successfully completed for a mailbox. This alert is shown to the mailbox owner.

💡 **Tip**

If you're unable to synchronize contacts, appointments, and tasks for a mailbox, you may want to select the **Sync items with Exchange from this CRM org only, even if Exchange was set to sync with a different org** check box. Read more about this check box.

Test email configuration for all mailboxes associated with an email server profile

1. Go to **Settings** > **Email Configuration** > **Email Server Profiles**.
2. Select the profile you created, and then click **Test & Enable Mailboxes**.

    When you test the email configuration, an asynchronous job runs in the background. It may take a few minutes for the test to be completed. Microsoft Dynamics CRM tests the email configuration of all the mailboxes associated with the Exchange Server profile. For the mailboxes configured with server-side synchronization for synchronizing appointments, tasks, and contacts, it also checks to make sure they're configured properly.

💡 **Tip**

If you're unable to synchronize contacts, appointments, and tasks for a mailbox, you may want to select the **Sync items with Exchange from this CRM org only, even if Exchange was set to sync with a different org** check box. Read more about this check box.

See Also

Connect CRM to POP3/SMTP servers

Applies To: CRM 2016 on-prem, CRM Online

Follow these steps to connect Microsoft Dynamics CRM (on-premises) with POP3/IMAP and SMTP email servers such as used for Gmail and Outlook.com.

In This Topic

Create an email server profile

1. Go to **Settings** > **Email Configuration** > **Email Server Profiles**.

2. Choose **New** > **POP3-SMTP Profile**.

3. **For an Exchange email server profile, specify the following details:**

Fields	Description
General	
Name	Specify a meaningful name for the profile.
Description	Type a short description about the objective of the email server profile.
Incoming Server Location and Outgoing Server Location	Enter the **Incoming Server Location** and **Outgoing Server Location** For example, Incoming: pop3.live.com and Outgoing: smtp.live.com
Credentials	
Authenticate Using	Select a method to authenticate while connecting to the specified email server. • **Credentials Specified by a User or Queue**. If you select this option, the credentials specified in the mailbox record of a user or queue are used for sending or receiving email for the respective user or queue. **Note** To ensure the credentials are secured in Microsoft Dynamics CRM, SQL encryption is used to encrypt the credentials stored in the mailbox. • **Credentials Specified in Email Server Profile**. If you select this option, the credentials specified in the email server profile are used for sending or receiving email for the mailboxes of all users and queues associated with this profile. The credentials must have impersonation or delegation permissions on the mailboxes associated with profile. This option requires some configuration on the email server, for example, configuring impersonation rights on Exchange for the mailboxes associated with the profile. **Note**

Fields	Description
	To ensure the credentials are secured in Microsoft Dynamics CRM, SQL encryption is used to encrypt the credentials stored in the email server profile if you're processing email by using server-side synchronization. • **Windows Integrated Authentication**. This option applies only to Exchange and SMTP email server types. If you select this option, the credentials with which the Microsoft Dynamics CRM Asynchronous Service has been configured will be used. • **Without Credentials (Anonymous)**. Not a valid setting.

Fields	Description
User Name	Type the user name used to connect to the email server for sending or receiving email for the mailboxes of all users and queues associated with this profile. This field is enabled and valid only if **Authenticate Using** is set to **Credentials Specified in Email Server Profile**. The user name that you specify must have permission to send and receive email from the mailboxes of users and queues associated with this profile. 📝 **Note** If you're using HTTP for Microsoft Dynamics CRM, the **User Name** and **Password** fields will be disabled. To enable the option, change the value of the deployment property AllowCredentialsEntryViaNonSecureChannels to 1.
Password	Specify the password of the user that will be used together with the user name to connect to the email server for sending or receiving email for the mailboxes of users and queues associated with this profile. The password is stored securely. 📝 **Note** If you're using HTTP for Microsoft Dynamics CRM, the **User Name** and **Password** fields will be disabled. To enable the option, change the value of the deployment property AllowCredentialsEntryViaNonSecureChannels to 1.
Use same settings for Outgoing	If you want to use the same credential settings for the incoming and outgoing connections, choose **Yes**.
Advanced	
Incoming Port	This field shows the port on the email server for accessing the incoming email. This field is automatically populated when you save the record.
Outgoing Port	This field shows the port on the email server for accessing the outgoing email. This field is automatically populated when you save the record.

Fields	Description
Use SSL for Incoming Connection	Choose **Yes** if the email channel is on a secure channel and TLS/SSL must be used for receiving email. In Microsoft Dynamics CRM (on-premises), this field is set to **Yes** by default, but the configuration database setting "AllowNonSSLEmail" allows you to override this and set the value to False.
Use SSL for Outgoing Connection	Choose **Yes** if the email channel is on a secure channel and TLS/SSL must be used for sending email. In Microsoft Dynamics CRM (on-premises), this field is set to **Yes** by default, but the configuration database setting "AllowNonSSLEmail" allows you to override this and set the value to False.
Incoming Authentication Protocol and Outgoing Authentication Protocol	Select a protocol that will be used for authentication for incoming and outgoing email.
Additional Settings	
Process Email From	Select a date and time. Email received after the date and time will be processed by server-side synchronization for all mailboxes associated with this profile. If you set a value less than the current date, the change will be applied to all newly associated mailboxes and their earlier processed emails will be pulled.
Minimum Polling Intervals in Minutes	Type the minimum polling interval, in minutes, for mailboxes that are associated with this email server profile. The polling interval determines how often server-side synchronization polls your mailboxes for new email messages.
Maximum Concurrent Connections	Type the maximum number of simultaneous connections that can be made by CRM to the corresponding email server per mailbox. Increase the value to allow more parallel calls to Exchange to improve performance or reduce the value if there are errors on Exchange due to large number of calls from Microsoft Dynamics CRM. The default value of this field is 10. The maximum number is considered per mailbox or per email server profile depending on whether the credentials are specified in a mailbox or email server profile.

4. Choose **Save**.
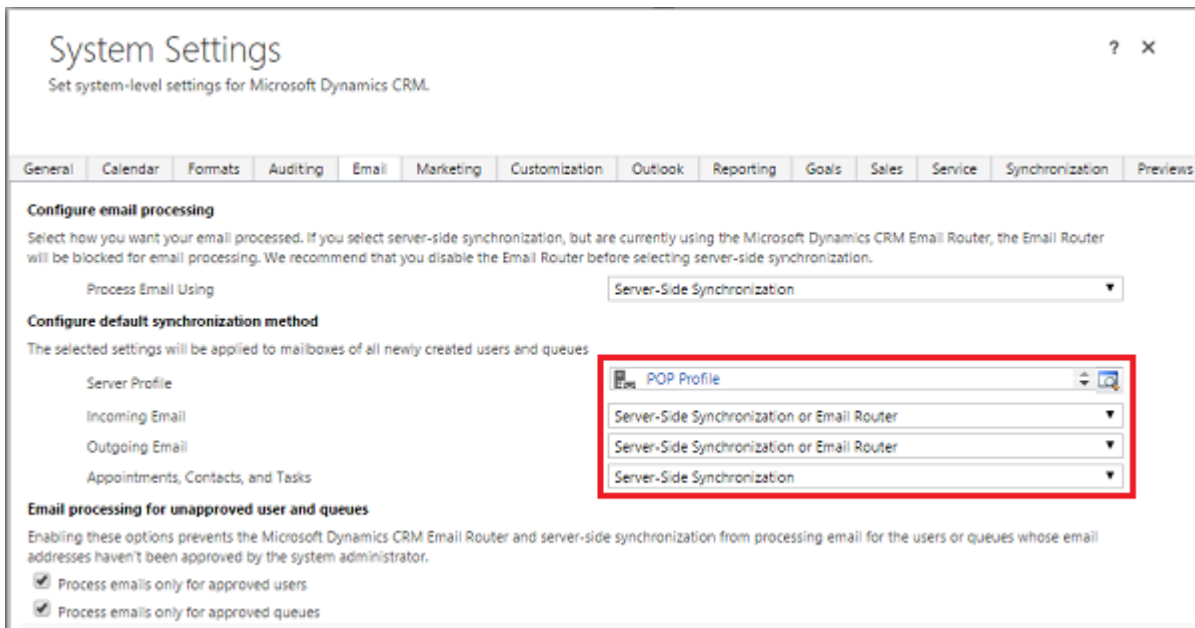
728

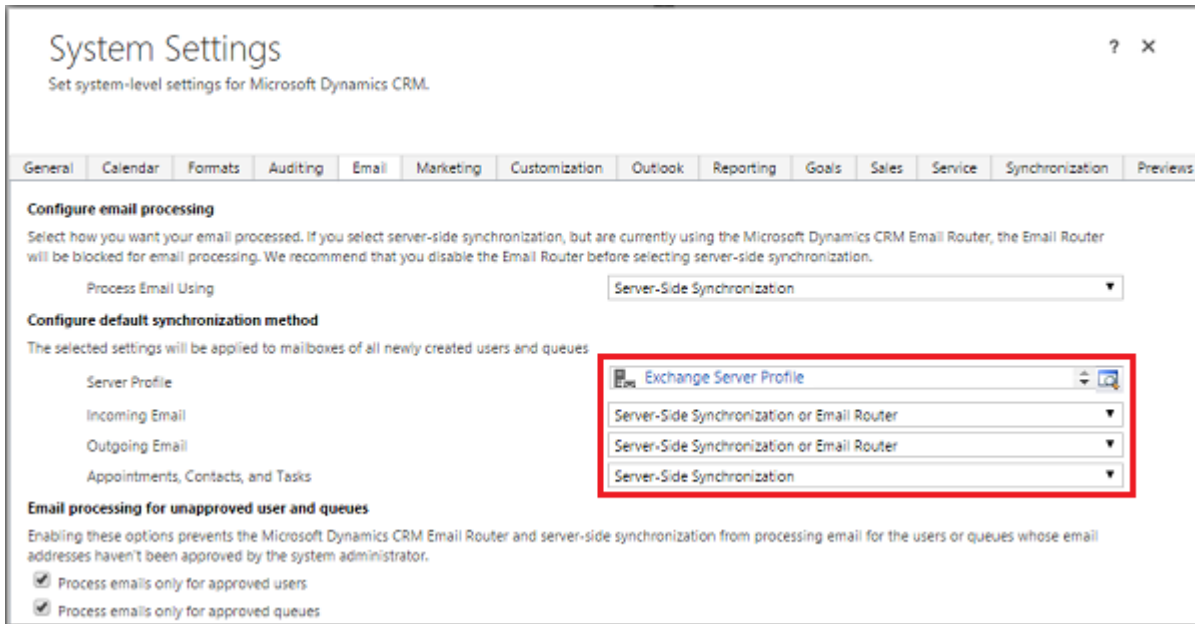# Configure default email processing and synchronization

Set server-side synchronization to be the default configuration method.

1. Go to **Settings** > **Email Configuration** > **Email Configuration Settings**.

2. Set the processing and synchronization fields as follows:

   - **Server Profile**: The profile you created in the above section.

   - **Incoming Email**: Server-Side Synchronization or Email Router

   - **Outgoing Email**: Server-Side Synchronization or Email Router

   - **Appointments, Contacts, and Tasks**: Microsoft Dynamics CRM for Outlook

   > **Note**
   >
   > Server-Side Synchronization or Email Router is not supported for the POP3-SMTP profile.

   If you leave the **Email processing form unapproved user and queues** at the default values (checked), you will need to approve emails and queues for user mailboxes as directed below in **Approve Email**.

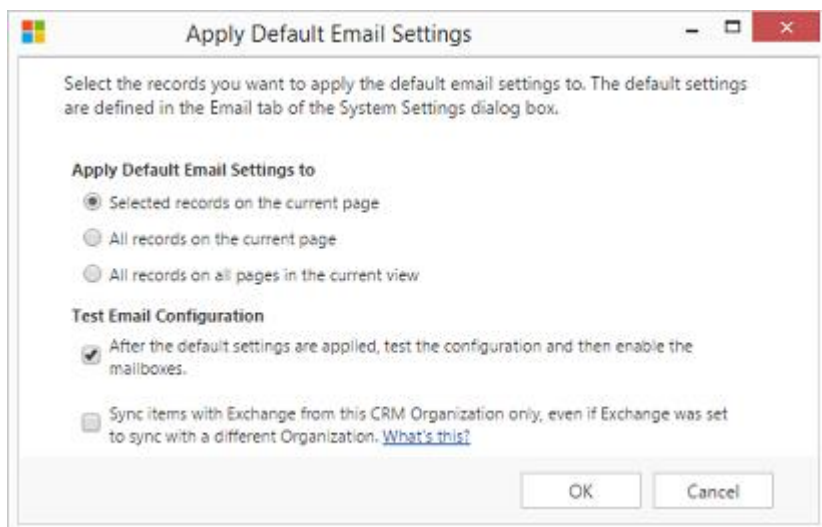3. Click **OK**.

Configure mailboxes

To set mailboxes to use the default profile, you must first set the Server Profile and the delivery method for email, appointments, contacts, and tasks.

In addition to administrator permissions, you must have Read and Write privileges on the Mailbox entity to set the delivery method for the mailbox.

Click **one** of the following methods:

Set mailboxes to the default profile

1. Go to **Settings** > **Email Configuration** > **Mailboxes**.

2. Choose **Active Mailboxes**.

3. Select all the mailboxes that you want to associate with the POP3-SMTP profile you created, click **Apply Default Email Settings**, verify the settings, and then click **OK**.

By default, the mailbox configuration is tested and the mailboxes are enabled when you click **OK**.

Edit mailboxes to set the profile and delivery methods

1. Go to **Settings** > **Email Configuration** > **Mailboxes**.

2. Click **Active Mailboxes**.

3. Select the mailboxes that you want to configure, and then click **Edit**.

4. In the **Change Multiple Records** form, under **Synchronization Method**, set **Server Profile** to the POP3-SMTP profile you created earlier.

5. Set **Incoming** and **Outgoing Email** to **Server-Side Synchronization or Email Router**.

6. Set **Appointments, Contacts, and Tasks** to **Server-Side Synchronization**.

📝 Note

If your users primarily use Dynamics CRM for Outlook on their desktop computers, **Microsoft Dynamics CRM for Outlook** might be a better choice.

7. Click **Change**.

Approve email

You need to approve each user mailbox or queue before that mailbox can process email.

1. Go to **Settings** > **Email Configuration** > **Mailboxes**.

2. Click **Active Mailboxes**.

3. Select the mailboxes that you want to approve, and then click **More Commands** (**…**) > **Approve Email**.

4. Click **OK**.

Test configuration of mailboxes

1. Go to **Settings** > **Email Configuration** > **Mailboxes**.

2. Click **Active Mailboxes**.

3. Select the mailboxes you want to test, and then click **Test & Enable Mailboxes**.

   This tests the incoming and outgoing email configuration of the selected mailboxes and enables them for email processing. If an error occurs in a mailbox, an alert is shown on the Alerts wall of the mailbox and the profile owner. Depending on the nature of the error, Microsoft Dynamics CRM tries to process the email again after some time or disables the mailbox for email processing.

   The result of the email configuration test is displayed in the **Incoming Email Status**, **Outgoing Email Status**, and **Appointments, Contacts, and Tasks Status** fields of a mailbox record. An alert is also generated when the configuration is successfully completed for a mailbox. This alert is shown to the mailbox owner.

   You can find information on recurring issues and other troubleshooting information in Test and Enable Mailboxes in Microsoft Dynamics CRM 2015 and Troubleshooting and monitoring server-side synchronization.

💡 **Tip**

If you're unable to synchronize contacts, appointments, and tasks for a mailbox, you may want to select the **Sync items with Exchange from this CRM org only, even if Exchange was set to sync with a different org** check box. Read more about this check box.

Test email configuration for all mailboxes associated with an email server profile

1. Go to **Settings** > **Email Configuration** > **Email Server Profiles**.

2. Select the profile you created, and then click **Test & Enable Mailboxes**.

   When you test the email configuration, an asynchronous job runs in the background. It may take a few minutes for the test to be completed. Microsoft Dynamics CRM tests the email configuration of all the mailboxes associated with the POP3-SMTP profile. For the mailboxes configured with server-side synchronization for synchronizing appointments, tasks, and contacts, it also checks to make sure they're configured properly.

💡 Tip

If you're unable to synchronize contacts, appointments, and tasks for a mailbox, you may want to select the **Sync items with Exchange from this CRM org only, even if Exchange was set to sync with a different org** check box. Read more about this check box.

See Also

Troubleshooting and monitoring server-side synchronization
Test mail flow with the Remote Connectivity Analyzer
Integrate your email system with Microsoft Dynamics CRM
Set up server-side synchronization of email, appointments, contacts, and tasks
Server-side synchronization

Troubleshooting and monitoring server-side synchronization

Applies To: CRM 2016 on-prem, CRM Online

This page is your source for issues and resolutions for troubleshooting server-side synchronization. Check back for updated information as issues are discovered and resolutions recorded.

💡 Tip

Check out the following: CRM Blog: Test and Enable Mailboxes in Microsoft Dynamics CRM 2015

The Server-Side Synchronization Performance dashboard

You can use the Server-Side Synchronization Performance dashboard to get a quick look at the health of mailboxes using server-side sync.

Go to any dashboard, click Select ⌄ next to the dashboard title, and then click **Server-Side Synchronization Performance**.
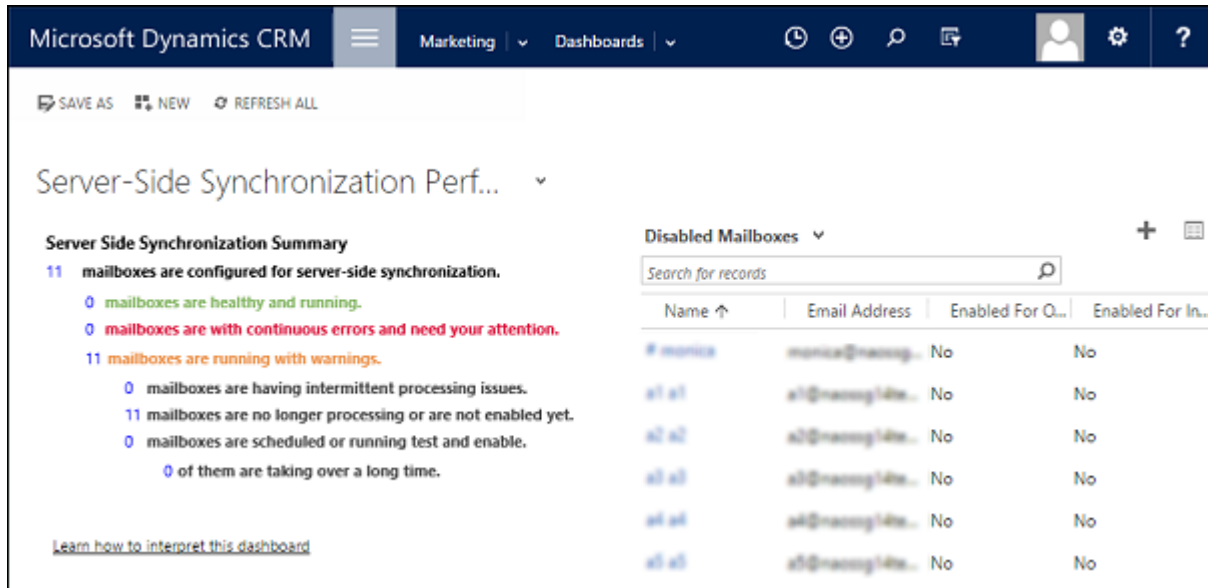
This dashboard is made up of multiple charts, each providing insights into your organization's server-side sync performance.

Click on a number in the list of mailboxes configured for server-side sync to get a specific mailbox status.

Click on the grid icon in each chart to view the records that are used to generate the chart.

Common alerts and recommended resolutions

Mailbox disabled for synchronization

Alert: The mailbox has been disabled for synchronizing appointments, contacts, and tasks for the mailbox because an error occurred while establishing a secure connection to the Microsoft Exchange server. The owner of the email server profile has been notified.

Solution: http://support.microsoft.com/kb/2993502

Error while establishing a secure connection

Alert: Email cannot be received for the mailbox because an error occurred while establishing a secure connection to the email server. The mailbox has been disabled for receiving email and the owner of the email server profile has been notified.

Solution: http://support.microsoft.com/kb/2993502

Email address requires approval by Office 365 administrator

Alert: Email cannot be sent/received because the email address of the mailbox <User Name> requires an approval by an Office 365 administrator. The mailbox has been disabled for sending/receiving email and the owner of the email server profile Microsoft Exchange Online has been notified.

Cause:

 This error will occur if a user is configured to use the Microsoft Exchange Online email server profile but their email address has not been approved by an Office 365 administrator. A user with the global administrator role in Office 365 needs to approve the email address for each user that uses the Microsoft Exchange Online email server profile. The Microsoft Exchange Online profile uses server-to-server authentication between Microsoft Dynamics CRM Online and Exchange Online. This authentication is dependent on a trust between CRM Online and Exchange Online. By verifying the email address in CRM as an Office 365 global administrator, CRM Online will be able to send and receive email for that user without the need to provide any email credentials within CRM.

Solution:

To approve one or more mailboxes:

1. Sign in to CRM Online as a user with the global administrator role in Office 365.

2. Go to **Settings** > **Email Configuration**.

3. Click **Mailboxes**.

4. Select **Active Mailboxes** or perform an **Advanced Find** query to identify a list of mailboxes to update.

5. Select the list of mailboxes you want to approve and then click **Approve Email**.

6. Click **OK** to approve the email addresses.

7. Click **Test & Enable Mailboxes** to retest email processing for the enabled mailboxes.

Email addresses must be approved

Alert: One or more mailboxes have been disabled for sending/receiving email because their email addresses have not been approved. Approve the email addresses, and then enable the mailboxes for sending/receiving email." or "Email cannot be received for the mailbox <Mailbox Name> because the email address of the mailbox <Mailbox Name> is not approved and the mailbox has been disabled. The owner of the associated email server profile <Email Server Profile name> has been notified.

Solution:

Mailboxes must be approved before the email will be processed. To approve mailboxes:

1. Sign in to CRM Online as a user with the global administrator role in Office 365.

2. Go to **Settings** > **Email Configuration**.

3. Click **Mailboxes**.

4. Select **Active Mailboxes** or perform an **Advanced Find** query to identify a list of mailboxes to update.

5. Select the list of mailboxes you want to approve and then click **Approve Email**.

6. Click **OK** to approve the email addresses.

7. Click **Test & Enable Mailboxes** to retest email processing for the enabled mailboxes.

 Note

You can remove the requirement for approving mailboxes using: **Settings** > **Administration** > **System Settings** > **Email** tab. Uncheck **Process emails only for approved users** and **Process emails only for approved queues**, then click **OK**. If you are using the Microsoft Exchange Online profile, email addresses must still be approved by an Office 365 global administrator.

Mailbox location could not be determined

Alert: The mailbox location could not be determined while sending/receiving the email message <Message Subject>. The mailbox <Mailbox Name> has been disabled for sending/receiving email and the owner of the associated email server profile <Email Server Profile name> has been notified.

Solution: You will see this alert if your email server profile (**Settings** > **Email Configuration** > **Email Server Profiles**) is configured to use the **Auto Discover Server Location** option but auto discover cannot detect the location of your mailbox. If this issue occurs, check with your Exchange administrator to verify your network is configured for auto discover. You can update the email server profile and click **No** for **Auto Discover Server Location**. Then provide the Exchange web services URL for your Exchange deployment. For example: https://ExchangeServerName/EWS/Exchange.asmx.

Credentials are incorrect or have insufficient permissions

Alert: Email cannot be sent/received because the credentials specified in the associated email server profile are incorrect or have insufficient permissions for sending/receiving email. The mailbox <Mailbox Name> has been disabled for sending/receiving email and the owner of the email server profile <Email Server Profile name> has been notified.

Solution:

This error can appear if incorrect credentials are provided or if the user account specified to access the mailbox does not have sufficient permissions to the mailbox. Check credentials and permissions for the mailbox. If you are providing credentials within an email server profile, make sure the user has impersonation permissions and mailbox access to each associated mailbox.

For more information on configuring Exchange impersonation and granting mailbox access, see:

- [Configuring Exchange Impersonation](#)

- [Allow Mailbox Access](#)

Appointments can't be synchronized

Alert: Appointments can't be synchronized because the Organizer field is not present.

Cause: The Organizer field is required for appointment records to synchronize. By default, this field isn't included on the appointment form.

Solution:

To add the Organizer field to the appointment form:

1. Go to **Settings** > **Customizations** > **Customize the System**

2. Under **Components**, expand **Entities** > **Appointment**, and then click **Forms**.

3. Click **Appointment**, and then drag the **Organizer** field onto the form.

4. Click **Save** > **Publish**.

Appointments, contacts, and tasks can't be synchronized

Alert: Appointments, contacts, and tasks can't be synchronized because the email address of the mailbox <Mailbox Name> is configured with another Microsoft Dynamics CRM organization. The best practice is to overwrite the configuration when you test and enable the mailbox in your primary organization. Also, change the synchronization method for your mailbox in non-primary organizations to None.

Solution:

To change the primary synchronization organization and overwrite the setting stored in Exchange, click: **Settings** > **Email Configuration** > **Mailbox** > open a mailbox > **Test & Enable Mailbox** > select **Sync items with Exchange from this CRM Organization only, even if Exchanges was set to sync with a**

different Organization. This will allow server-side synchronization to work for this CRM instance but the other instance would no longer work for synching that mailbox through server-side synchronization. To change the synchronization method for Appointments, Contacts, and Tasks, click: **Settings** > **Email Configuration** > **Mailbox** > open a mailbox > select **None** for **Appointments, Contacts, and Tasks**.

For more information, see: <u>When would I want to use this check box?</u>

Can't set user name and password

Alert: You can't set the user name and password in this email server profile and its associated mailboxes because the Microsoft Dynamics CRM server requires using a secure mode (TLS/SSL) to specify credentials. Use another mode of authentication, or contact the Microsoft Dynamics CRM server admin to allow setting credentials on a nonsecure channel.

Cause:

For security reasons, Microsoft Dynamics CRM will not allow you to save your email credentials in CRM if the URL is not configured for TLS/SSL (HTTPS). Microsoft Dynamics CRM also does not allow for the connection to a mail server that does not use TLS/SSL.

♦ Important

You can only disable this requirement in a CRM on-premises installation.

Solution:

The following Windows PowerShell commands can be used to allow for the entry of credentials via HTTP and to connect to a non TLS/SSL email server:

Allow for credentials via HTTP

1. Open a PowerShell command window.

2. Add the Microsoft Dynamics CRM PowerShell snap-in:

    ```
    Add-PSSnapin Microsoft.Crm.PowerShell
    ```

3. Enter the following:

    ```
    $itemSetting = new-object
    'System.Collections.Generic.KeyValuePair[String,Object]'("AllowCredentialsEntryViaIns
    ecureChannels",1)$setting = get-crmsetting customcodesettings

    $configEntity = New-Object "Microsoft.Xrm.Sdk.Deployment.ConfigurationEntity"

    $configEntity.LogicalName="Deployment"

    $configEntity.Attributes = New-Object
    "Microsoft.Xrm.Sdk.Deployment.AttributeCollection"

    Set-CrmAdvancedSetting -Entity $configEntity


    $itemSetting = new-object
    'System.Collections.Generic.KeyValuePair[String,Object]'("ECAllowNonSSLEmail",1)
    ```

```
$configEntity = New-Object "Microsoft.Xrm.Sdk.Deployment.ConfigurationEntity"

$configEntity.LogicalName="Deployment"

$configEntity.Attributes = New-Object
"Microsoft.Xrm.Sdk.Deployment.AttributeCollection"

$configEntity.Attributes.Add($itemSetting)

Set-CrmAdvancedSetting -Entity $configEntity
```

 Note

Before you can save a URL that uses HTTP, you will need to update the Use SSL settings for incoming and outgoing connections (Go to **Settings** > **Email Configuration** > **Email Server Profiles**. Then select a profile, expand **Advanced**, and set **Use SSL for Incoming/Outgoing Connection** to **No**).

Potential issues and resolutions

Using CRM Online with Exchange Online

If your company is using Exchange Online with CRM Online, note the following:

CRM Online supports server-side synchronization with Exchange Online in the same tenant with Server to Server Authentication. Other authentication methods or settings are not recommended or supported, including:

* Using Credentials Specified by a User or Queue
* Using Credentials Specified in Email Server Profile
* Using Impersonation
* Setting Auto Discover Server Location to No
* Using an email server profile other than Exchange Online
* Using non-default network ports

Connecting CRM Online with Exchange Online in different tenant is not supported.

Mailbox deliveries regularly disabled

Mailbox delivery errors are classified as follows:

1. A permanent error (for example, 401 Unauthorized) or a transient error (for example, a network issue).
2. A server error (for example, invalid profile credentials) or a mailbox error (for example, invalid mailbox credentials).

CRM responds to the error as follows:

* For server or mailbox permanent errors, the mailbox is disabled as soon as the error is detected.

- For server or mailbox transient errors, delivery is retried up to 10 times with a 5 minute gap between attempts. If delivery fails after 10 attempts, the error is considered permanent and the mailbox is disabled.

Review the troubleshooting steps in this topic and if the issue is successfully resolved, enable the mailbox.

Unsupported email service configurations

Server-side synchronization doesn't support the following scenarios:

- Hybrid deployments:
  - Microsoft Dynamics CRM (on-premises) with Exchange Online.
- Mix of Exchange/SMTP and POP3/Exchange.
- Creation of mass email marketing campaigns.
- Extensibility scenarios like extending EWS/POP3/SMTP protocols and creating custom email providers.
- Exchange Server 2003 and Exchange Server 2007.
- Server-side synchronization in CRM Online, or in a Microsoft Dynamics CRM (on premises) deployment that is configured for FIPS 140-2 compliancy, requires a POP3/SMTP email server that is also FIPS 140-2 compliant. Some email servers are not FIPS 140-2 compliant, such as MSN, Outlook.com, or Windows Live Mail.

For most situations not supported by server-side synchronization, you can use the Microsoft Dynamics CRM Email Router. More information: Integrate your email system with Microsoft Dynamics CRM

📝 Note

We recommend that you don't use a mixed configuration of Outlook synchronization and server-side synchronization for appointments, contacts, and tasks in the same organization, because it may result in updated CRM data not synchronizing to all attendees.

Appointment record is not created in CRM when tracked by invitee

Consider the following scenario regarding tracking an event in CRM:

1. An event organizer uses Outlook for the synchronization method.
2. An event invitee uses server-side synchronization for the synchronization method.
3. In Dynamics CRM for Outlook, the organizer creates an appointment and sends an invite to the invitee.
4. In Dynamics CRM for Outlook, the invitee tracks the appointment.
5. The invitee logs in to CRM and navigates to **Marketing** > **Activities** > **Appointment** > **My Appointments**

Result: the appointment is not created in CRM for the invitee.

This is a known issue and is not supported. If the organizer is someone outside of the CRM organization, a CRM user who is an invitee can still track the appointment and have the record created in CRM.

Status fields not listed in CRM for Outlook

Consider the following scenario:

1. In Dynamics CRM for Outlook, click **File** > **CRM** > **Synchronize** > **Review Synchronization Settings**.
2. Choose the **Synchronization Fields** tab and the **Contact** entity.

Result: there is no **Category: [CRM] Inactive** Outlook/Exchange field and no **Status Reason: Inactive** CRM field.

This is a known issue and is not supported.

Service Appointments and Activities don't synchronize from Outlook to CRM

Changes made to Service Appointments and Activities in CRM will update in Dynamics CRM for Outlook when you synchronize but the reverse is not true. When you make changes to Service Appointments or Activities in Dynamics CRM for Outlook, the changes are not synchronized to CRM. Service appointments are scheduled by an agent and need free/busy information for resources available only in CRM.

See Also

Best practices and things to know about server-side synchronization
{Hidden Gem}Understanding Server Side sync Performance Dashboard
Troubleshooting and things to know about Microsoft Dynamics CRM for Outlook
Set up server-side synchronization of email, appointments, contacts, and tasks

Error logging for server-side synchronization

Applies To: CRM 2016 on-prem, CRM Online

In this topic, you will learn about the error logging tasks performed by server-side synchronization. Server-side synchronization generates alerts if an error occurs while processing email. An error is classified based on the nature of the error and on the object the error was encountered for.

The following table shows classification of errors based on the nature of the errors.

Transient Errors	Permanent Errors
• Errors are temporary in nature and may get fixed automatically after certain attempts. If the error persists after reaching the configured	• These are permanent in nature and mostly occur when the transient errors remain unresolved even after certain attempts.

Transient Errors	Permanent Errors
retry count, a new error (without changing the error code) is logged as a permanent error. • These errors do not require a direct corrective action by a CRM user, but an administrator should look for any reliability or throttling issues. • All errors appear in the Warning section of the administrator's and user's alert wall.	Permanent errors can also be triggered directly without any transient errors (for example: password expired). • Email processing for the affected mailboxes is stopped as a result of these errors. These require a corrective action by the mailbox owner or a CRM administrator. • All permanent errors appear in Error section of the administrator's and user's alert wall.

The errors are also classified based on the object on which the error is encountered:

- **Email-level errors.** Errors that are specific to an email and prevent processing of an individual email without impacting processing of other emails. Error alerts are displayed in the Alerts section of the email form.

- **Mailbox-level errors.** Errors that are specific to a mailbox and prevent processing of all emails in a mailbox and require corrective action from the respective mailbox owner. Error alerts are displayed in the alerts section of the email form, mailbox owner's alert wall, and on the Mailbox form.

- **Profile-level errors.** Errors which prevent processing of all emails in one or more mailboxes and require corrective action from the associated email server profile owner. Error alerts are displayed on the alerts section of the email server profile form, alerts wall of the owner of the email server profile, and on the alert walls of the impacted mailbox owners - but no action is required from them.

To know how to view the alerts and the actions you can take on these alerts, see Monitor email processing errors.

See Also

Troubleshooting and monitoring server-side synchronization
Set up server-side synchronization of email, appointments, contacts, and tasks
Supported email service configurations for server-side synchronization

Best practices and things to know about server-side synchronization

Applies To: CRM 2016 on-prem, CRM Online
Consider the following when planning and deploying server-side synchronization.

Best practices for configuring server-side synchronization

If you use Microsoft Dynamics CRM Online and Microsoft Exchange Online

By default, the Microsoft Exchange Online email server profile is created for CRM Online organizations and should be your first choice. If you want to use your own profile, you use CRM Online, and Exchange Online, and both services are on the same tenant, use the following settings in your email server profile (**Settings** > **Email Configuration** > **Email Server Profiles**).

Settings	Recommendation
Auto Discover Server Location	Yes
Incoming Connection	
Authenticate Using	Server to Server Authentication
Use Impersonation	No
Use same settings for Outgoing	Yes

If you want to use one set of credentials to process emails with Outlook or Exchange

Using one account to process email to all mailboxes is easier to maintain but requires using an account that has access to all mailboxes in Outlook or Exchange. The account must have impersonation rights on Exchange. If that single account is compromised, all mailboxes using that account are compromised. Use the following settings in your email server profile (**Settings** > **Email Configuration** > **Email Server Profiles** to use a single account for email processing.

Settings	Recommendation
Incoming Connection	
Authenticate Using	Credentials Specified in Email Server Profile
User Name	The administrator's user name
Password	The administrator's password
Use Impersonation	Yes
Use same settings for Outgoing	Yes

Delegation (Use Impersonation = No) is not supported for syncing Appointments, Contacts, and Tasks.

If you want to use individual credentials to process emails with Outlook or Exchange

An alternative to a single account to process emails is using individual accounts. This method requires more maintenance effort but does not focus security on a single account. If you want each user account to synchronize with Outlook or Exchange and you're not using the Microsoft Exchange Online email server profile, use the following settings (**Settings** > **Email Configuration** > **Email Server Profiles**).

Settings	Recommendation
Incoming Connection	
Authenticate Using	Credentials Specified by a User or Queue
Use Impersonation	No
Use same settings for Outgoing	Yes

Set the following in each user mailbox.

Settings	Recommendation
Credentials	
Allow to Use Credentials for Email Processing	Yes
User Name	The user name for the mailbox
Password	The password for the mailbox

How to allow email credentials over a non-secure channel (on-premises versions only)

By default, Microsoft Dynamics CRM doesn't allow users to enter their email address or password when it detects that the credentials may be transmitted over a non-secure channel, such as HTTP. Dynamics CRM enforces this by disabling the ability to select "Yes" next to "Allow to Use Credentials for Email Processing" on the user mailbox form.

However, if your deployment is using SSL offloading where Dynamics CRM can't detect the offloading, you can configure Dynamics CRM on-premises versions to allow the transmission of email credentials. This work around is only available with Microsoft Dynamics CRM 2013 and later on-premises versions.

⚠ Warning

Before you execute the following SQL statement, back up your configuration and organization database. More information: Referenced topic '30f8e3fe-972f-4bf8-9f53-e9218ca432be' is not in the TOC.

```
USE MSCRM_CONFIG

GO

IF EXISTS (SELECT ColumnName, BitColumn FROM DeploymentProperties WHERE ColumnName =

'AllowCredentialsEntryViaInsecureChannels' AND BitColumn=0)

BEGIN

Update DeploymentProperties set BitColumn=1 where

ColumnName='AllowCredentialsEntryViaInsecureChannels'

END
```

Potential issues and resolutions

Using CRM Online with Exchange Online

If your organization is using Exchange Online with CRM Online, note the following.

CRM Online supports server-side synchronization with Exchange Online in the same tenant with Server to Server Authentication. Other authentication methods or settings are not recommended or supported, including:

- Using Credentials Specified by a User or Queue

- Using Credentials Specified in Email Server Profile

- Using Impersonation

- Setting Auto Discover Server Location to No

- Using an email server profile other than Microsoft Exchange Online

- Using non-default network ports

Connecting CRM Online with Exchange Online in a different tenant is not supported.

Unsupported email service configurations

Server-side synchronization doesn't support the following scenarios:

- Hybrid deployments:

  - Microsoft Dynamics CRM (on-premises) with Exchange Online

- Mix of Exchange/SMTP and POP3/Exchange

- Creation of mass email marketing campaigns

- Extensibility scenarios like extending EWS/POP3/SMTP protocols and creating custom email providers

- Exchange Server 2003 and Exchange Server 2007

- Server-side synchronization in CRM Online, or in a Microsoft Dynamics CRM (on premises) deployment that is configured for FIPS 140-2 compliancy, requires a POP3/SMTP email server that is also FIPS 140-2 compliant. Some email servers, such as MSN, Outlook.com, or Windows Live Mail, are not FIPS 140-2 compliant.

For situations not supported by server-side synchronization, you can use the Microsoft Dynamics CRM Email Router. More information: Set up Email Router

☑ Note

We recommend you don't use a mixed configuration of Outlook synchronization and server-side synchronization for appointments, contacts, and tasks in the same organization, because it may result in updated CRM data not synchronizing to all attendees.

Appointment record is not created in CRM when tracked by invitee

Consider the following scenario regarding tracking an event in CRM:

1. An event organizer uses Outlook for the synchronization method.

2. An event invitee uses server-side synchronization for the synchronization method.

3. In Dynamics CRM for Outlook, the organizer creates an appointment and sends an invite to the invitee.

4. In Dynamics CRM for Outlook, the invitee tracks the appointment.

5. The invitee logs in to CRM and goes to **Marketing** > **Activities** > **Appointment** > **My Appointments**.

Result: the appointment is not created in CRM for the invitee.

This is a known issue and is not supported.

Status fields not listed in CRM for Outlook

Consider the following scenario:

1. In Dynamics CRM for Outlook, click **File** > **CRM**.

2. Click **Synchronize** > **Review Synchronization Settings**.

3. Choose the **Synchronization Fields** tab and the **Contact** entity.

Result: there is no **Category: [CRM] Inactive** Outlook/Exchange field and no **Status Reason: Inactive** CRM field.

This is a known issue and is not supported.

Service Appointments synchronize from CRM to Exchange or Outlook

Changes made to service appointments in CRM will update in Dynamics CRM for Outlook when you synchronize, but the reverse is not true. When you make changes to service appointments in Dynamics CRM for Outlook, the changes are not synchronized to CRM.

See Also

Set up server-side synchronization of email, appointments, contacts, and tasks
Troubleshooting and monitoring server-side synchronization
Troubleshooting and things to know about Microsoft Dynamics CRM for Outlook

Create forward mailboxes or edit mailboxes

Applies To: CRM 2016 on-prem, CRM Online

By default, when users and queues are created in Microsoft Dynamics CRM, their respective mailbox records are also created. These mailbox records contain information that is specific to an individual mailbox on the email server, like email address, mailbox credentials, and email synchronization method. To process email messages using server-side synchronization for users and queues, their

respective mailbox records should be associated to an email server profile record in Microsoft Dynamics CRM.

If your organization wants to configure server-side synchronization using a forward mailbox, you can create a new forward mailbox record. A forward mailbox is used as a collection box for email messages that are transferred from each user's mailbox on the email system by a server-side rule. The forward mailbox must be dedicated to server-side synchronization, and must not be used as a working mailbox by an individual user. This can be used to process email messages for users and queues whose mailboxes have **Incoming Email Synchronization Method** set to **Forward Mailbox**. You must associate the forward mailbox record to an email server profile record to process email using server-side synchronization. Forward mailbox vs. individual mailboxes.

💡 **Tip**

You can use an Office 365 shared mailbox when you create a queue in CRM and not consume an Office 365 license for a forwarding email account.

See Blog: CRM Queue with an Office 365 Shared Mailbox

1. Go to **Settings** > **Email Configuration**.
2. Click or tap **Mailboxes**.
3. Click or tap **New Forward Mailbox**, or to edit an existing mailbox record, open the mailbox record.
4. In the mailbox record, specify the following details.

Fields	Description
General	
Name	Type a meaningful name for the mailbox.
Owner	Shows the owner of the mailbox. For a user mailbox that is automatically populated, the owner of the mailbox is the user itself. For a queue mailbox that is automatically populated, the owner of the mailbox is the owner of the queue record.
Email address	Type the email address for the forward mailbox, such as forwardmailbox@contoso.com. For a user or a queue mailbox, the email address is the same as that specified in the corresponding user or queue record form. If you edit the email address here, the email address in the user or queue record is updated automatically.
Delete Emails After Processing	Specify if you want to delete email from the mailbox after processing. This field is available and can be set to **Yes** only for a forward mailbox and a queue mailbox.
Regarding	Select the user or queue that the mailbox is associated with. This field is empty and cannot be set for a forward mailbox.
Is Forward Mailbox	This field indicates whether the mailbox record is a forward mailbox. When set to **No**, it indicates that the mailbox record is associated to an individual user or queue in Microsoft Dynamics CRM.
Credentials	
Allow to Use Credentials for Email Processing	Click or tap **Yes** if the email server profile associated to this mailbox has **Authenticate Using** set to **Credentials Specified by a User or Queue**. You must provide the username and password when this field is set to **Yes**. These credentials will be used to send and receive email from the mailbox on the email server. ⬛ **Note** To ensure the credentials are secured in CRM, SQL encryption is used to encrypt the credentials stored in the mailbox if you're processing email by using server-side synchronization.

Fields	Description
Synchronization Method	
Server Profile	Select the email server profile that is used for email processing for this mailbox. For information on choosing a synchronization method, see: Integrate your email system with Microsoft Dynamics CRM
Incoming Email	Select the delivery method for incoming email. This will determine how incoming email will be accessed for this mailbox. • None. Email won't be received. • Forward Mailbox. Email will be received using a forward mailbox. • Microsoft Dynamics CRM for Outlook. Email is received by using Dynamics CRM for Outlook. • Server-Side Synchronization or Email Router. Email is received by using server-side synchronization or the Email Router.
Outgoing Email	Select the delivery method for outgoing email. This determines how outgoing email will be sent for this mailbox. • None. Email won't be sent. • Microsoft Dynamics CRM for Outlook. Email is received by using Dynamics CRM for Outlook. • Server-Side Synchronization or Email Router. Email is sent by using server-side synchronization or Email Router. 📝 **Note** For a forward mailbox, only **None** is allowed.
Appointments, Contacts, and Tasks	Select whether you want to use Dynamics CRM for Outlook or server-side synchronization to synchronize appointments, contacts, and tasks in CRM. If you select **None**, appointments, contacts, and tasks won't be synchronized.

Fields	Description
Configuration Test Results	
Incoming Email Status	Show the result of the email configuration test for incoming email. The various statuses can be: • Not Run. The email configuration test has not been run for this mailbox. • Success. The incoming email has been configured and email can be received for this mailbox. • Failure. The incoming email has been configured but it is not possible to pull email from the corresponding configured mailbox.
Outgoing Email Status	Show the result of the email configuration test for outgoing email. The various statuses can be: • Not Run. The email configuration test hasn't been run for this mailbox. • Success. The outgoing email has been configured and email can be sent from this mailbox. • Failure. The outgoing email has been configured but it's not possible to send email from the corresponding configured mailbox.
Appointments, Contacts, and Tasks Status	Show the result of the synchronization of appointments, contacts, and tasks. The various statuses can be: • Not Run. The synchronization has not been tested for this mailbox. • Success. Appointments, contacts, and tasks can be synchronized for this mailbox. • Failure. Appointments, contacts, and tasks can't be synchronized for this mailbox.
Mailbox Test Completed On	This field shows the date and time when the email configuration was tested for this mailbox record.

5. Click or tap **Save** or **Save & Close**.

See Also

Configure Outlook or Exchange folder-level tracking

Applies To: CRM 2016 on-prem, CRM Online

You can enable folder-level tracking for Microsoft Exchange folders to map an Exchange inbox folder to a Microsoft Dynamics CRM record so that all the emails in the Exchange folder get automatically tracked against the mapped record in CRM. Consider an example where you have an account called Adventure Works in CRM. You can create a folder in your Microsoft Outlook called Adventure Works under your Inbox folder, and create some Exchange rules to automatically route the emails to the Adventure Works folder based on the subject or the body of an email. Next, in CRM you can map your Exchange folder (Adventure Works) with the account record (Adventure Works) to automatically track all the emails in CRM that land in the Adventure Works Exchange folder, and set the regarding object as the Adventure Works account record in CRM.

Tip

Check out the following video: Folder Level Tracking in CRM Online 2015 Update 1

Enable folder-level tracking

1. Go to **Settings** > **Email Configuration**.

2. Choose **Email Configuration Settings**.

3. Confirm that **Process Email Using** is set to **Server-Side Synchronization**.

4. Enable **Use folder-level tracking from Exchange folders (server-side synchronization must be enabled)**.

5. Configure other tracking options on this page, and then choose **OK**.

Once you've enabled folder-level tracking, users will need to configure folder-tracking rules in CRM with Settings ( ) > **Options** > **Email** > **Configure Folder Tracking Rules**.

Some important points about folder-level tracking

- Folder-level tracking of emails will work only if your organization is configured to use server-side synchronization for emails. Server-side synchronization must be configured for Exchange (and not POP3) mailboxes. For more information, see Set up server-side synchronization of email, appointments, contacts, and tasks.

- You can track emails only in folders under your Inbox folder in Exchange. Other folder emails cannot be tracked.

- You can track up to a maximum of 25 folders per user account.

- Any manual changes done to the regarding object in the tracked activity records in CRM will be overridden the next time server-side synchronization kicks in. For example, if you have set up a mapping between the Adventure Works folder and the Adventure Works account, all the emails in the Adventure Works Exchange folder will be tracked as activities in CRM with the regarding set to the Adventure Works account record. If you change the regarding to some other record, it will automatically be overridden the next time server-side synchronization occurs. To change the regarding for any email, move the email to a different folder such as the Inbox.

See Also

Track Outlook email by moving it to a tracked Exchange folder
Set up server-side synchronization of email, appointments, contacts, and tasks
System Settings dialog box - Email tab
Overview of tracking records in CRM for Outlook

Migrate settings from the Email Router to server-side synchronization

Applies To: CRM 2016 on-prem, CRM Online

Server-side synchronization is a method in Microsoft Dynamics CRM that you can use to set up email and synchronize your appointments, contacts, and tasks. With server-side synchronization, you can centrally manage mailboxes and profiles, and also track errors about email processing. If your organization is currently using the Email Router, but wants to start using server-side synchronization instead, you can easily migrate the configuration settings from the Email Router to server-side synchronization to set up email.

 Note

An organization can only use either the Email Router or server-side synchronization to process email. You can define what to use in the **Email** tab of System Settings in Microsoft Dynamics CRM. If you select server-side synchronization, the Email Router stops functioning for the organization.

To switch from Microsoft Outlook synchronization to server-side synchronization, simply change the synchronization method in mailbox records to server-side synchronization. That's all you have to do to make the change from Outlook synchronization to server-side synchronization.

During migration, the old incoming and outgoing profiles for the user and queue mailboxes are merged to create a new email server profile that will be used by server-side synchronization.

1. Go to **Settings** > **Email Configuration**.

2. Choose **Migrate Email Router Data**.

3. In the Email Router Data Migration wizard, in the three text boxes, choose **Browse**, and select the three files specified at the top of the page in the same order. If you must migrate data from multiple email routers, choose **More Email Routers** and again select the three files. You can migrate data from up to four email routers at once.

 Note

The maximum combined size of all the files from all the email routers that you can upload at a time is 32 MB.

4. Choose **Next**.

5. On the **Select Email Server Profiles to Migrate** page, the incoming and outgoing email server profiles of the Email Router are listed and the details about the new email server profile for server-side synchronization is also listed. If you want to migrate the profile, in **Migrate Server Profile**, choose **Yes**.

 In the Email Router, incoming and outgoing email server profiles are different and each user or queue is associated with both incoming and outgoing profiles. However, with server-side synchronization, the incoming and outgoing settings are defined in a single profile and a user or queue is associated with this profile. Thus, when you migrate the data, the data from two server profiles is combined into one. The **Select Email Server Profiles to Migrate** page shows details about the new email server profile that will be created.

6. Choose **Next**.

7. The **Migration Review Summary** page shows what data will be migrated. Choose **Start**.

After the migration is complete, you'll see the summary of the migrated data. You must test the email configuration for the mailboxes after the migration is complete. To be able to start email processing through server-side synchronization, in the **Process Email From** field in the **System Settings** dialog box, select **Server-Side Synchronization**.

See Also

Set up server-side synchronization of email, appointments, contacts, and tasks
Monitor email processing errors

Set up Email Router

Applies To: CRM 2016 on-prem, CRM Online

The **Microsoft Dynamics CRM Email Router** provides centrally managed Exchange Server and POP3/SMTP-based email server routing for users, queues, and forward mailboxes. The Email Router runs continuously as a service and only synchronizes email messages. You can't use it to synchronize appointments, contacts, or tasks.

This section covers installing and configuring the Microsoft Dynamics CRM Email Router.

Privacy notice

If you use Microsoft Dynamics CRM, when you use the Email Router, CRM emails are synchronized to your specified email system, and your emails in specified mailboxes may be synced back to CRM. The Email Router is available as a separate component for download and installation.

An administrator can configure the Email Router to specify which users have the ability to send emails from CRM or synchronize emails to CRM, as well as which mailboxes to synchronize.

In This Section

Install Email Router for Microsoft Dynamics CRM 2016 and CRM Online

Install Microsoft Dynamics CRM Email Router using a command prompt

Uninstall, change, or repair Email Router

Use Email Router Configuration Manager

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Install Email Router for Microsoft Dynamics CRM 2016 and CRM Online

Applies To: CRM 2016 on-prem, CRM Online

The Microsoft Dynamics CRM Email Router is a software application that creates an interface between Microsoft Dynamics CRM 2015 or Microsoft Dynamics CRM Online and a supported Microsoft Exchange Server, SMTP, or a POP3-compliant email server. After the Email Router is installed and configured, it transfers email messages to the CRM system, and sends outgoing email messages that are created by users, workflows, or custom applications in the CRM system.

◆ **Important**

Instead of using the Email Router, consider using server-side synchronization, which offers similar functionality and is easier to manage. More information: Set up server-side synchronization of email, appointments, contacts, and tasks

Only one instance of the Email Router should be installed in an organization.

Microsoft Dynamics CRM stores email messages as activity records. These email activity records include both the contents of the email message, such as the text of the message and its subject line, and relevant associations with other CRM records.

For example, when a salesperson replies to a customer about a case, the salesperson creates an email activity record that includes the text of the message, plus information associating the email activity record with the correct case record.

☑ Note

For a list of prerequisites, see Microsoft Dynamics CRM Email Router software requirements.

To download Microsoft Dynamics CRM 2015 Email Router.

See Also
Set up Email Router
Email Router

Install Email Router and Rule Deployment Wizard

Applies To: CRM 2016 on-prem, CRM Online

To install the Email Router and the Rule Deployment Wizard, run the Microsoft Dynamics CRM Email Router Setup. To install the Email Router and the Rule Deployment Wizard, follow the instructions in this section.

Keep your Microsoft Dynamics CRM deployment current by installing the latest updates and hotfixes automatically from Microsoft Update. You can also search for updates on the Microsoft Download Center. Choosing Microsoft Update lets you install recommended updates automatically and without administrator permissions.

If you have a previous version of the Email Router installed, do not use the procedures in this section. Instead, see Upgrade CRM 2015 Email Router to CRM 2016 Email Router.

To set up the Email Router

1. Installation Task 1: Install the Email Router and, optionally, the Rule Deployment Wizard. For more information, see Install the Email Router below.

2. Installation Task 2: Configure the Email Router. For more information, see Configure the Email Router.

3. Installation Task 3: (Optional) Deploy Inbox Rules. For more information, see Bookmark link 'BKMK_DeployInboxRules' is broken in topic '{"project_id":"d1ee8af7-0e8f-4e94-9793-

0d06bbfa9b16","entity_id":"c578a81c-1b30-4ff3-b392-
6ff1b78ce6e0","entity_type":"Article","locale":"en-US"}'. Rebuilding the topic
'{"project_id":"d1ee8af7-0e8f-4e94-9793-0d06bbfa9b16","entity_id":"c578a81c-1b30-4ff3-b392-
6ff1b78ce6e0","entity_type":"Article","locale":"en-US"}' may solve the problem..

◆ **Important**

If you did not specify an incoming email server during Microsoft Dynamics CRM Server Setup, you must manually add the service account running the Email Router service to the PrivUserGroup security group. The PrivUserGroup security group is created during Microsoft Dynamics CRM Server Setup.

In This Topic

Install the Email Router

Minimum permissions required to run the Email Router and the Rule Deployment Wizard

Install the Email Router

1. Meet the Email Router requirements specified in Microsoft Dynamics CRM Email Router hardware requirements and in Microsoft Dynamics CRM Email Router software requirements.

2. Log on to the computer that will serve as the Email Router as a Domain User with Local Administrator privileges. We recommend that you dedicate a Windows desktop PC that will not be shut down on a regular basis so that the Email Router will consistently route email messages.

3. Access and run the installation files.

    • To install from the Web, open the download page (Microsoft Dynamics CRM 2016 Email Router) and then download and run the executable file.

    📝 **Note**

    The download site may present you with a choice of executable files. If you are installing on a 64-bit computer, choose a file with a name such as DynamicsCRMEmail_1033_amd64.exe. For a 32-bit computer, the file name is similar to DynamicsCRMEmail_1033_i386.exe.

    • To install from a network or from a DVD: Open the appropriate installation folder (..\EmailRouter\amd64 for 64-bit or ..\EmailRouter\i386 for 32-bit) and then run the **SetupEmailRouter.exe** file.

4. If a **Security Warning** dialog box appears, click **Run**.

5. On the **Welcome to Microsoft Dynamics CRM Email Router setup** page, select whether you want to update Email Router setup. We recommend that you click **Get updates for Microsoft Dynamics CRM**. Then, click **Next**.

6. On the **License Agreement** page, review the information and if you accept the license agreement, click **I accept this license agreement**, and then click **I Accept**.

7. If required components are missing, the **Install Required Components** page appears. If this page does not appear, all required components are installed, and you can skip to the next step in the installation procedure.

   If required components are listed, you can install them now. Click **Install**. After the components are installed, the status column changes from **Not Installed** to **Installed**. Click **Next** to continue.

📝 **Note**

These components are required before the Email Router can be installed. You can exit Setup and install the components manually, or select Install. The **Next** button on this page is disabled until Setup detects that these components are installed.

Setup might require connection to the internet if the required component setup binary files are not found on your computer.

Although installation of certain components requires a computer restart, the computer is not restarted automatically. Setup installs the required components and then waits for your input. At this point, quit the setup process, restart the computer, and continue the Email Router installation by running **SetupEmailRouter.exe** again.

8. On the **Select Router Components** page, select either or both options, and then click **Next**.

   - **Microsoft Dynamics CRM Email Router Service**. This option installs the Email Router service and Email Router Configuration Manager.

   - **Rule Deployment Wizard**. This option installs the Rule Deployment Wizard. Optionally, you can install this wizard on any computer in the Active Directory Domain of the Exchange Server.

⚠️ **Caution**

On the **Select Router Components** page, if you clear the option of a component that has already been installed, that component will be uninstalled.

9. On the **Select Microsoft Update Preference** page, you must select either of the following options, and then click **Next**. For more information about the legal terms and privacy with Microsoft Update licensing, see Windows Update FAQ.

   - **Use Microsoft Update when I check for updates (recommended)**. By selecting this option, Email Router will use the Microsoft Update settings on the computer.

   - **I don't want to use Microsoft update**. You should only select this option if the computer uses another method to install updates such as by using Windows Server Update Services (WSUS).

10. On the **Select Install Location** page, either accept the **Default** file installation directory or **Browse** to indicate a different location, and then click **Next**.

11. The **System Checks** page appears. This page is a summary of all system requirements for a successful Email Router installation. Verification errors must be corrected before the installation

can continue. If there is a problem that will take time to correct, cancel Setup at this point, fix the problem, and restart Setup. When no verification errors remain, click **Next**.

12. The **Ready to Install** page appears. Review the installation selections that you have made. Click **Back** to change your selections, or **Install** to install now.

13. After Email Router Setup is finished installing files, click **Finish**.

Minimum permissions required to run the Email Router and the Rule Deployment Wizard

- For Email Router, the following conditions must be met:

    - The account that is running the Email Router service (Microsoft CRM Email Router) must be the **Local System account**.

    - For Microsoft Dynamics CRM (on-premises), the computer where the Email Router service is running must be added to the PrivUserGroup Active Directory security group. This membership can be added during Microsoft Dynamics CRM Server Setup.

- For the Rule Deployment Wizard, the following conditions must be met:

    - The user must have logged on as a Microsoft Dynamics CRM user with a security role.

    - The user must be a member of the Local Administrators group on the computer where the wizard is running.

    - For Microsoft Dynamics CRM (on-premises), the user must have administrative permissions on the Exchange Server.

See Also

Install Email Router for Microsoft Dynamics CRM 2016 and CRM Online
Email Router

Configure the Email Router

Applies To: CRM 2016 on-prem, CRM Online

You can configure Email Router after it is installed. Some of these configuration tasks are mandatory. Others are optional in that you use them to enable the following functionality:

- **Configuration Task 1**: Set up profiles and (optionally) set up deployments, by using the Email Router Configuration Manager. For more information, see "Email Router Configuration Manager" later in this topic.

- **Configuration Task 2**: Microsoft Dynamics CRM users must have their incoming email access type set to Email Router. For more information, see "Set email access type" later in this topic.

- **Configuration Task 3**: (Optional) As part of configuration, you can deploy rules. For more information, see "Deploy Inbox Rules" later in this topic.

- **Configuration Task 4**: (Optional) As part of configuration, you can set up a forward mailbox. For more information, see "Set up a Forward Mailbox" later in this topic.

In This Topic

Email Router Configuration Manager
Keep user credentials secure
Set email access type
Deploy inbox rules
Set up a forward mailbox

Email Router Configuration Manager

The Email Router Configuration Manager is a tool that you use to configure the Email Router. The Email Router Configuration Manager is installed with the Email Router and can be run after the Email Router Setup is completed.

The Email Router settings configured by using the Email Router Configuration Manager are saved in the Microsoft.Crm.tools.EmailAgent.xml file that is located in the folder where the Email Router is installed.

The Email Router has several options. Before you run the Email Router Configuration Manager, you should determine how you want to configure these options:

- **Incoming Configuration**. The Microsoft Dynamics CRM Email Router supports popular versions of Exchange or POP3 email systems for incoming email messages. More information: Microsoft Dynamics CRM Email Router software requirements

- **Outgoing Configuration**. Microsoft Dynamics CRM supports only Exchange Online or SMTP email systems for outgoing email messages.

- **Mailbox Monitoring Type**. You can configure the following two mailbox types:

  - **Forward Mailbox**. If you select Forward Mailbox when you run the Email Router Configuration Manager, the Email Router uses a single mailbox to process email messages. Then, for each Microsoft Dynamics CRM user or queue that will receive email messages, you must create a rule for the user or queue by running the Rule Deployment Wizard.

  - **Email Router**. If email messages can be forwarded as attachments, but your email system does not allow rules, you must configure each user to use the Email Router setting. If you are using Exchange Server, we recommend that you use **Forward Mailbox Monitoring**.

For more information about Email Router options, see Email Router. Also, see Use Email Router Configuration Manager.

To start the Email Router Configuration Manager, click **Start**, point to **All Programs**, point to **Microsoft Dynamics CRM Email Router**, and then click **Microsoft Dynamics CRM Email Router Configuration Manager**.

Configuration profiles

You must configure at least one incoming email profile and one outgoing email profile to enable the Email Router to route email to and from your Microsoft Dynamics CRM organization. Depending on the complexity of your organization's email system, you may have to create multiple incoming and outgoing configuration profiles. For example, if your organization requires incoming Email Router services for multiple email servers, you must create one incoming configuration profile for each email server.

◆ Important

Due to performance throttling when accessing Exchange Online, the Email Router should not be configured to use the on-premises deployments of Microsoft Exchange Server or POP3 accounts when a profile is also configured for Exchange Online. If you must communicate with both Exchange Online and an Exchange Server On-Premises or POP3 email server, you can do so by using multiple instances of the Email Router (you can install only one instance of the Email Router on a computer). Connecting to Exchange Server On-Premises and POP3 email servers by using multiple profiles from the same Email Router instance is supported.

Authentication types

You must specify the type of authentication the Email Router will use for each incoming and outgoing email profile. Depending on the type of email server that you use to process incoming email, select one of the following authentication types:

- **Windows Authentication**. This is the only authentication type available if you use Microsoft Exchange Server for incoming email.

- **NTLM**. This option is available only if you use a POP3-compliant server for incoming email.

- **Clear Text**. This option is available if you use either a POP3-compliant server or Microsoft Exchange Online for incoming email. For Microsoft Exchange Online, this is the only authentication type available.

For Exchange Server, incoming profiles support Windows authentication only. For POP3-compliant servers, incoming profiles support NTLM and clear text authentication.

◆ Tip

You can configure the Email Router to use POP3 protocol with Exchange Server. However, the Exchange Server POP3 service is disabled by default. For information about how to enable POP3, see the Exchange Server documentation.

◆ Important

Clear text authentication transmits unencrypted user names and passwords. If you use clear text authentication, we recommend that you do this only with Transport Layer Security (TLS) or Secure Sockets Layer (SSL). Select the **Use SSL** and set the **Network Port** field (on the **Advanced** tab) to a value that is appropriate for your environment. (If you specify Exchange Online, the **Use SSL** option is not available because you can connect to Exchange Online only over an https connection.) Verify your POP3 server requirements with your email administrator.

Note

Anonymous SMTP is only valid for internal, non-Internet-facing SMTP servers. Many SMTP servers do not support Anonymous authentication. To ensure uninterrupted email flow from the Email Router, verify your SMTP server requirements with your email administrator.

Access credentials

Depending on how you set the other configuration profile options, the following options are available for specifying the user name and password that the Email Router will use to access each mailbox that the profile serves.

Important

If you use access credentials that are valid for the email server but not for a particular mailbox, a "401 access denied" error is generated when you test access.

Incoming profiles support the following access credentials:

- **Local System Account**. This option requires a machine trust between the computer where the Email Router is running and the computer where Microsoft Exchange Server is running. For incoming profiles, this option is available only for Exchange Server (not for Exchange Online or other POP3 compliant email servers).

- **User specified**. This option is available only in the on-premises version of the product. This option is available for all email server types, protocols, and authentication types.

  This option requires that each user enter a user name and password in the **Set Personal Options** dialog box (available in the **Workplace** section of the Microsoft Dynamics CRM web client). This enables the Email Router to monitor mailboxes by using each user's access credentials. When a user changes a domain password -- for example, when it expires -- the user must update the password in Microsoft Dynamics CRM so that the Email Router can continue to monitor the mailbox. This option is available for Exchange Server, Exchange Online and other POP3 compliant email servers.

- **Other specified**. Select this option if you want the Email Router to authenticate by using the credentials of a specified user. This option is available for all email server types, protocols, and authentication types. The specified user must have full access to all the mailboxes that the incoming profile will serve. To specify multiple sets of access credentials, you must create a separate configuration profile for each specified user.

Outgoing profiles support the following access credentials. For more information, see the Email Router Configuration Manager Help.

- **Local System Account**. Select this option if you select **SMTP** as the email server type and you want to authenticate by using the local system account of the computer where the Email Router is running. This option requires a machine trust between the computer where the Email Router is running and the computer where the Exchange Server is running. For more information, see "Securing Exchange Server and Outlook" in Referenced topic '833034aa-73b6-475a-8fde-0060ebeb7726' is not in the TOC.. If you select this option, either the Email Router must be

installed on the same server as the Microsoft Dynamics CRM server, or the Email Router computer name must have been entered during Microsoft Dynamics CRM Server Setup. This option is available only when you select **SMTP** as the email server type, and **Windows Authentication** or **Anonymous** as the authentication type.

- **User Specified**.

  This option is available in the on-premises and Service Provider editions of Microsoft Dynamics CRM, and when you are using Exchange Online as the Exchange Server Type.

  Select this option if you want the Email Router to authenticate by using an individual user account or a mailbox.

- **Other Specified**. This option enables the administrator to configure the Email Router to send email messages on each user's behalf by using the access credentials of a specified user account. The specified user must have full access to all the mailboxes that the incoming profile will serve. To specify multiple sets of access credentials, you must create a separate configuration profile for each specified user. This option is not available if you select **SMTP** as the email server type and **Anonymous** as the authentication type.

- **User Type**. If you select **Exchange Online** as the email server type and **Other Specified** as the access credentials, you must select either **Administrator** or **User** as the user type. Select **Administrator** if you want to use a single set of credentials to process multiple mailboxes, or if you want to provide a different set of email credentials to process individual mailboxes.

- **Access Type**. If you select **Exchange Online** as the email server type, **Other Specified** as the access credentials, and **Administrator** as the user type, you must select either **Delegate Access** or **Send as** as the access type.

  - **Delegate Access** causes email to be sent as "Send on behalf of" messages.

  - **Send as** causes email to be sent as "Send As" messages.

Deployments

You can link a configuration profile of the Email Router to Microsoft Dynamics CRM Online. It is not mandatory, but doing so provides the benefit of assigning the configuration profile to users for whom no other profile is assigned.

You must select the type of Microsoft Dynamics CRM system that the Email Router will connect to. The following options are available:

- **My company**. Select this option if Microsoft Dynamics CRM is deployed at your company.

- **An online service provider**. Select this option if the deployment that the Email Router will connect to is an online service provider deployment of Microsoft Dynamics CRM.

- **Microsoft Dynamics CRM Online**. Select this option to connect the Email Router to a Microsoft Dynamics CRM Online organization.

Microsoft Dynamics CRM server

Type the URL of Microsoft Dynamics CRM Server.

- If you are connecting to an on-premises version at your company, the format is similar to *http://myCRMServer:5555/OrganizationUniqueName*.

- If you are connecting to a service provider deployment, contact your service provider to obtain the correct URL. For more information, see the documentation for service providers that is available from the [Microsoft Download Center](#).

- If you are connecting to Microsoft Dynamics CRM Online and your organization uses Microsoft account, enter:

  - https://dev.crm.dynamics.com/<OrganizationName> where OrganizationName is a placeholder for the actual ID of your organization.

- If you are connecting to Microsoft Dynamics CRM Online and your organization uses Microsoft Office 365, enter:

  - https://disco.crm.dynamics.com/<OrganizationName> where OrganizationName is a placeholder for the actual ID of your organization.

◆ **Important**

Make sure that the URL of the Microsoft Dynamics CRM deployment is spelled correctly. The *OrganizationUniqueName* part of the URL must be spelled exactly as it appears in the Microsoft Dynamics CRM server. To determine the *OrganizationUniqueName*, start the Microsoft Dynamics CRM web application as a user who has the System Customizer role. Click **Settings**, and then click **Customizations**. On the **Customization** page, click **Developer Resources**. The *OrganizationUniqueName* is displayed below the Organization Unique Name label.

One deployment type at a time

There are two types of deployments. One type includes deployments to **Microsoft Dynamics CRM Online** only. The other type includes deployments to either **My company** or **An online service provider**. If you define multiple deployments for the Email Router, they must all be of the same type. That is, after you have created a deployment that uses one deployment type, any other deployments that you create must be of the same type. (To create a deployment of the other type, you must first delete all of the deployments that currently exist.)

Obtaining user email credentials from Microsoft Dynamics CRM

In certain circumstances, the Email Router must obtain user credentials from Microsoft Dynamics CRM. However, Microsoft Dynamics CRM stores user names and passwords only when HTTPS has been selected as the protocol that the Email Router will use to access Microsoft Dynamics CRM. You can change this behavior so that Microsoft Dynamics CRM can store and distribute user names and passwords to the Email Router over HTTP. For more information, see "HTTP Option" in "Keep user credentials secure" later in this topic.

Access credentials

You must specify the access credentials that the Email Router will use to log on to Microsoft Dynamics CRM Server.

To use the **Local System Account** (available only if you select **My company** as the deployment type), either the Email Router must be installed on the same computer as Microsoft Dynamics CRM Server, or the computer where the Email Router is installed must be a member of the Active Directory PrivUserGroup security group.

💡 **Tip**

For an on-premises deployment of Microsoft Dynamics CRM, the computer will already be added to the PrivUserGroup security group if you specified the Email Router computer during Microsoft Dynamics CRM Server Setup.

Configuring email routing for multiple configurations and deployments

You can add or edit an Email Router configuration, which contains a single incoming and outgoing method that routes email to the email server. In the configuration, you must specify the following:

- A name of the configuration profile, for display and reference.
- The direction of the configuration profile: incoming or outgoing.
- The email transport type, such as Exchange or POP3 for incoming, and SMTP for outgoing.

You can also add or edit Email Router deployments. An Email Router deployment contains a URL to a Microsoft Dynamics CRM Server computer, one incoming configuration, and one outgoing configuration. In an Email Router deployment object, you specify the following components:

- A URL to the Microsoft Dynamics CRM Server computer (required).
- A default incoming configuration (optional).
- A default outgoing configuration (optional).

To specify additional operational settings for a new or existing configuration profile, click **Advanced** on the **Email Router Configuration Manager** dialog box.

For more information, see the Email Router Configuration Manager Help.

Keep user credentials secure

If your organization uses the Email Router to send and receive messages on behalf of users or queues, you should increase security. You can do this either by using the HTTPS protocol or by enabling IPsec.

📝 **Note**

This issue applies only to users of the on-premises deployment of Microsoft Dynamics CRM.

HTTPS option

In processing email for a user or queue, the Email Router requires credentials for the user or queue. Those credentials can be entered in the Microsoft Dynamics CRM web application in the **Set Personal Options** dialog box (for users) and in the **Queues** form (for queues). Microsoft Dynamics CRM stores

these credentials in encrypted form in the Microsoft Dynamics CRM database. The Email Router uses a key stored in the Microsoft Dynamics CRM database to decrypt these credentials. The call that the Email Router makes to obtain this key enforces HTTPS. In Microsoft Dynamics CRM Server, the Email Router functions this way by default, which means that you need not take any action to retain this behavior. However, if you do not want to use HTTPS, you must set a particular Windows registry key, as described in the following section.

HTTP option

If you do not want to use HTTPS, you must set a Windows registry key, as follows:

1. On the Microsoft Dynamics CRM server, check the value of the registry key DisableSecureDecryptionKey at the path HKLM\Software\Microsoft\MSCRM. If this registry key is present, set its value to 1. (If the key is not present or set to 0, calls from the Email Router to the Microsoft Dynamics CRM server are made using HTTPS.) Setting the value of this key to 1 allows the Email Router to obtain information from the Microsoft Dynamics CRM database over the HTTP protocol.

2. If you changed the value of DisableSecureDecryptionKey, do the following on the Microsoft Dynamics CRM server: Restart Internet Information Services (IIS). To do this, click **Start**, click **Run**, type IISRESET, and then click **OK**.

3. (Recommended) Enable secure networking, such as Windows Firewall, for all communications between the Microsoft Dynamics CRM server and the Email Router computer. More information: Windows Firewall with Advanced Security Overview

Managing certificates to use the email router with HTTPS

If you are running Microsoft Dynamics CRM on HTTPS and one or more certificates is not signed by a certification authority, do the following on the computer on which the Email Router is installed:
For the Microsoft Dynamics CRM certificate

1. If the Email Router Service is configured to use the "LocalSystem" account, import the Microsoft Dynamics CRM certificate into the trusted store of the local machine account of the computer on which the Email Router is installed.

2. If the Email Router Service is configured to use any other specific user account, import the Microsoft Dynamics CRM certificate into the trusted store of that user's account on the computer on which the Email Router is installed.

For any Exchange Server certificates:

1. If the Email Router Service is configured to use the "LocalSystem" account, import the Exchange Server certificate into the trusted store of the local machine account of the computer on which the Email Router is installed.

2. If the Email Router Service is configured to use any other specific user account, import the Exchange Server certificate into the trusted store of that user's account on the computer on which the Email Router is installed.

Set email access type

Before a user can send and receive email messages that will be tracked in Microsoft Dynamics CRM, you must change the email access type that is set for that user, as described in the following procedure.

To set the email access type

1. Go to **Settings** > **Security**.

2. Choose **Users**. Find the user whose settings you want to edit. You may need to navigate to a different page.

3. Click the name of the user, or select the user and then click **Edit**. The **User** form opens. You can edit the messaging options in the **Email Access Configuration** section.

⚠ Warning

By default, Microsoft Dynamics CRM sets both the incoming email access type and the outgoing email access type to "Dynamics CRM for Outlook."

4. For each user of the Microsoft Dynamics CRM web application whose mail will be routed by the Email Router, you must change the incoming type to Email Router or to Forward Mailbox, and the outgoing type to Email Router.

Set the email router to work with Microsoft Dynamics CRM Online

1. Start the Email Router Configuration Manager.

2. Click the **Deployments** tab.

3. Click **New** to create a new deployment.

4. Make sure that the **Deployment** option is set to **Microsoft Dynamics CRM Online**. If the **Microsoft Dynamics CRM Online** option is not available, delete the existing deployments as explained in the following note:

📝 Note

There are two types of deployments. One type includes deployments to **Microsoft Dynamics CRM Online** only. The other type includes deployments to either **My company** or **An online service provider**. If you define multiple deployments for the Email Router, they must all be of the same type. That is, after you have created a deployment that uses one deployment type, any other deployments that you create must be of the same type. (To create a deployment of the other type, you must first delete all of the deployments that currently exist.)

5. Enter the rest of the information required to define the deployment and then click **OK** to finish.

Deploy inbox rules

An important part of routing email messages to your Microsoft Dynamics CRM system is the placement of an Microsoft Exchange Server inbox rule in the inbox of each Microsoft Dynamics CRM user or queue. This rule sends a copy of each message that is received by a Microsoft Dynamics CRM user to the Microsoft Dynamics CRM system mailbox. From the Microsoft Dynamics CRM system mailbox, the Email Router retrieves the messages and creates an email activity in Microsoft Dynamics CRM.

To deploy these Microsoft Dynamics CRM user inbox rules, use the Rule Deployment Wizard, which can be run at any time to add or change the inbox rules for your Microsoft Dynamics CRM users.

◆ Important

The Rule Deployment Wizard can deploy rules only to Exchange Server mailboxes. You cannot use the Rule Deployment Wizard to deploy rules to POP3 email servers.

◢ Note

For information about installing the Rule Deployment Wizard, see [Install Email Router and Rule Deployment Wizard](#) in this guide.

If you chose to install this wizard as part of the Email Router installation, you can access this wizard by doing the following:

On the computer where you have installed the Rule Deployment Wizard, click **Start**, point to **All Programs**, point to Microsoft Dynamics CRM Email Router, and then click **Rule Deployment Wizard**.

The Rule Deployment Wizard does not have to be run on a computer with an instance of Exchange Server. To run the Rule Deployment Wizard, you must:

- Be logged on as a Microsoft Dynamics CRM user with a security role. (Users can be in restricted access mode).

- Be a local administrator on the computer where the wizard is running.

- Have Exchange Server administrative permissions.

To deploy rules to the mailbox of a Microsoft Dynamics CRM user, the person running the Rule Deployment Wizard must have Exchange Server administrative permissions for the mailbox. Use the **Exchange System Manager** and the Exchange Server delegation wizard to designate Exchange Server administrators. Or, make sure that the person running the Rule Deployment Wizard has full permissions on the Exchange Server mailbox store or storage group in which the users' mailboxes are located.

Create the rule manually in Outlook

For POP3 email servers that support email system rules where an email message can be forwarded as an attachment, you can create the rule manually.

◢ Note

Before you can specify a forward mailbox in a rule, you must create a mailbox and designate it as a forward mailbox. For more information, see "Specify a Forward Mailbox" in the Email Router Configuration Manager Help.

1. In Microsoft Office Outlook, click **File** > **Manage Rules & Alerts**.
2. In the **Rules and Alerts** dialog box, on the **E-mail Rules** tab, click **New Rule**
3. Under **Step 1: Select a template** select **Apply rule on messages I receive** and click **Next**.
4. Under **Step 1: Select condition(s)** select **where my name is in the To or CC box** and click **Next**.
5. Under **Step 1: Select action(s)** select **forward it to people or public group as an attachment**.
6. Under **Step 2: Edit the rule description** click **people or public group**, in the **Rule Address** window, enter the forward mailbox, click **Go**, select it from the address book, click **To**, and then click **OK**.
7. Click **Finish**.
8. Click the new rule to activate it and make sure it is running against the correct Inbox that is displayed in **Apply changes to this folder**.
9. If you want to run this rule on messages that are already in the Inbox, click **Run Rules Now** from the **Rules and Alerts** window.

Set up a forward mailbox

The forward mailbox is used as a collection box for email messages that are transferred from each Microsoft Dynamics CRM user's mailbox by a server-side rule. The forward mailbox must be dedicated to the Email Router system, and should not be used as a working mailbox by an individual user.

Before you specify a forward mailbox, you must create or use an existing Exchange Server or POP3 mailbox that can be dedicated to processing email messages that are tracked by Microsoft Dynamics CRM. After you specify the forward mailbox, you can run the Rule Deployment Wizard to deploy the rules that will be used to forward email messages to the forward mailbox.

 Note

If you specify a POP3 mailbox as the forward mailbox, you must manually deploy the rules. The Rule Deployment Wizard cannot deploy rules to a POP3 email server. For information about how to deploy rules manually, see "Create the rule manually" above.

Specify or modify a forward mailbox

1. Make sure that you have a mailbox to dedicate as the forward mailbox. If you do not, see your messaging server documentation for information about how to create a mailbox. If you select Exchange Server as the incoming email server type, you must log on to the mailbox by using an email client such as Microsoft Office Outlook or Outlook on the web at least once to complete the creation of the mailbox.
2. Click the **Users, Queues, and Forward Mailboxes** tab, and then click **Load Data**.

3. When the list appears, click the **Forward Mailboxes** tab, and then click **New**. To change an existing forward mailbox, click **Modify**.

4. In the **Forward Mailbox** dialog box, complete the following boxes, and then click **OK**:

    - **Name**. Type a name for the forward mailbox. This will be used to display in the Email Router Configuration Manager and the Rule Deployment Wizard.

    - **Email Address**. Type the email address for the forward mailbox, such as forwardmailbox@contoso.com.

    - **Incoming Configuration Profile**. Select the incoming configuration profile to associate with the forward mailbox. You can have multiple forward mailboxes that use different incoming configuration profiles.

 Note

To delete email messages in the forward mailbox after they have been processed by the Email Router, select the **Delete messages in forward mailbox after processing** option.

5. Click **Publish**.

6. Stop the Microsoft CRM Email Router service. To do this, on the **Start** menu, type **services.msc**, and then press **ENTER**; or click **Run**, type **services.msc**, and then press **ENTER**. Right-click the Microsoft CRM Email Router service, and then click **Stop**.

7. Restart the Microsoft CRM Email Router service. To do this, in the services list, right-click Microsoft CRM Email Router, and then click **Start**.

8. Click **OK**, and then close the Services application.

Complete the forward mailbox

If you will use a forward mailbox to route email messages, in Active Directory directory service, you must create the user and mailbox that will be used for the Email Router forward mailbox.

 Important

You must log on to the forward mailbox at least one time before the Email Router can use it to process email messages.

See Also

Install Email Router and Rule Deployment Wizard
Email Router

Upgrade CRM 2015 Email Router to CRM 2016 Email Router

Applies To: CRM 2016 on-prem, CRM Online

The Email Router supports in-place upgrading. However, to upgrade your installation of the Email Router, you first back up the files that contain information about the state of the Email Router, such as configuration settings, and then install the new version of the Email Router. Follow the steps in the following tasks:

Upgrade Task 1: Back up and use Email Router state files and Smart Matching settings. For more information, see "Back up and use Email Router state files" in this topic.

Upgrade Task 2: Install the new version of the Email Router. For more information, see "Upgrade the Email Router" in this topic.

 Note

Supported Exchange versions for this version of the Email Router can be found here: Exchange Server.

In This Topic

Upgrade both the Email Router and Microsoft Dynamics CRM

Back up and use Email Router state files and Smart Matching settings

Upgrade the Email Router

Upgrade both the Email Router and Microsoft Dynamics CRM

If you plan to upgrade both the Email Router and Microsoft Dynamics CRM, perform the upgrade tasks in the following order:

1. Stop the Microsoft Dynamics CRM Email Router service. To do this, on the **Start** menu, type services.msc, and then press **ENTER**; or click **Run**, type **services.msc**, and then press **ENTER**. Right-click the Microsoft Dynamics CRM Email Router service, and then click **Stop**.

2. Upgrade Microsoft Dynamics CRM Server.

3. Install the new version of the Email Router:

    - If you already have an earlier version of the Email Router installed, upgrade as described below.

    - If you don't have a version of the Email Router installed, install the new version, as described in Install Email Router and Rule Deployment Wizard.

4. You might need to restart the Microsoft Dynamics CRM Email Router service after the upgrade finishes. To do this, in the services list, right-click Microsoft Dynamics CRM Email Router, and then click **Start**.

Back up and use Email Router state files and Smart Matching settings

We recommend that you back up the files that store the state of your Email Router before you upgrade the Email Router. The following steps describe how to back up and use these files to recover from a failed upgrade to the next version of the Email Router.

To back up and use Email Router state files

1. Locate the following files in the folder <drive:>\Program Files\Microsoft CRM Email\Service\:
   - Microsoft.Crm.Tools.EmailAgent.Configuration.bin
   - Microsoft.Crm.Tools.EmailAgent.SystemState.xml
   - Microsoft.Crm.Tools.EmailAgent.xml
   - Microsoft.Crm.Tools.Email.Management.config
   - EncryptionKey.xml
2. Copy these files to a safe location.
3. Perform the upgrade. For more information, see the following procedure, "Upgrade the Email Router" later in this topic.
4. If the Email Router upgrade succeeds, you can discard the backup files. If the Email Router upgrade fails, continue with the following procedure.

If the upgrade fails

1. Uninstall the Email Router. For more information, see [Uninstall, change, or repair Email Router](#).
2. Reinstall the earlier version of the Email Router.
3. Reinstall all of the Microsoft Dynamics CRM update rollups that were installed before you attempted this upgrade..
4. Stop the Email Router service. For more information, see "To stop a service," in [Incoming email configuration issues](#).
5. Copy the backed-up files to the installation location of the now reinstalled earlier version of the Email Router. (This might be the original installation location: <drive>:\Program Files\Microsoft CRM Email\Service.)
6. Start the Email Router service. For more information, see "To start a service," in [Incoming email configuration issues](#).

Upgrade the Email Router

1. Meet the Email Router hardware and software requirements. More information: [Microsoft Dynamics CRM Email Router hardware requirements](#) and [Microsoft Dynamics CRM Email Router software requirements](#)

2. Log on to the server as a Domain User with Local Administrator privileges.

3. Obtain and run the appropriate installation files.

   - To install from a network or from a DVD: Open the appropriate installation folder (EmailRouter\amd64 or EmailRouter\i386) and then run the **SetupEmailRouter.exe** file. (To install on a 64-bit computer, use the Setup file in the EmailRouter\amd64 folder; to install on a 32-bit computer, use the Setup file in the EmailRouter\i386 folder.)

   - To install from the web, open the download page ([Microsoft Dynamics CRM 2016 Email Router](#)) and then download and run the executable file.

   Note

   The download site may present you with a choice of executable files. If you are installing on a 64-bit computer, choose a file with a name such as *DynamicsCRMEmail_1033_amd64.exe*. For a 32-bit computer, the file name is similar to *DynamicsCRMEmail_1033_i386.exe*.

4. If a **Security Warning** dialog box appears, click **Run**.

5. On the **Welcome to Microsoft Dynamics CRM Email Router setup** page, select whether you want to update Email Router setup. We recommend that you click **Get updates for Microsoft Dynamics CRM**. Then, click **Next**.

6. On the **License Agreement** page, review the information and if you accept the license agreement, click **I accept this license agreement**, and then click **I Accept**.

7. On the **Select Router Components** page, click **Next**.

8. The **System Checks** page appears. This page is a summary of all system requirements for a successful Email Router installation. Verification errors must be corrected before the installation can continue. If there is a problem that will take time to correct, cancel Setup at this point, fix the problem, and restart Setup. When no verification errors remain, click **Next**.

9. The **Ready to Upgrade** page appears. Review the installation selections that you have made. Click **Back** to change your selections, or **Upgrade** to upgrade the Email Router now.

10. After Email Router Setup is finished, click **Finish**.

Your configuration settings from the previous installation have been retained. To change configuration settings, run the Email Router Configuration Manager. For more information, see [Configure the Email Router](#).

See Also

Merge email server profiles for migration

Applies To: CRM 2016 on-prem, CRM Online

In Microsoft Dynamics CRM Email Router, incoming and outgoing Email Server profiles are different and each user or queue is attached to both an incoming and an outgoing profile. However, in server-side synchronization, both the incoming and outgoing profiles are present in a single profile and a user is attached to a single Email Exchange Server profile. In this topic, you will learn how the incoming and outgoing Email Server profiles are merged to create a new profile in server-side synchronization.

For more information on how to migrate data and settings from Email Router to server-side synchronization, see Migrate settings from the Email Router to server-side synchronization.

In This Topic

Email server profile migration
Field mapping when two profiles are merged
Incoming connection field mapping
Outgoing connection field mapping

Email server profile migration

The following table shows how the Email Server profiles are migrated:

Incoming Server Type	Outgoing Server Type	Email Server Type in new profile
Exchange 2010	SMTP	Exchange
Exchange 2010	Exchange Online	Exchange
Exchange Online	SMTP	Exchange
Exchange Online	Exchange Online	Exchange
POP3	SMTP	POP3/SMTP
POP3	Exchange Online	Exchange
Custom	Custom	NA

When a new email server profile is created, all the user mailboxes using that server profile are added to this profile. Any profile with custom protocol present in Email Router will not be detected for migration and user will not see any custom protocol related messages on the UI. Timestamps of all the mailboxes will be updated whether their corresponding email server profile is migrated or not.

Field mapping when two profiles are merged

The following table shows field mapping when two Email Server Profiles are merged to create a new profile in server-side synchronization.

Source Profiles	Category	Field in Server-Side Synchronization Profile	Field in Email Router Profile	Default values in new Profile in absence of direct mapping from Email Router to Server-Side Synchronization
Exchange + Exchange		Profile Name	Not Available	Depend on Email Server Type of merged profiles. Following will be the value of names: • Merging of POP3 and Exchange Online: POP3 – Exchange Online. • Merging of Exchange 2010/2013/ Online and SMTP: Exchange 2010/2013/ Online – SMTP.
	Email Server Type	• Incoming: Exchange 2010/2013/ Online • Outgoing: Exchange Online	Exchange	
	Auto Discover Server Location	Auto Discover		

Source Profiles	Category	Field in Server-Side Synchronization Profile	Field in Email Router Profile	Default values in new Profile in absence of direct mapping from Email Router to Server-Side Synchronization
Outgoing Connection (Exchange Online)	Email Server Location	Outgoing Profile: Email Server Location		
Incoming Connection(Exchange 2010/2013/Online)	Email Server Location	Incoming Profile: Email Server Location		
Advanced	Outgoing Email Port	Outgoing Profile: Network Port		
Incoming Email Port	Incoming Profile: Network Port			
Use SSL for Outgoing	Not present on UI but xml node is present (UseSSL)			
Use SSL for Incoming	Not present on UI but xml node is present (UseSSL)			
Process Email received after	Not present on UI but xml node is present			
Maximum concurrent connections	Not Available	Default value: 10		
POP3 + SMTP		Name	Not Available	POP3-SMTP
	Email Server Type	• Incoming: POP3 • Outgoing: SMTP	POP3-SMTP	
	Auto Discover Server Location	Not Available		
Outgoing Connection	Email Server Location	Outgoing: Email Server Location		
Incoming Connection	Email Server Location	Incoming: Email Server Location		
Advanced	Outgoing Email Port	Outgoing Profile: Network Port		

Source Profiles	Category	Field in Server-Side Synchronization Profile	Field in Email Router Profile	Default values in new Profile in absence of direct mapping from Email Router to Server-Side Synchronization
Incoming Email Port	Incoming Profile: Network Port			
Use SSL for Outgoing	Use SSL			
Use SSL for Incoming	Use SSL			
Process Email received after	MessageProcessingThresholdDays			
Maximum concurrent connections	Not Available	Default value: 10		

Incoming connection field mapping

For incoming connections, the following table show how the Email Router fields will map to server-side synchronization.

	Old Email Router (Authentication type + Access credentials)	Value in the Email server profile of Server-Side Synchronization (Connect Using)	Value in the Email server profile of Server-Side Synchronization (User Name)	Value in the Email server profile of Server-Side Synchronization (Use as Password)	Value in the Email server profile of Server-Side Synchronization (Use as Windows Credentials)	Value in the Email server profile of Server-Side Synchronization (Use Impersonation)
Exchange 2010/2013	Windows Authentication + Local System Account	• Windows Integrated Authentication (CRM on-premises) • Credentials specified	• User Name disabled(CRM on-premises) • User Name is blank (CRM Online)	• Password disabled (CRM on-premises) • Password is blank (CRM Online)	Not Available	Default value in the email server profile of Server-Side Synchronization

	Old Email Router (Authentication type + Access credentials)	Value in the Email server profile of Server-Side Synchronization (Connect Using)	Value in the Email server profile of Server-Side Synchronization (User Name)	Value in the Email server profile of Server-Side Synchronization (Use as Password)	Value in the Email server profile of Server-Side Synchronization (Use as Windows Credentials)	Value in the Email server profile of Server-Side Synchronization (Use Impersonation)
		in Email Server Profile (CRM Online)				
Windows Authentication + User specified	Credentials specified by a User or a Queue	User Name disabled	Password disabled	Not Available	Default value in the email server profile of Server-Side Synchronization	
Windows Authentication + Others specified	Credentials specified in Email Server Profile	User Name taken from the profile	Password taken from the profile	Not Available	Default value in the email server profile of Server-Side Synchronization	
Exchange Online	Clear text + Local System Account	• Windows Integrated Authentication (CRM on-premises) • Credentials specified in Email Server Profile (CRM Online)	• User Name disabled(CRM on-premises) • User Name is blank (CRM Online)	• Password disabled (CRM on-premises) • Password is blank (CRM Online)	Not Available	Default value in the email server profile of Server-Side Synchronization

	Old Email Router (Authentication type + Access credentials)	Value in the Email server profile of Server-Side Synchronization (Connect Using)	Value in the Email server profile of Server-Side Synchronization (User Name)	Value in the Email server profile of Server-Side Synchronization (Use as Password)	Value in the Email server profile of Server-Side Synchronization (Use as Windows Credentials)	Value in the Email server profile of Server-Side Synchronization (Use Impersonation)
Clear text + User specified	Credential specified by a User or a Queue	User Name disabled	Password disabled	Not Available	Default value in the email server profile of Server-Side Synchronization	
Clear text + Others specified	Credentials specified in Email Server Profile	User Name taken from the profile	Password taken from the profile	Not Available		
POP3	Clear text + User specified	Credentials specified by a User or a Queue	User Name disabled	Password disabled	No	Not Available
Clear text + Others specified	Credentials specified by a User or a Queue	User Name disabled. User name is same as that of Email address of the user and will be updated in Mailbox of the corresponding User/Queue.	Password disabled. Password will be updated in Mailbox of corresponding User/Queue	No	Not Available	
NLTM + User specified	Credentials specified by a User or a Queue	User Name disabled	Password disabled	Yes	Not Available	
NLTM + Others specified	Credentials specified by a User or a Queue	User Name disabled. User Name is same as that of Email address of	Password disabled. Password will not be updated in Mailbox of	Yes	Not Available	

	Old Email Router (Authentication type + Access credentials)	Value in the Email server profile of Server-Side Synchronization (Connect Using)	Value in the Email server profile of Server-Side Synchronization (User Name)	Value in the Email server profile of Server-Side Synchronization (Use as Password)	Value in the Email server profile of Server-Side Synchronization (Use as Windows Credentials)	Value in the Email server profile of Server-Side Synchronization (Use Impersonation)
		the user, but it will not be updated in Mailbox of the corresponding User/Queue.	corresponding User/Queue			

Outgoing connection field mapping

For outgoing connections, the following table show how the Email Router fields will map to server-side synchronization.

	Old Email Router (Authentication type + access credentials)	Value in the Email server profile of Server-Side Synchronization (Connect Using)	Value in the Email server profile of Server-Side Synchronization (User Name)	Value in the Email server profile of Server-Side Synchronization (Password)	Value in the Email server profile of Server-Side Synchronization (Use as Windows Credentials)	Value in the Email server profile of Server-Side Synchronization (Use Impersonation)
Exchange Online	Clear text + User specified	Credentials specified by a User or a Queue	User Name disabled	Password disabled	Not Available	Use default value
	Clear text + Others specified (User type: Administrator)	Credentials specified in Email Server Profile	User Name taken from the profile	Password taken from the profile	Not Available	- Delegate : No - Send As Permissi on: Yes	
	Clear text + Others specified (User type: User)	Credentials specified by a User or Queue	User Name disabled. Username will be same as Email address of the user but it will not be	Password disabled. Password will not be updated in Mailbox of correspondin g	Not Available	Not Available

	Old Email Router (Authentication type + access credentials)	**Value in the Email server profile of Server-Side Synchronization (Connect Using)**	**Value in the Email server profile of Server-Side Synchronization (User Name)**	**Value in the Email server profile of Server-Side Synchronization (Password)**	**Value in the Email server profile of Server-Side Synchronization (Use as Windows Credentials)**	**Value in the Email server profile of Server-Side Synchronization (Use Impersonation)**
		updated in Mailbox of the corresponding User/Queue.	User/Queue			
SMTP	Clear text + Others specified	Credentials specified in Email Server Profile	User Name taken from the profile	Password taken from the profile	N.A.	N.A.
Anonymous + Local System Account	- Without Authentication (Anonymous) (CRM on-premise) - Credentials specified in Email Server Profile (CRM Online)	- Disabled (CRM on-premise) - Blank (CRM Online)	- Disabled (CRM on-premise) - Blank (CRM Online)	N.A.	N.A.	
Windows Authentication + Others Specified	Credentials specified in Email Server Profile	User Name taken from the Profile	Password taken from the profile	N.A.	N.A.	
Windows Authentication + Local System Account	Windows Integrated Authentication	- Disabled (CRM on-premise) - Blank	- Disabled (CRM on-premise) - Blank	N.A.	N.A.	

	Old Email Router (Authentication type + access credentials)	Value in the Email server profile of Server-Side Synchronization (Connect Using)	Value in the Email server profile of Server-Side Synchronization (User Name)	Value in the Email server profile of Server-Side Synchronization (Password)	Value in the Email server profile of Server-Side Synchronization (Use as Windows Credentials)	Value in the Email server profile of Server-Side Synchronization (Use Impersonation)
	(CRM on-premise) • Credentials specified in Email Server Profile (CRM Online)	(CRM Online)	(CRM Online)			

See Also

Install Email Router for Microsoft Dynamics CRM 2016 and CRM Online
Troubleshooting Email Router issues
Migrate settings from the Email Router to server-side synchronization

Troubleshooting Email Router issues

Applies To: CRM 2016 on-prem, CRM Online

This section provides guidelines for troubleshooting issues that you might encounter as you deploy and configure the Email Router.

In This Section

Email Router installation issues

Incoming email configuration issues

Outgoing email configuration issues

Users do not receive Microsoft Dynamics CRM e-mail messages

Test the access for the Email Router

See Also

[Install Email Router and Rule Deployment Wizard](#)

Email Router installation issues

Applies To: CRM 2016 on-prem, CRM Online

This section provides troubleshooting guidelines and reference information about how to resolve issues that can occur during Microsoft Dynamics CRM Email Router installation.

Note

You can upgrade the Email Router without first needing to uninstall the previous version.

Keep your Microsoft Dynamics CRM deployment current by installing the latest updates and hotfixes automatically from [Microsoft Update](#). You can also search for updates on the [Microsoft Download Center](#). Choosing Microsoft Update lets you install recommended updates automatically and without administrator permissions.

Troubleshoot an Email Router installation

1. Verify that your operating environment meets all hardware and software requirements. For detailed requirements, see [Microsoft Dynamics CRM Email Router hardware requirements](#) and [Microsoft Dynamics CRM Email Router software requirements](#).

2. Make sure that you follow the Email Router installation instructions in the [Install Email Router for Microsoft Dynamics CRM 2016 and CRM Online](#).

If a problem occurs during Email Router Setup, review the log file for information. By default, the Email Router Setup log is named crmEmailRouterSetup.log and is located in the C:\Users\<user>\AppData\Roaming\Microsoft\MSCRM\Logs folder on the computer where the Email Router is installed.

See Also

[Troubleshooting Email Router issues](#)
[Incoming email configuration issues](#)

Incoming email configuration issues

Applies To: CRM 2016 on-prem, CRM Online

This section provides troubleshooting guidelines and reference information about how to resolve some commonly encountered issues that can occur during Email Router incoming profile configuration.

To troubleshoot an Email Router incoming profile configuration

1. Make sure that you follow the incoming profile configuration procedures in the Managing Configuration Profiles topics.

2. For more information about how to configure an incoming profile, see Configure the Email Router.

3. See the following sections for information about how to resolve some commonly encountered issues with incoming configuration profiles.

In This Topic

Login timeout error
Unauthorized access to the mailbox
Mailbox not found (access test fails)
Mailbox not found (access test succeeds)
The Email Router service configuration parameter "EmailUser" is missing
TLS/SSL error from Email Router Configuration Manager test access
POP3 issues

Login timeout error

Symptom: When you click **Test Access** in the Email Router Configuration Manager, you receive the following HTTP error message:

Incoming Status: Failure - The remote server returned an error: (440) Login Timeout

This is typically caused by trying to use forms-based authentication instead of Windows authentication (the only supported authentication method).

Resolution: Change the authentication mode to Windows authentication on the mailbox server. For more information, see the Microsoft Knowledge Base (KB) article 954047.

📝 Note

Make sure that you point the incoming profile to the Exchange Server that has the mailbox server where the Exadmin and Exchange virtual directories are located.

Unauthorized access to the mailbox

Symptom: When you click **Test Access** in the Email Router Configuration Manager, you receive the following HTTP error message:

Incoming Status: Failure - The remote Microsoft Exchange email server returned the error "(401) Unauthorized". Verify that you have permission to connect to the mailbox.

Resolution: Verify the following:

1. Before you click **Test Access**, make sure that the user has logged on to the mailbox so that the mailbox is activated.

2. Make sure that you can receive email messages in the mailbox.

3. In the **Location** section of the **Email Router Configuration Profile** dialog box, verify that the correct URL of the Exchange Server is entered. For example:

   - https://myexchangeserver

   - https://www.myexchangeserver.local

   - https://myexchangeserver/EWS/Exchange.asmx

   ◆ **Important**

   Do not enter any additional characters at the end of the URL string, such **as /OWA** or **/Exchange** or even a / character. If you are using Transport Layer Security (TLS) or Secure Sockets Layer (SSL), be sure to use https in the URL instead of http.

4. Verify the settings in the **Access Credentials** section of the Email Router Configuration Manager incoming profile dialog box:

   - Make sure that the specified user has full access rights to the mailboxes that this incoming profile will serve. To test this, log on to the computer that is running the Email Router by using the specified access credentials, or in Windows Internet Explorer, try to access the Outlook on the web URL of the user that you are testing (for example, http://exchangeserver/Exchange/crmuser).

     For instructions about granting this access in Exchange Server 2013, see the Microsoft TechNet article [Change the Assignment Policy on a Mailbox](#).

     For instructions about how to grant this access in Exchange Server 2010, see the Microsoft TechNet article [Allow Mailbox Access](#).

   - If you selected the **User specified** option in the **Access Credentials** drop-down list, make sure that the users whose mailboxes this profile will serve have set their user name and password in the **Set Personal Options** dialog box (available in the **Workplace** section of the Microsoft Dynamics CRM web application). This enables the Email Router to access mailboxes by using each user's access credentials.

   ✎ **Note**

   The **User specified** option is intended for use in scenarios where the Email Router is configured to monitor user mailboxes, instead of a forward mailbox. This option is available only in the on-

premises version of the product.

Mailbox not found (access test fails)

Symptom: When you click **Test Access** in the Email Router Configuration Manager, you receive the following HTTP error message:

Incoming Status: Failure - The remote Microsoft Exchange email server returned an error "(404) Not Found". The user or queue does not have a mailbox. Create a mailbox and try again.

Resolution: Depending on which version of Exchange Server you are using, perform one of the following procedures.

📝 Note

Another possible cause of this error is in the Microsoft Dynamics CRM user email address information. In the Web application, verify that the user's email address is set correctly.

For Exchange Server 2010

1. Connect to the Exchange Server where the mailbox is located.
2. Open Internet Information Services (IIS) Manager: Click Start, type inetmgr, and then press ENTER.
3. Verify the presence of the virtual directory (Exadmin or Exchange) that you are using to connect to the mailbox:
    a. Expand the default Web site.
    b. Verify that the Exadmin folder is present. If it is not, you will have to create it. For detailed information, see the Microsoft KB article 947802.

To start a service

1. On the **Start** menu, type **services.msc**, or click **Run**, type **services.msc**, and then press **ENTER**.
2. Right-click the service that you want to start, and then click **Start**.
3. Click **OK** and then close the Services application.

To stop a service

1. On the **Start** menu, type **services.msc**, or click **Run**, type **services.msc**, and then press **ENTER**.
2. Right-click the service that you want to stop, and then click **Stop**.
3. Click **OK** and then close the Services application.

Mailbox not found (access test succeeds)

Symptom: When you click **Test Access** in the Email Router Configuration Manager, the test succeeds. However, you receive HTTP 404 errors in the application event log when the Email Router processes email messages. Check the IIS logs for the following error:

Request Filtering: Denied because URL doubled escaping 404.11

Resolution: Run the following command on the Exchange Web site to allow double escaping:

```
%windir%\system32\inetsrv\appcmd set config "Default Web Site" -

section:system.webServer/security/requestfiltering -allowDoubleEscaping:true
```

The Email Router service configuration parameter "EmailUser" is missing

Symptom: When you use the Email Router, you may experience one or more of the following issues:

- An error event is logged in the application log (Event Source: MSCRMEmail) with a description that states "EmailUser" is missing.

- When you use the **Test Access** functionality in the Email Router Configuration Manager, you receive an error message that states "Emailuser" is missing.

This issue occurs because Microsoft Dynamics CRM is not configured to use your credentials to send and receive email messages.

Resolution: For information about how to resolve this issue, see the KB article 947094.

TLS/SSL error from Email Router Configuration Manager test access

Symptom: You run the Email Router to configure access to a mailbox. When you try to test access to the mailbox, you receive the following error message:

"Incoming Status: Failure - The underlying connection was closed: Could not establish trust relationship for the TLS/SSL secure channel. The remote certificate is invalid according to the validation procedure."

This issue occurs if you use self-signed certificates. The Email Router does not support self-signed certificates.

Resolution: For information about how to resolve this issue, see the KB article 954584.

POP3 issues

Error connecting the Email Router with a POP3 mailbox

Symptom: When you click **Test Access** in the Email Router Configuration Manager to test a profile that uses a POP3 mailbox, you receive the following error:

Incoming Status: Failure – An error occurred while executing POP3 command "Command removed for security reasons". The server response was: "-ERR authorization first".

This error occurs because POP3 does not use NTLM authentication. Instead, POP3 uses Basic authentication (clear text).

Resolution: For information about how to resolve this issue, see the KB article 954046.

Issues with using a POP3 email account

Symptom: After you configure the Email Router to use a POP3 email account, you may experience one or more of the following symptoms:

• After you read email messages from the POP3 mailbox, the Email Router does not process these messages.

• When you try to open the POP3 mailbox by using an email reader, or when the Email Router connects to the POP3 mailbox, you receive one of the following error messages:

  • The application cannot connect or open the mailbox.

  • The mailbox is in use.

Resolution: For information about how to resolve this issue, see the KB article 947059.

See Also

Troubleshooting Email Router issues
Email Router installation issues
Outgoing email configuration issues
Test the access for the Email Router
Users do not receive Microsoft Dynamics CRM e-mail messages

Outgoing email configuration issues

Applies To: CRM 2016 on-prem, CRM Online

This section provides troubleshooting guidelines and information about resolving issues that can occur during Email Router outgoing profile configuration.

To troubleshoot an Email Router outgoing configuration profile

1. Make sure that you follow the outgoing configuration profile procedures in the Managing Configuration Profiles topics.

2. For more information about how to configure an outgoing profile, see Configure the Email Router in this guide.

3. See the following sections for information about how to resolve commonly encountered issues with outgoing configuration profiles.

Test Access error

If there is a problem with your outgoing e-mail configuration, you may receive the following error message when you click Test Access on the Email Router Configuration Manager:

"Outgoing status: Failure - An error occurred while checking the connection to e-mail server EXSERVERNAME. The requested address is not valid in its context"

To troubleshoot test access

1. Run a telnet command to verify that connectivity is functioning between the computer that is running the Email Router and the Microsoft Exchange Server. For example, start the Telnet tool and type the following command:

   TELNET EXSERVERNAME PORT

2. Make sure that you have no antivirus services running on the Exchange Server computer that prevent connection through port 25.

Load Data error

When you click **Load Data** in the Email Router Configuration Manager, you receive the following error:

The Email Router Configuration Manager was unable to retrieve user and queue information from the Microsoft Dynamics CRM server. This may indicate that the Microsoft Dynamics CRM server is busy. Verify that URL 'http://OrganizationName' is correct. Additionally, this problem can occur if the specified access credentials are insufficient. To try again, click **Load Data**. (The request failed with HTTP status 404: Not Found.)

To resolve this issue

1. Make sure the user account that is running the Email Router service is a member of the Active Directory directory service **PrivUserGroup** security group.

2. Make sure the account that is specified in the **Access Credentials** field on the **General** tab of the Email Router Configuration Profile dialog box is a Microsoft Dynamics CRM administrative user. If the access credentials are set to **Local System Account**, the computer account must be a member of the Active Directory **PrivUserGroup** security group.

3. Make sure that the URL of the Microsoft Dynamics CRM deployment is spelled correctly. The OrganizationUniqueName part of the URL must be spelled exactly as it appears in the Microsoft Dynamics CRM server. To determine the OrganizationUniqueName, start the Microsoft Dynamics CRM web application as a user who has the System Customizer role.

4. Go to **Settings** > **Customizations**.

5. On the **Customization** page, click **Developer Resources**. The OrganizationUniqueName is displayed below the **Organization Unique Name** label. For more information, see Configure the Email Router.

See Also

Users do not receive Microsoft Dynamics CRM e-mail messages

Applies To: CRM 2016 on-prem, CRM Online

This issue can occur because the service account that the Email Router is running under hasn't been added to the **PrivUserGroup** security group.

☑ Note

Perform the following steps on a computer that is a domain controller in the domain where you installed Microsoft Dynamics CRM Server.

Add the service account to the PrivUserGroup security group

1. Click **Start**, point to **Administrative Tools**, and then click **Active Directory Users and Computers**.

2. Expand the organizational unit (OU) that you selected during Microsoft Dynamics CRM Server Setup. By default, this is the Domain Controllers OU.

3. Right-click **PrivUserGroup**, and then click **Properties**.

4. On the **Members** tab, click **Add**, and then select the computer where the Email Router service is installed and running.

5. Click **OK** two times.

See Also

Test the access for the Email Router

Applies To: CRM 2016 on-prem, CRM Online

The Email Router Configuration Manager can test access for Microsoft Dynamics CRM users, queues, and forward mailboxes. By using the test-access feature, you can troubleshoot issues that can prevent the Email Router from functioning correctly.

Test access error

If there's a problem with your outgoing email configuration, you may receive the following error message when you click **Test Access** on the Email Router Configuration Manager:

"Outgoing status: Failure - An error occurred while checking the connection to e-mail server EXSERVERNAME. The requested address is not valid in its context."

Troubleshoot test access

1. To verify that connectivity is functioning between the computer that is running the Email Router and the Microsoft Exchange Server, start the Telnet tool and type the following command:

    TELNET EXSERVERNAME PORT

2. Make sure that there are no antivirus services or firewall services running on the server that is running Exchange Server that prevent connection through port 25.

Error message when you send an email message by using the CRM web application

In addition, when you send an email message by using the Microsoft Dynamics CRM web application, you may receive an error message that resembles one of the following:

*   This message has not yet been submitted for delivery. 1 attempts have been made so far.

*   The message delivery failed. It must be resubmitted for any further processing.

For more information about the test access feature, see Test Access for Users, Queues, and Forward Mailboxes, as well as the following topics in this guide:

*   "Access credentials" in Configure the Email Router

*   Incoming email configuration issues

*   Outgoing email configuration issues

See Also

Troubleshooting Email Router issues
Planning and installing CRM for Outlook for Microsoft Dynamics CRM 2016 and Dynamics CRM Online

Install Microsoft Dynamics CRM Email Router using a command prompt

Applies To: CRM 2016 on-prem, CRM Online

The Email Router accepts the same command prompt parameters as Microsoft Dynamics CRM Server. To install the Email Router in quiet mode, run the **SetupEmailRouter.exe** command in the **EmailRouter** folder on the installation media, or download location of the Microsoft Dynamics CRM installation files as follows:

```
SetupEmailRouter /Q /CONFIG folderpath\install-config.xml /L c:\temp\log.txt
```

This installation uses an XML configuration file named **install-config.xml** and creates a log file named **log.txt**.

In This Topic

[Email Router XML configuration file](#)

[Sample Microsoft Dynamics CRM Email Router XML configuration file](#)

Email Router XML configuration file

The **/config** [drive:] [[path] configfilename.xml]] command-line parameter provides Microsoft Dynamics CRM Email Router Setup with required information. It is the same information that each Microsoft Dynamics CRM Email Router Setup Wizard screen requires.

◆ **Important**

To use the Email Router after it is installed, you must run the Email Router Configuration Manager to configure it. You cannot configure the Email Router by using an XML configuration file.

The XML elements must be in English (US). An XML configuration file that has localized XML elements will not work correctly.

An explanation of each XML element and a sample XML file follows:

<CRMSetup> </CRMSetup>

   The configuration file must be a valid XML file that uses <**CRMSetup**> as the root element.

<EmailRouter> </ EmailRouter>

   Specifies a Microsoft Dynamics CRM Email Router installation. The <**EmailRouter**> tag must be within the <**CRMSetup**> open and end tags. All the Email Router entries that follow must be within the <**EmailRouter**> tags.

<InstallType>Uninstall/Repair</InstallType>

   Specifies the type of installation that Setup will perform. The following options are available:

   Uninstall

   Uninstalls Microsoft Dynamics CRM Email Router.

   Repair

   Starts Setup in repair mode.

`<Patch update="true"/"false">\\ServerName\ShareName\Patch_Location</Patch>`

If you do not specify a location, by default Setup will go online to a location that is managed by Microsoft to search for available updates. Or, you can point Setup to install a Microsoft Dynamics CRM Email Router Setup update .msp file from a different location, such as an internal share.

update

Specifies whether Setup will look for, download, and apply updates for Microsoft Dynamics CRM Email Router Setup. We recommend that you let Setup download the latest version by selecting **true**. By default, this value is set to **false**. If the value is set to **false**, Setup will ignore this step and continue with the installation.

`<muoptin optin="true"/"false" />`

Specifies whether to use Microsoft Update to download and install updates for the Microsoft Dynamics CRM Email Router. After the installation is completed, this feature helps keep your computer up-to-date on an ongoing basis.

- **True**. When you specify this option, Setup will opt in to Microsoft Update as the update service and use the Windows automatic updating settings on the computer. Windows automatic update settings can be viewed in Windows Update in Control Panel. Microsoft Update helps make sure that your computer has the latest technology, which can help reduce the risk of vulnerabilities and security issues.

- **False**. When you specify this option, Setup won't change the existing Windows automatic update settings. If the computer isn't already configured to use Microsoft Update as the update service, we recommend that you have another method to install updates on the computer, such as by using Windows Update Services. If left blank, a value of **false** will be selected.

`<InstallDir>c:\Program Files\Microsoft CRM Email</InstallDir>`

Specifies the folder where the Email Router will be installed. By default, the Email Router is installed to C:\Program Files\Microsoft CRM Email.

`<Features></Features>`

If a value is not specified, Setup installs the Email Router service and the Email Router Configuration Manager, but does not install the Rule Deployment Wizard.

The following features are available:

`<SinkService />`

Add this entry if you want to install the E-mail Router service and Email Router Configuration Manager.

`<RulesWizard />`

Add this entry if you want to install the Rule Deployment Wizard.

Sample Microsoft Dynamics CRM Email Router XML configuration file

The following configuration-file sample instructs Setup to check a Microsoft Web site for available updates to Email Router Setup and if found, apply them. It opts-in to Microsoft Update and then installs

the Email Router service and Rule Deployment Wizard in the *C:\Program Files\Microsoft Dynamics CRM Email Router* folder:

```
                <

                CRMSetup

                >

<EmailRouter>

<Features>

  <SinkService />

  <RulesWizard />

</Features>

<Patch update="true"></Patch>

<muoptin optin="true" />

<InstallDir>c:\Program Files\Microsoft Dynamics CRM Email Router</InstallDir>

</EmailRouter>

</CRMSetup>
```

See Also

[Set up Email Router](#)
[Email Router](#)

Uninstall, change, or repair Email Router

Applies To: CRM 2016 on-prem, CRM Online

To uninstall, change, or repair Microsoft Dynamics CRM Email Router components, select from the following options. Before selecting an option, you must start **Programs and Features** in Control Panel.

Uninstall. To remove the Email Router follow these steps.

1. On the **Uninstall or change a program** page, click **Microsoft Dynamics CRM E-mail Router** and then click **Uninstall/Change**. The **Microsoft Dynamics CRM E-mail Router Maintenance** wizard starts.

2. Select **Uninstall**, and then click **Uninstall**.

3. After the Email Router components have been uninstalled, click **Finish** on the **Microsoft Dynamics CRM E-mail Router setup completed** page.

Change. To add or remove Email Router or Rule Deployment Wizard, follow these steps.

1. On the **Uninstall or change a program** page, right-click **Microsoft Dynamics CRM E-mail Router** and then click **Uninstall/Change**. The **Microsoft Dynamics CRM E-mail Router Maintenance** wizard starts.

2. Select **Add/Remove Features** and click **Next**.

3. On the **Select Router Components** page, select **Microsoft Dynamics CRM E-mail Router Service** or **Rule Deployment Wizard**, or you can select both items.

 Note

Clearing the **Microsoft Dynamics CRM E-mail Router Service** or **Rule Deployment Wizard** check box does not cause the application to be uninstalled.

4. Click **Next**. Follow the instructions on the screen.

Repair. To reinstall Email Router program files and reconstruct settings, follow these steps.

1. On the **Uninstall or change a program** page, click **Microsoft Dynamics CRM E-mail Router**, and then click **Uninstall/Change**. The Microsoft Dynamics CRM E-mail Router Maintenance wizard starts.

2. Select **Repair** and click **Next**. Follow the instructions on the screen.

 Caution

For on-premises deployment of Microsoft Dynamics CRM, during Microsoft Dynamics CRM Server Setup, the computer where the Email Router is installed is added to the Active Directory PrivUserGroup security group. However, if the Email Router is uninstalled, the computer is not removed from the security group, and therefore has an unnecessary permission. If you uninstall the Email Router and decide not to reinstall it on the same computer, we recommend that you manually remove the computer from the PrivUserGroup security group.

See Also

Set up Email Router
Email Router

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Use Email Router Configuration Manager

Applies To: CRM 2016 on-prem, CRM Online

The Microsoft Dynamics CRM Email Router Configuration Manager is an application that system administrators and value-added resellers can use to configure Email Router deployments. For more information about installing Email Router and using Rule Deployment wizard, see Install Email Router and Rule Deployment Wizard.

◆ Important

To use the Email Router Configuration Manager, you must be a Microsoft Dynamics CRM user who has the CRM System Administrator security role. Additionally, Email Router will only work with Microsoft Dynamics CRM users when **Server-Side Synchronization or Email Router** has been selected as the option in the Synchronization Method setting in the Microsoft Dynamics CRM user's **Mailbox** dialog box.

To start the Email Router Configuration Manager

- On the computer where the Email Router is installed, click **Start**, point to **All Programs**, click **Microsoft Dynamics CRM Email Router**, and then click **Microsoft Dynamics CRM Email Router Configuration Manager**.

  To save a configuration so that it is available the next time you run Email Router Configuration Manager, you must click **Publish**. The configuration information is saved to the Microsoft.Crm.Tools.EmailAgent.Configuration.bin and Microsoft.Crm.Tools.EmailAgent.xml files in the Drive:\Program Files\Microsoft CRM Email\Service\ folder.

✎ Note

To create and manage rule deployments, use the Rule Deployment Wizard. This wizard is installed by Email Router Setup and can be installed on the same computer as the Email Router.

The Email Router Configuration Manager user interface

To configure the Email Router, you must enter information on the following tabs of the Email Router Configuration Manager.

- **Configuration Profiles**. To configure the Email Router, you first create one or more incoming and one or more outgoing configuration profiles. These configuration profiles contain information about the email server and the authentication methods that the Email Router will use to connect to the email server and transfer email messages to and from the Microsoft Dynamics CRM organization. You can create configuration profiles in the **Configuration Profiles** tab in the Email Router Configuration Manager.

- **Deployments**. After you create the configuration profiles that you want, you must define at least one deployment. The information that you enter into the **Deployment** area will be used by the Email Router to connect to your Microsoft Dynamics CRM deployment.

- **Users, Queues, and Forward Mailboxes**. After you have the configuration profiles and deployment established, then you manage the users, queues, and forward mailboxes that will be used by the Email Router to route Microsoft Dynamics CRM email messages. You manage these items on the **Users, Queues, and Forward Mailboxes** tab in the Email Router Configuration Manager.

See Also

Managing Configuration Profiles

Applies To: CRM 2016 on-prem, CRM Online

Configuration profiles contain information about the email server and authentication methods that the Microsoft Dynamics CRM Email Router will use to connect to the server and transfer email messages to and from your Microsoft Dynamics CRM deployment.

You can create and modify configuration profiles on the **Configuration Profiles** tab in the Email Router Configuration Manager.

There are two types of configuration profiles:

- **Incoming**. An incoming configuration profile defines how the Email Router receives email messages that are to be routed to your Microsoft Dynamics CRM organization.

- **Outgoing**. An outgoing configuration profile defines how the Email Router sends email messages that are being routed from your Microsoft Dynamics CRM organization.

You can create multiple incoming and outgoing configuration profiles. For example, you can use multiple incoming configuration profiles to specify different email servers that process incoming email.

◆ Important

A single instance of Email Router with a variety of email profiles is not a certified configuration. For example, do not configure the same instance of Email Router to retrieve emails from an on-premises Exchange Server and Exchange Online. To avoid performance problems, use separate instances of Email Router.

After you create the configuration profiles, you can use them as the default incoming and outgoing method for each user. Alternatively, you can specify different incoming and outgoing information for each user on the **Users, Queues, and Forward Mailboxes** tab.

See Also

Create or Modify an Incoming Configuration Profile (On Premises)

Applies To: CRM 2016 on-prem

📝 Note

This Help topic applies only to users of the on-premises deployment of Microsoft Dynamics CRM. To find comparable information that applies to Microsoft Dynamics CRM Online, see [Create or Modify an Incoming Configuration Profile (Online)](#).

You can create or modify Email Router configuration profiles for incoming email messages.

To create or modify an incoming configuration profile

1. In the Email Router Configuration Manager, click the **Configuration Profiles** tab. To create a new configuration profile, click **New**. To modify an existing configuration profile, select one from the list, and then click **Modify**.

2. On the **General** tab, enter or update the information and observe any noted restrictions or requirements as appropriate in the following locations, and then click **OK**.

   - **Profile Name**. You must enter a name for the configuration profile. It is useful to enter a name that describes the email server type and direction. For example, you might name the profile Exchange Server Incoming.

   - **Direction**. Select **Incoming** to create a new configuration profile for email messages that will be routed to your Microsoft Dynamics CRM organization. After you save the configuration profile, the direction cannot be changed.

   - **Email Server Type**. For an email server that processes incoming email, select one of the following server types:

     - **Exchange 2007**. Select this option if you use Microsoft Exchange Server 2007 for incoming email.

     - **Exchange 2010 or 2013**. Select this option if you use Microsoft Exchange Server 2010 or Microsoft Exchange Server 2013 for incoming email.

     - **Exchange Online**. Select this option if you use Microsoft Exchange Online for incoming email.

     - **POP3**. Select this option if you use a **POP3**-compliant email server for incoming email.

   - **Authentication Type**. Depending on the type of email server that you use to process incoming email, select one of the following authentication types:

- **Windows Authentication**. This is the only authentication type available if you use Microsoft Exchange Server for incoming email.
- **NTLM**. This option is available only if you use a POP3-compliant server for incoming email.
- **Clear Text**. This option is available if you use either a POP3-compliant server or Microsoft Exchange Online for incoming email. For Microsoft Exchange Online, this is the only authentication type available.

◆ **Important**

Clear text authentication transmits unencrypted user names and passwords. If you use clear text authentication, we recommend that you do this only with Transport Layer Security (TLS) or Secure Sockets Layer (SSL). Select **Use SSL** and set the **Network Port** field (on the **Advanced** tab) to a value that is appropriate for your environment. (If you specify Exchange Online, the **Use SSL** option is not available because you can connect to Exchange Online only over an https connection.) Verify your POP3 server requirements with your email administrator.

- **Location**. In the **Email Server** field, enter the complete URL for the incoming email server.
    - For incoming configuration profiles that use Exchange Server, use the http://server.domain.com format.
    - For incoming configuration profiles that use a POP3-compliant server, use the server.domain.com format.
    - For incoming configuration profiles that use Exchange Online, use the Exchange Web Services (EWS) URL format (EWS/exchange.asmx), as illustrated in the following examples:
        - https://autodiscover-red001.mail.microsoftonline.com/ews/exchange.asmx - US Data Center
        - https://autodiscover-red002.mail.emea.microsoftonline.com/ews/exchange.asmx - EMEA Data Center
        - https://autodiscover-red003.mail.apac.microsoftonline.com/ews/exchange.asmx - APAC Data Center
    - **Use Autodiscover**. Select this option to use the Autodiscover service as the way to obtain the Exchange Web Services URL. The Autodiscover option is available only in profiles that use Exchange Web Services (EWS).
- **Access Credentials**. Complete the following fields to configure the authentication method that the Email Router will use to connect to the incoming email server:
    - **Local System Account**. Select this option if you use Exchange Server as the incoming email server and you want to authenticate by using the local system account of the computer where the Email Router is running. This option requires a trust relationship between the computer where the Email Router is running and the computer where the Exchange Server is running.

- **User Specified**. Select this option if you want the Email Router to authenticate by using an individual user account or a mailbox. This option is available in the on-premises and Service Provider editions of Microsoft Dynamics CRM.

 Note

If you select **User Specified** for Access Credentials, each user that this profile serves must specify their access credentials on the **Email** tab in the Dynamics CRM for Outlook or Web application **Set Personal Options** page.

If you select **User Specified** for Access Credentials, for each queue that this profile serves, the queue's access credentials must be added in the corresponding mailbox form.

If you select **User Specified** for Access Credentials, the account specified in the **Deployments** tab to connect to Microsoft Dynamics CRM must be a member of the PrivUserGroup security group.

- **Other Specified**. Select this option if you want the Email Router to authenticate by using the credentials of a specified user. The specified user must have full access to all the mailboxes that the incoming profile will serve. To specify multiple sets of access credentials, you must create a separate configuration profile for each specified user.

 Note

If you select **Other Specified** and you select **POP3** as the incoming email server type, you cannot enter a value in the **User Name** box because the POP3 protocol authenticates by using an email address and not a user name. You must provide the email address password in the **Password** box.

If you select **Other Specified**, you must enter in the **User Name and Password** fields the credentials that the Email Router will use to retrieve email messages from the Exchange Online mailbox to which this profile is mapped. The credentials can be either those of the Exchange Online mailbox, or those of the Exchange Online tenant administrator. Enter the user name in the username@fulldomain format.

3. To save the configuration profile, click **Publish**.

See Also

Configure the Email Router
Managing Configuration Profiles
Create or Modify an Incoming Configuration Profile (Online)
Create or Modify an Outgoing Configuration Profile (On Premises)
Set Advanced Configuration Profile Options

Create or Modify an Incoming Configuration Profile (Online)

Applies To: CRM Online

☑ Note

This Help topic applies only to users of Microsoft Dynamics CRM Online. To find comparable information that applies to the on-premises deployment of Microsoft Dynamics CRM, see Create or Modify an Incoming Configuration Profile (On Premises).

You can create or modify Email Router configuration profiles for incoming email messages.

To create or modify an incoming configuration profile

1. In the Email Router Configuration Manager, click the **Configuration Profiles** tab. To create a new configuration profile, click **New**. To modify an existing configuration profile, select one from the list, and then click **Modify**.

2. On the **General** tab, enter or update the information and observe any noted restrictions or requirements as appropriate in the following locations, and then click **OK**.

    - **Profile Name**. You must enter a name for the configuration profile. It is useful to enter a name that describes the email server type and direction. For example, you might name the profile Exchange Server Incoming.

    - **Direction**. Select **Incoming** to create a new configuration profile for email messages that will be routed to your Microsoft Dynamics CRM organization. After you save the configuration profile, the direction cannot be changed.

    - **Email Server Type**. For an email server that processes incoming email, select one of the following server types:

        - **Exchange 2007**. Select this option if you use Microsoft Exchange Server 2007 for incoming email.

        - **Exchange 2010 or 2013**. Select this option if you use Microsoft Exchange Server 2010 or Microsoft Exchange Server 2013 for incoming email.

        - **Exchange Online**. Select this option if you use Microsoft Exchange Online for incoming email.

        - **POP3**. Select this option if you use a **POP3**-compliant email server for incoming email.

    - **Authentication Type**. Depending on the type of email server that you use to process incoming email, select one of the following authentication types:

        - **Windows Authentication**. This is the only authentication type available if you use Microsoft Exchange Server for incoming email.

        - **NTLM**. This option is available only if you use a POP3-compliant server for incoming email.

- **Clear Text**. This option is available if you use either a POP3-compliant server or Microsoft Exchange Online for incoming email. For Microsoft Exchange Online, this is the only authentication type available.

◆ **Important**

Because clear text authentication transmits user names and passwords without encryption, it is not recommended for use over an unsecured network. We recommend that you contact your email administrator to verify the appropriate authentication type for your environment.

- **Location**. In the **Email Server** or **Exchange Web Services URL** field, enter the complete URL for the incoming email server.
  - For incoming configuration profiles that use Exchange Server, use the http://server.domain.com format.
  - For incoming configuration profiles that use a POP3-compliant server, use the server.domain.com format.
  - For incoming configuration profiles that use Exchange Online, use the Exchange Web Services (EWS) URL format (EWS/exchange.asmx), as illustrated in the following examples:
    - https://autodiscover-red001.mail.microsoftonline.com/ews/exchange.asmx - US Data Center
    - https://autodiscover-red002.mail.emea.microsoftonline.com/ews/exchange.asmx - EMEA Data Center
    - https://autodiscover-red003.mail.apac.microsoftonline.com/ews/exchange.asmx - APAC Data Center
  - **Use Autodiscover**. Select this option to use the Autodiscover service as the way to obtain the Exchange Web Services URL. The Autodiscover option is available only in profiles that use Exchange Web Services (EWS).
- **Access Credentials**. Complete the following fields to configure the authentication method that the Email Router will use to connect to the incoming email server:
  - **Local System Account**. Select this option if you use Exchange Server as the incoming email server and you want to authenticate by using the local system account of the computer where the Email Router is running. This option requires a trust relationship between the computer where the Email Router is running and the computer where the Exchange Server is running.
  - **Other Specified**. Select this option if you want the Email Router to authenticate by using the credentials of a specified user. The specified user must have full access to all the mailboxes that the incoming profile will serve. To specify multiple sets of access credentials, you must create a separate configuration profile for each specified user.

✎ **Note**

If you select **Other Specified** and you select **POP3** as the incoming email server type, you

cannot enter a value in the **User Name** box because the POP3 protocol authenticates by using an email address and not a user name. You must provide the email address password in the **Password** box.

If you select **Other Specified**, you must enter in the **User Name and Password** fields the credentials that the Email Router will use to retrieve email messages from the Exchange Online mailbox to which this profile is mapped. The credentials can be either those of the Exchange Online mailbox, or those of the Exchange Online tenant administrator. Enter the user name in the username@fulldomain format.

3. To save the configuration profile, click **Publish**.

See Also

Managing Configuration Profiles
Create or Modify an Incoming Configuration Profile (On Premises)
Create or Modify an Outgoing Configuration Profile (On Premises)
Create or Modify an Outgoing Configuration Profile (Online)
Set Advanced Configuration Profile Options
Managing Deployments

Create or Modify an Outgoing Configuration Profile (On Premises)

Applies To: CRM 2016 on-prem

 Note

This Help topic applies only to users of the on-premises deployment of Microsoft Dynamics CRM Server. To find comparable information that applies to Microsoft Dynamics CRM Online, see Create or Modify an Outgoing Configuration Profile (Online).

You can create or modify Email Router configuration profiles for outgoing email messages.

To create or modify an outgoing configuration profile

1. In the Email Router Configuration Manager, click the **Configuration Profiles** tab. To create a new configuration profile, click **New**. To modify an existing configuration profile, select one in the list and then click **Modify**.

2. On the **General** tab, enter or update the information and observe any noted restrictions or requirements as appropriate in the following locations, and then click **OK**.

- **Profile Name**. You must enter a name for the configuration profile. It is useful to enter a name that describes the email server type and direction. For example, you might name the profile Exchange Server Outgoing.

- **Direction**. Select **Outgoing** to create a new configuration profile for email messages that will be routed from your Microsoft Dynamics CRM organization to an external recipient. After you save the configuration profile, the direction cannot be changed.

- **Email Server Type**. For an email server that processes outgoing email, select one of the following server types:
  - **SMTP**. Select this option if you use Exchange Server or another SMTP-compliant email server.
  - **Exchange Online**. Select this option if you use Exchange Online.

- **Protocol**. For an Exchange Online email server that processes outgoing email, Exchange Web Services is the only available protocol. For an SMTP email server that processes outgoing email, SMTP is the only available protocol.

- **Authentication Type**. Depending on the type of email server that you use to process outgoing email, select one of the following authentication types:
  - **Windows Authentication**. This option is available only if you select **SMTP** as the outgoing email server type.
  - **Clear Text**. This option is available if you select either **SMTP** or **Microsoft Exchange Online** as your outgoing email server type. For Microsoft Exchange Online, this is the only authentication type available.

  ◆ **Important**

  Clear text authentication transmits unencrypted user names and passwords. If you use clear text authentication, we recommend that you do this only with Transport Layer Security (TLS) or Secure Sockets Layer (SSL). Select **Use SSL** and set the **Network Port** field (on the **Advanced** tab) to a value that is appropriate for your environment. (If you specify Exchange Online, the Use **SSL** option is not available because you can connect to Exchange Online only over an https connection.) Verify your POP3 server requirements with your email administrator.

  - **Anonymous**. This option is available only if you select **SMTP** as your outgoing email server type.

  ◆ **Important**

  Anonymous SMTP authentication is valid only for internal, non-Internet-facing SMTP servers. Many SMTP servers do not support anonymous authentication. To ensure uninterrupted email flow from the Email Router, verify your SMTP server requirements with your email administrator.

- **Location**. In the **Server** field, enter the complete URL for the outgoing email server:

- For outgoing configuration profiles that use SMTP, use the http://server.domain.com format.
- For outgoing configuration profiles that use Exchange Online, use the Exchange Web Services (EWS) URL format (EWS/exchange.asmx), as illustrated in the following examples:
  - https://autodiscover-red001.mail.microsoftonline.com/ews/exchange.asmx - US Data Center
  - https://autodiscover-red002.mail.emea.microsoftonline.com/ews/exchange.asmx - EMEA Data Center
  - https://autodiscover-red003.mail.apac.microsoftonline.com/ews/exchange.asmx - APAC Data Center
- **Use SSL**. Select this check box if you want to require Transport Layer Security (TLS) or Secure Sockets Layer (SSL) for the connection to the outgoing email server.

- **Access Credentials**. Complete the following fields to configure the authentication method that the Email Router will use to connect to the outgoing email server:
  - **Local System Account**. Select this option if you select **SMTP** as the email server type and you want to authenticate by using the local system account of the computer where the Email Router is running. This option requires a trust relationship between the computer where the Email Router is running and the computer where the Exchange Server is running.

  Note

  The **Local System Account** is the only option available if you select **Anonymous** as the authentication type.

  - **User Specified**. Select this option if you want the Email Router to authenticate by using an individual user account or a mailbox. This option is available in the on-premises and Service Provider editions of Microsoft Dynamics CRM.

  Note

  If you select **User Specified** for Access Credentials, each user that this profile serves must specify their access credentials on the **Email** tab in the Dynamics CRM for Outlook or Web application **Set Personal Options** page.

  If you select **User Specified** for Access Credentials, for each queue that this profile serves, the queue's access credentials must be added in the **Configure Credentials for Email Router** section on the **Queue** form.

  If you select **User Specified** for Access Credentials, the account specified in the **Deployments** tab to connect to Microsoft Dynamics CRM must be a member of the PrivUserGroup security group.

  - **Other Specified**. Select this option if you want the Email Router to authenticate by using the credentials of a specified user. The specified user must have full access to all the

mailboxes that the incoming profile will serve. To specify multiple sets of access credentials, you must create a separate configuration profile for each specified user.

Note

If you select **Other Specified**, you must enter in the **User Name and Password** fields the credentials that the Email Router will use to retrieve email messages from the Exchange Online mailbox to which this profile is mapped. The credentials can be either those of the Exchange Online mailbox, or those of the Exchange Online tenant administrator. Enter the user name in the username@fulldomain format.

For processing outgoing email messages for Exchange Online, the credentials specified in the outgoing profile must have "PublishingEditor" permissions (Delegate Access) on the Exchange Online mailboxes that need to be accessed. The Exchange Online administrator has this permission by default.

- **User Type**. If you select **Exchange Online** as the email server type and **Other Specified** as the access credentials, you must select either **Administrator** or **User** as the user type. Select **Administrator** if you want to use a single set of credentials to process multiple mailboxes, or if you want to provide a different set of email credentials to process individual mailboxes.

Note

If you select **User** as the user type, the Email Router will connect to the mailbox whose credentials consist of the user's email address (used as the **User Name**) and a password taken from the **Password** box.

If you select **Administrator** as the user type, the Email Router can use the specified credentials to connect to any mailbox within the Exchange Online tenant to send email messages. The send method can be either **Delegate Access** or **Send as permission**, depending on which access type that you select.

- **Access Type**. If you select **Exchange Online** as the email server type, **Other Specified** as the access credentials, and **Administrator** as the user type, you must select either **Delegate Access** or **Send as** as the access type.

Note

Delegate Access causes email to be sent as "Send on behalf of" messages.

Send as causes email to be sent as "Send As" messages.

3. To save the configuration profile, click **Publish**.

See Also

Managing Configuration Profiles
Create or Modify an Outgoing Configuration Profile (Online)
Create or Modify an Incoming Configuration Profile (On Premises)

Create or Modify an Outgoing Configuration Profile (Online)

Applies To: CRM Online

☑ Note

This Help topic applies only to users of Microsoft Dynamics CRM Online. To find comparable information that applies to the on-premises deployment of Microsoft Dynamics CRM Server, see Create or Modify an Outgoing Configuration Profile (On Premises).

You can create or modify Email Router configuration profiles for outgoing email messages.

To create or modify an outgoing configuration profile

1. In the Email Router Configuration Manager, click the **Configuration Profiles** tab. To create a new configuration profile, click **New**. To modify an existing deployment, select a configuration profile, select one in the list, and then click **Modify**.

2. On the **General** tab, enter or update the information and observe any noted restrictions or requirements as appropriate in the following locations, and then click **OK**.

   - **Profile Name**. You must enter a name for the configuration profile. It is useful to enter a name that describes the email server type and direction. For example, you might name the profile Exchange Server Outgoing.

   - **Direction**. Select **Outgoing** to create a new configuration profile for email messages that will be routed from your organization to an external recipient. After you save the configuration profile, the direction cannot be changed.

   - **Email Server Type**. For an email server that processes outgoing email, select one of the following server types:
     - **SMTP**. Select this option if you use Microsoft Exchange or another SMTP-compliant email server.
     - **Exchange Online**. Select this option if you use Microsoft Exchange Online for outgoing email.

   - **Protocol**. For an Exchange Online email server that processes outgoing email, Exchange Web Services is the only available protocol. For an SMTP email server that processes outgoing email, SMTP is the only available protocol.

- **Authentication Type**. Depending on the type of email server that you use to process outgoing email, select one of the following authentication types:
  - **Windows Authentication**. This option is available only if you select **SMTP** as the outgoing email server type.
  - **Clear Text**. This option is available if you select either **SMTP** or **Microsoft Exchange Online** as your outgoing email server type. For Microsoft Exchange Online, this is the only authentication type available.

  ◆ **Important**

  Because clear text authentication transmits user names and passwords without encryption, it is not recommended for use over an unsecured network. We recommend that you contact your email administrator to verify the appropriate authentication type for your environment.

  - **Anonymous**. This option is available only if you select **SMTP** as your outgoing email server type.

  ◆ **Important**

  Anonymous SMTP authentication is valid only for internal, non-Internet-facing SMTP servers. Many SMTP servers do not support anonymous authentication. To ensure uninterrupted email flow from the Email Router, verify your SMTP server requirements with your email administrator.

- **Location**. In the **Email Server** or **Exchange Web Services URL** field, enter the complete URL for the outgoing email server:
  - For outgoing configuration profiles that use SMTP, use the http://server.domain.com format.
  - For outgoing configuration profiles that use Exchange Online, use the Exchange Web Services (EWS) URL format (EWS/exchange.asmx), as illustrated in the following examples:
    - https://autodiscover-red001.mail.microsoftonline.com/ews/exchange.asmx - US Data Center
    - https://autodiscover-red002.mail.emea.microsoftonline.com/ews/exchange.asmx - EMEA Data Center
    - https://autodiscover-red003.mail.apac.microsoftonline.com/ews/exchange.asmx - APAC Data Center
  - **Use Autodiscover**. Select this option to use the Autodiscover service as the way to obtain the Exchange Web Services URL. The Autodiscover option is available only in profiles that use Exchange Web Services (EWS).
  - **Use SSL**. Select this check box if you want to require Transport Layer Security (TLS) or Secure Sockets Layer (SSL) for the connection to the outgoing email server.

- **Access Credentials**. Complete the following fields to configure the authentication method that the Email Router will use to connect to the outgoing email server:
  - **Local System Account**. Select this option if you select **SMTP** as the email server type and you want to authenticate by using the local system account of the computer where the Email Router is running. This option requires a trust relationship between the computer where the Email Router is running and the computer where the Exchange Server is running. This is the only option available if you select **Anonymous** as the authentication type.
  - **Other Specified**. Select this option if you want the Email Router to authenticate by using the credentials of a specified user. The specified user must have full access to all the mailboxes that the incoming profile will serve. To specify multiple sets of access credentials, you must create a separate configuration profile for each specified user. If you select **Other Specified**, you must enter in the **User Name and Password** fields the credentials that the Email Router will use to retrieve email messages from the Exchange Online mailbox to which this profile is mapped. The credentials can be either those of the Exchange Online mailbox, or those of the Exchange Online tenant administrator. Enter the user name in the username@fulldomain format.
  - **User Type**. If you select **Exchange Online** as the email server type and **Other Specified** as the access credentials, you must select either **Administrator** or **User** as the user type. Select **Administrator** if you want to use a single set of credentials to process multiple mailboxes, or if you want to provide a different set of email credentials to process individual mailboxes. If you select **User** as the user type, the Email Router will connect to the mailbox whose credentials consist of the user's email address (used as the **User Name**) and a password taken from the **Password** box.If you select **Administrator** as the user type, the Email Router can use the specified credentials to connect to any mailbox within the Exchange Online tenant to send email messages. The send method can be either **Delegate Access** or **Send as permission**, depending on which access type that you select.
  - **Access Type**. If you select **Exchange Online** as the email server type, **Other Specified** as the access credentials, and **Administrator** as the user type, you must select either **Delegate Access or Send As** as the access type. Delegate Access causes email to be sent as "Send on behalf of" messages. This requires the administrator to have delegate access permissions over the Exchange Online mailbox to which the Email Router is connecting. If the administrator does not have those permissions, the Email Router will try to grant the delegate access permissions to the administrator before processing email messages. The **Send As** access type causes email to be sent as "Send As" messages. This requires the administrator to have "Send As" permissions over the Exchange Online mailbox to which the Email Router is connecting.

3. To save the configuration profile, click **Publish**.

See Also
Managing Configuration Profiles
Create or Modify an Incoming Configuration Profile (On Premises)

Set Advanced Configuration Profile Options

Applies To: CRM 2016 on-prem, CRM Online

When you create or modify a configuration profile, you can set advanced options on the **Advanced** tab of the Email Router Configuration Profile dialog box.

To set advanced configuration profile options

1. In the Email Router Configuration Manager, click the **Configuration Profiles** tab, and then either click **New** to create a new configuration profile, or click **Modify** to edit an existing configuration profile in the list.

2. If this is a new configuration file, on the **General** tab, type the information for each field.

3. Click the **Advanced** tab, and then type information or observe any noted restrictions or requirements as needed in the following locations. When you are finished entering information, click **OK**.

   a. **Network Port**. Enter the TCP port number that will be used by the Email Router to connect to the email server. By default, the Email Router uses port 80 for Exchange Server incoming configuration profiles, port 110 for POP3 incoming configuration profiles, and port 25 for outgoing configuration profiles.

   b. **Connection Timeout**. Enter the number of seconds that will transpire before the Email Router stops trying to connect to the email server. The default value is 300 seconds.

   c. **Maximum Messages Per Cycle**. Enter the maximum number of messages the Email Router will try to process for each connection cycle. The default value for processing outgoing messages is 100 messages per cycle. The default value for processing incoming messages is 1000 messages per cycle.

   d. **Polling Period**. Enter the number of seconds that the Email Router will wait before checking for new email messages. The default value is 60 seconds.

   e. **Message Expiration**. Enter the number of seconds that will transpire before the Email Router marks the message as expired. Expired email messages will not be processed. This setting is available for incoming configuration profiles only. The default value is 86400 seconds or 24 hours.

4. To save the profile, click **OK**.

See Also

Remove a Configuration Profile

Applies To: CRM 2016 on-prem, CRM Online

When you remove a configuration profile, the Email Router will no longer process email messages for the incoming or outgoing profile that is removed.

⿻ Note

You cannot remove an incoming or outgoing profile that is referenced by a deployment. Before you can remove the configuration profile, you must go to the **Deployments** tab, select the deployment that is referenced by a configuration profile, and then either modify the deployment so that it no longer uses the configuration profile, or remove the deployment.

To remove a configuration profile

1. On the **Configuration Profiles** tab, select the configuration profile that you want to remove, and then click **Remove**.

2. To confirm that you want to remove the configuration profile, click **Yes**.

See Also

Managing Deployments

Applies To: CRM 2016 on-prem, CRM Online

On the **Deployments** tab, you specify information about one or more instances of Microsoft Dynamics CRM Online or Microsoft Dynamics CRM Server (on-premises) deployments. This information includes

the type and location of Microsoft Dynamics CRM that the Microsoft Dynamics CRM Email Router will connect to. Additionally, you can specify the default incoming and outgoing configuration profiles for the Email Router. If you have more than one instance of Microsoft Dynamics CRM Online, Microsoft Dynamics CRM Server (on-premises) or email server, you can create multiple deployments.

See Also

Use Email Router Configuration Manager
Create or modify a Deployment (On-premises)
Create or modify a Deployment (Online)
Disable or Enable a Deployment
Remove a Deployment
Managing Configuration Profiles

Create or modify a Deployment (On-premises)

Applies To: CRM 2016 on-prem

📝 Note

This Help topic applies only to users of the on-premises deployment of Microsoft Dynamics CRM. To find comparable information that applies to Microsoft Dynamics CRM Online, see Create or modify a Deployment (Online).

You can create or modify the deployment configuration information that the Email Router will use to connect to a Microsoft Dynamics CRM Server deployment.

To create or modify deployment information

1. Click the **Deployments** tab, and then click **New** to create a new deployment configuration. To modify an existing deployment configuration, select a deployment in the list, and then click **Modify**.

2. On the **Deployments** tab, enter information or observe any noted restrictions or requirements as needed in the following locations, and then click **OK**.

   - **Deployment**. You must select the type of Microsoft Dynamics CRM system that the Email Router will connect to. The following options are available.

     - **My company**. Select this option if the deployment of Microsoft Dynamics CRM is deployed at your company.

     - **An online service provider**. Select this option if the deployment that the Email Router will connect to is an online service provider deployment of Microsoft Dynamics CRM.

   - **Microsoft Dynamics CRM Server**. Type the URL of the Microsoft Dynamics CRM Server.

- If you are connecting to an on-premises version at your company, the format is similar to *http://myCRMServer:5555/OrganizationUniqueName*.

- If you are connecting to a service provider deployment, contact your service provider to obtain the correct URL. For more information, see the documentation that is available from the [Microsoft Download Center](#).

  ◆ **Important**

  Make sure that the URL of the Microsoft Dynamics CRM deployment is spelled correctly. The OrganizationUniqueName part of the URL must be spelled exactly as it appears in the Microsoft Dynamics CRM server. To determine the OrganizationUniqueName, start the Microsoft Dynamics CRM web application as a user who has the System Customizer role. Click **Settings**, and then click **Customizations**. On the **Customization** page, click **Developer Resources**. The OrganizationUniqueName is displayed below the **Organization Unique Name** label.

  If you have installed Microsoft Dynamics CRM Server roles on separate computers, you must enter the URL of the computer that is running the Discovery Web Service server role.

- **Access Credentials**. If you select **My company** in Deployment options, you can choose either **Local System Account** or **Other Specified**.

  📝 **Note**

  If you select **Local System Account**, either the Email Router must be installed on the same server as the Microsoft Dynamics CRM Server, or the Email Router computer must be added to the Active Directory PrivUserGroup security group. This computer will already be a member of the PrivUserGroup security group if you specified the Email Router computer during Microsoft Dynamics CRM Server Setup.

  If you select **Other Specified** in Access Credentials, the Email Router will use the credentials that you enter in the **User Name** and **Password** boxes.

  If you select **An online service provider** in Deployment options, the **Other Specified** option is required.

- **Default configuration profiles**. In this area you can select the default incoming and outgoing configuration profiles.

  These configuration profiles will automatically be applied to users and queues. Incoming and outgoing configuration profiles are created on the **Configuration Profiles** tab.

  If you do not select an incoming or outgoing default configuration profile, you must select an incoming and outgoing profile for each user. You can set individual configuration profiles on the **Users, Queues, and Forward Mailboxes** tab.

3. To save the deployment configuration information, click **Publish**.

See Also

[Managing Deployments](#)
[Create or modify a Deployment (Online)](#)

Create or modify a Deployment (Online)

Applies To: CRM Online

 Note

This Help topic applies only to users of Microsoft Dynamics CRM Online. To find comparable information that applies to the on-premises deployment of Microsoft Dynamics CRM, see Create or modify a Deployment (On-premises).

You can create or modify the deployment configuration information that the Email Router will use to Microsoft Dynamics CRM Online.

To create or modify deployment information

1. Click the **Deployments** tab, and then click **New** to create a new deployment configuration. To modify an existing deployment configuration, select a deployment in the list, and then click **Modify**.

2. On the **Deployments** tab, enter information or observe any noted restrictions or requirements as needed in the following locations, and then click **OK**.

   - **Deployment**. Select the type of Microsoft Dynamics CRM system that the Email Router will connect to. The following option is available.

      - **Microsoft Dynamics CRM Online**. Select this option to connect the Email Router to an instance of Microsoft Dynamics CRM Online.

      - If your organization uses Microsoft account, enter:

         - https://dev.crm.dynamics.com/<OrganizationName> where OrganizationName is a placeholder for the actual ID of your organization.

      - If your organization uses Microsoft Office 365, enter:

         - https://disco.crm.dynamics.com/<OrganizationName> where OrganizationName is a placeholder for the actual ID of your organization.

         - If your organization uses Microsoft Office 365, make sure that the computer on which the Email Router is installed also has the Microsoft Online Services Sign-In Assistant (MSOSIA) installed on it. Organizations in the Online Service Delivery Platform have dependency on MSOSIA.

            If Microsoft Online Services Sign-In Assistant is already installed, check the registry key SOFTWARE\Microsoft\MSOIdentityCRL and make sure that the TargetDir registry key in MSOIdentityCRL contains msoidcli.dll.

♦ **Important**

Make sure that the URL of the Microsoft Dynamics CRM deployment is spelled correctly. The OrganizationUniqueName part of the URL must be spelled exactly as it appears in the Microsoft Dynamics CRM server. To determine the OrganizationUniqueName, start the Microsoft Dynamics CRM web application as a user who has the System Customizer role. Go to **Settings** > **Customizations**. Click **Developer Resources**. The OrganizationUniqueName is displayed below the Organization Unique Name label.

- **Access Credentials**. Select the credentials that will be used by the Email Router to connect to Microsoft Dynamics CRM. You must select **Other Specified**. The Email Router will use the credentials that you enter in the **User Name** and **Password** boxes.

- **Default configuration profiles**. In this area you can select the default incoming and outgoing configuration profiles.

  These configuration profiles will automatically be applied to users and queues. Incoming and outgoing configuration profiles are created on the **Configuration Profiles** tab.

  If you do not select an incoming or outgoing default configuration profile, you must select an incoming and outgoing profile for each user. You can set individual configuration profiles on the **Users, Queues, and Forward Mailboxes** tab.

3. To save the deployment configuration information, click **Publish**.

See Also

Managing Deployments
Create or modify a Deployment (On-premises)
Disable or Enable a Deployment
Remove a Deployment
Manage Users, Queues, and Forward Mailboxes

Disable or Enable a Deployment

Applies To: CRM 2016 on-prem, CRM Online

When you disable a deployment, the Email Router will no longer route Microsoft Dynamics CRM email messages for the selected deployment.

To disable or enable a deployment

1. On the **Deployments** tab, select the deployment that you want to disable or enable.

2. Click **Disable** to disable the deployment, or click **Enable** to enable the deployment.

See Also

Remove a Deployment

Applies To: CRM 2016 on-prem, CRM Online

When you remove a deployment, the settings for the deployment will be lost and the Email Router will no longer route Microsoft Dynamics CRM email messages for the deployment that is removed.

To remove a deployment

1. On the **Deployments** tab, select the deployment that you want to remove, and then click **Remove**.

2. To confirm that you want to remove the deployment, click **OK**.

See Also

Manage Users, Queues, and Forward Mailboxes

Applies To: CRM 2016 on-prem, CRM Online

On the **Users, Queues, and Forward Mailboxes** tab, you can view, test access, enable, and disable Microsoft Dynamics CRM users, queues, and forward mailboxes. Additionally, you can modify incoming and outgoing configuration profiles for users and queues, and specify or modify settings for a forward mailbox.

To manage users, queues, and forward mailboxes, you must have a connection to Microsoft Dynamics CRM Online or Microsoft Dynamics CRM Server (on-premises). Although you can use Email Router for email processing, consider using Server-Side Synchronization instead. In addition to email synchronization, Server-Side Synchronization also synchronizes accounts, contacts, and tasks. More information: Server-side synchronization

See Also

Load User, Queue, and Forward Mailbox Data (On Premises)

Applies To: CRM 2016 on-prem, CRM Online

🗒 Note

This Help topic applies only to users of the on-premises deployment of Microsoft Dynamics CRM. To find comparable information that applies to Microsoft Dynamics CRM Online, see Load User, Queue, and Forward Mailbox Data (Online).

The procedure in this section describes how to display data about Microsoft Dynamics CRM users, queues, and forward mailboxes for the purposes of testing and configuring aspects of Email Router functionality. After you load this data by clicking **Load Data**, the Email Router Configuration Manager connects to Microsoft Dynamics CRM and displays a list of users and queues.

To appear in the list, each user or queue must have the following configuration settings on the **Mailbox** or **Queue** form in the Microsoft Dynamics CRM application:

- **Server-Side Synchronization or Email Router** selected as either incoming or outgoing email delivery, or both incoming and outgoing email delivery. By default, Microsoft Dynamics CRM users do not have the this option configured for the user settings.

- A valid email address.

- Email approval.

◆ Important

The primary email address of the user record must be approved by a system administrator. Users with the system administrator security role can approve an email address by clicking **Approve Email** on the user's **Mailbox** form in the Microsoft Dynamics CRM application.

After you have set the configuration profiles and deployments that you want, you can load users, queues, and forward-mailbox information from the Microsoft Dynamics CRM Server.

Load users, queues, and forward-mailbox information

1. On the **Users, Queues, and Forward Mailboxes** tab, select the deployment that you want, and then click **Load Data**. The Microsoft Dynamics CRM user and queue information appears in the list.

2. From the list, you can select an individual user that you want to modify or disable, or you can test access for all items.

To view forward mailbox information, click the **Forward Mailboxes** tab.

Load Data Troubleshooting

If the Email Router Configuration Manager cannot load data, verify the following:

- The URL for the selected deployment is in the form http://myCRMServer:5555/OrganizationUniqueName, where CRMServer:5555 is the name of the computer where Microsoft Dynamics CRM Server is running and port number, and OrganizationUniqueName is the name of the organization that the deployment is connecting to. For more information about determining the OrganizationUniqueName, see Create or modify a Deployment (On-premises).

- When you specify the access credentials for an on-premises deployment of Microsoft Dynamics CRM, the credentials must be in the form Domain\UserName, where Domain is the name of the domain, and UserName is the name of the user account that has the appropriate permissions.

- If at least one user or queue is configured to use a user-specified configuration profile, the computer on which the Email Router runs must be a member of the PrivUserGroup security group in Active Directory. (This computer will already be in the PrivUserGroup security group if you specified the Email Router computer during Microsoft Dynamics CRM Server Setup.)

 Note

After you add the Email Router computer to the PrivUserGroup security group, you might have to wait for a period of time before the Email Router Configuration Manager can load data. If data loading still fails, you might need to reset the IIS services on the Web server on which the Microsoft Dynamics CRM web application is installed. To do this, as an administrator on the Web server, click **Start**, click **Run**, type iisreset in the **Open** box, and then click **OK**.

 Warning

When you restart the IIS services, all sessions connected to your Web server (including Internet, FTP, SMTP, and NNTP) are dropped. Any data held in Web applications is lost. All Internet sites are unavailable until Internet services are restarted. For this reason, you should avoid restarting or stopping your server if possible.

See Also

Load User, Queue, and Forward Mailbox Data (Online)

Applies To: CRM Online

📝 Note

This Help topic applies to users of Microsoft Dynamics CRM Online. To find comparable information that applies to the on-premises deployment of Microsoft Dynamics CRM, see Load User, Queue, and Forward Mailbox Data (On Premises).

The procedure in this section describes how to display data about Microsoft Dynamics CRM users, queues, and forward mailboxes for the purposes of testing and configuring aspects of Email Router functionality. After you load this data by clicking **Load Data**, the Email Router Configuration Manager connects to Microsoft Dynamics CRM and displays a list of users and queues.

To appear in the list, each user or queue must have the following configuration settings on the **Mailbox** or **Queue** form in the Microsoft Dynamics CRM application:

- **Server-Side Synchronization or Email Router** selected as either incoming or outgoing email delivery, or both incoming and outgoing email delivery. By default, Microsoft Dynamics CRM users do not have the this option configured for the user settings.

- A valid email address.

- Email approval.

◆ Important

The primary email address of the user record must be approved by a system administrator. Users with the system administrator security role can approve an email address by clicking **Approve Email** on the user's **Mailbox** form in the Microsoft Dynamics CRM application.

After you have set the configuration profiles and deployments that you want, you can load users, queues, and forward-mailbox information from the instance of Microsoft Dynamics CRM Online.

Load Email Router users, queues, and forward-mailbox information

1. On the **Users, Queues, and Forward Mailboxes** tab, select the deployment that you want, and then click **Load Data**. The Microsoft Dynamics CRM user and queue information appears in the list.

2. From the list, you can select an individual user that you want to modify or disable, or you can test access for all items.

To view forward mailbox information, click the **Forward Mailboxes** tab.

Unable to load Microsoft Dynamics CRM users, queues, and forward-mailbox information

If the Email Router Configuration Manager cannot load data, verify that the URL for the selected deployment is in the form https://dev.crm.dynamics.com/OrganizationUniqueName, where OrganizationUniqueName is the name of the organization that the deployment is connecting to.

Additionally, by default, the Email Router service is configured to run under the Local System account. The Email Router service may be unable to connect to Microsoft Dynamics CRM Online when the following conditions are true:

- The Email Router service is configured to run under the Local System account.

- The Email Router service must pass through and authenticate with an Internet proxy server to connect to Microsoft Dynamics CRM.

To work around this issue, we recommend that you configure the Email Router service to use an Active Directory domain user account. Note that, the user account that you specify must be able to access the Internet through the proxy server.

To configure the Email Router service to use a domain user account

1. On the computer where the Email Router is installed, click **Start**, point to **Administrative Tools**, and then click **Services**.

2. In the services list, right-click **Microsoft CRM Email Router**, and then click **Properties**.

3. On the properties page, click the **Log On** tab, click **This account**, enter or select a user account and password, and then click **OK**.

4. You must restart the Email Router service. To do this, in the services list, right-click **Microsoft CRM Email Router**, and then click **Restart**.

5. Close the Services MMC snap-in.

See Also

Manage Users, Queues, and Forward Mailboxes
Load User, Queue, and Forward Mailbox Data (On Premises)
Disable or Enable a User, Queue, or Forward Mailbox
Specify a Forward Mailbox

Specify a Forward Mailbox

Applies To: CRM 2016 on-prem, CRM Online

The forward mailbox is used as a collection box for email messages that are transferred from each Microsoft Dynamics CRM user's mailbox by a server-side rule. The forward mailbox must be dedicated to the Email Router system, and should not be used as a working mailbox by an individual user.

Before you specify a forward mailbox, you must create or use an existing Exchange Server or POP3 mailbox that can be dedicated to processing email messages that are tracked by Microsoft Dynamics CRM. After you specify the forward mailbox, you can run the Rule Deployment Wizard to deploy the rules that will be used to forward email messages to the forward mailbox.

Note

If you specify a POP3 mailbox as the forward mailbox, you must manually deploy the rules. The Rule Deployment Wizard cannot deploy rules to a POP3 email server. For information about how to deploy rules manually, see Create the rule manually in Outlook.

Specify or modify a forward mailbox

1. Make sure that you have a mailbox to dedicate as the forward mailbox. If you do not, see your messaging server documentation for information about how to create a mailbox. If you select Exchange Server as the incoming email server type, you must log on to the mailbox by using an email client such as Microsoft Office Outlook orOutlook on the web at least once to complete the creation of the mailbox.

2. Click the **Users, Queues, and Forward Mailboxes** tab, and then click **Load Data**.

3. When the list appears, click the **Forward Mailboxes** tab, and then click **New**. To change an existing forward mailbox, click **Modify**.

4. In the **Forward Mailbox** dialog box, complete the following boxes, and then click **OK**:

   - **Name**. Type a name for the forward mailbox. This will be used to display in the Email Router Configuration Manager and the Rule Deployment Wizard.

   - **Email Address**. Type the email address for the forward mailbox, such as forwardmailbox@contoso.com.

   - **Incoming Configuration Profile**. Select the incoming configuration profile to associate with the forward mailbox. You can have multiple forward mailboxes that use different incoming configuration profiles.

Note

To delete email messages in the forward mailbox after they have been processed by the Email Router, select the **Delete messages in forward mailbox after processing** option.

5. Click **Publish**.

6. Stop the Microsoft CRM Email Router service. To do this, on the **Start** menu, type **services.msc**, and then press **ENTER**; or click **Run**, type **services.msc**, and then press **ENTER**. Right-click the Microsoft CRM Email Router service, and then click **Stop**.

7. Restart the Microsoft CRM Email Router service. To do this, in the services list, right-click Microsoft CRM Email Router, and then click **Start**.

8. Click **OK**, and then close the Services application.

See Also

Manage Users, Queues, and Forward Mailboxes
Test Access for Users, Queues, and Forward Mailboxes
Load User, Queue, and Forward Mailbox Data (On Premises)
Load User, Queue, and Forward Mailbox Data (Online)
Test Access for Users, Queues, and Forward Mailboxes

Test Access for Users, Queues, and Forward Mailboxes

Applies To: CRM 2016 on-prem, CRM Online

To help troubleshoot issues that may occur with accessing mailboxes, queues, and user information, the test access feature performs several tests on all users, queues, and forward mailboxes that are displayed in the Users and Queues and Forward Mailboxes lists. If all tests complete successfully, it is a good indication that the Email Router will be able to function correctly. During the test, the Email Router Configuration Manager displays name, incoming, and outgoing SMTP connection information for all potential users, queues, and forward mailboxes that appear in both lists on the Users and Queues and Forward Mailboxes tabs.

Note

Users and queues are not created in the Email Router Configuration Manager. For information about how to create these items, see Manage users and Help & Training: Create or edit a queue.

Users, queues, or forward mailboxes that are disabled in Email Router Configuration Manager are ignored during the test. Test access performs the test on Microsoft Dynamics CRM users and queues that have the following criteria:

- The user has a valid email address configured on the **User** form.
- The user has Email Router configured in the **Email access type - Incoming** list on the User form.

Test access for users and queues

1. On the **Users, Queues, and Forward Mailboxes** tab, click **Load Data**.

2. On the **Users and Queues** tab, click **Test Access**. Alternatively, you can click the **Forward Mailbox** tab, and then click **Test Access**.
   The **Test Access** dialog box appears.

3. View the results of the access test that are displayed in the **Test Access** dialog box. To close the **Test Access** dialog box, click **Close**.

Note

If a large number of items, such as hundreds of users, are tested, the test access process can take several minutes to complete.

4. To cancel the test, click **Close**.

See Also

Manage Users, Queues, and Forward Mailboxes
Modify a User, Queue, or Forward Mailbox
Load User, Queue, and Forward Mailbox Data (On Premises)
Load User, Queue, and Forward Mailbox Data (Online)
Specify a Forward Mailbox
Managing Deployments

Modify a User, Queue, or Forward Mailbox

Applies To: CRM 2016 on-prem, CRM Online
You can modify incoming or outgoing profiles for users or queues, and configuration information for forward mailboxes.

To modify the incoming or outgoing profile for a user or queue

1. Click the **Users, Queues, and Forward Mailboxes** tab, select the deployment that you want in the **Select a CRM Deployment to view users and mailboxes** list, and then click **Load Data**.

2. On the **Users and Queues** tab, select the user that you want to modify, and then click **Modify**.

3. In the **Microsoft Dynamics CRM User / Queue** dialog box, change one or both of the following settings:

- **Incoming Configuration Profile**. Select the incoming configuration profile in the list. For items to appear in the list, you must have at least one incoming configuration profile specified. You specify incoming configuration profiles on the **Configuration Profiles** tab.

- **Outgoing Configuration Profile**. Select the outgoing configuration profile in the list. For items to appear in the list, you must have at least one outgoing configuration profile specified. You specify outgoing configuration profiles on the **Configuration Profiles** tab.

4. Click **OK**.

5. Save the changes, click **Publish**.

To modify the **Name** or **Email address** values for a user or queue, you must start the Microsoft Dynamics CRM web application, and make the change on the **User** or **Queue** form.

To modify the name, email address, or incoming configuration profile for a forward mailbox

1. Click the **Users, Queues, and Forward Mailboxes** tab, select the deployment that you want in the **Select a CRM Deployment to view users, queues, and mailboxes**, and then click **Load Data**.

2. On the **Forward Mailboxes** tab, select the forward mailbox that you want to modify, and then click **Modify**.

3. In the dialog box, you can make changes to the following fields:

- **Name**. Type the name that you want to give the forward mailbox.

- **Email Address**. Type the email address for the mailbox.

- **Incoming Configuration Profile**. Select the incoming configuration profile in the list.

- **Delete messages in forward mailbox after processing**. You can select to delete email messages in the forward mailbox after they have been processed by the Email Router.

 Note

If you do not select this option, email messages must be removed manually when the number of email messages becomes very large and exceeds storage limitations.

4. Click **OK**.

5. Save the changes, click **Publish**.

See Also

Manage Users, Queues, and Forward Mailboxes
Load User, Queue, and Forward Mailbox Data (On Premises)
Load User, Queue, and Forward Mailbox Data (Online)
Disable or Enable a User, Queue, or Forward Mailbox

Disable or Enable a User, Queue, or Forward Mailbox

Applies To: CRM 2016 on-prem, CRM Online

You can disable a user, queue, or forward mailbox. When you disable a user, queue or forward mailbox, the Email Router will no longer process email messages for the item, but the settings for the item will remain intact. Later, you can enable the item again.

To disable or enable a user or a queue

1. Click the **Users, Queues, and Forward Mailboxes** tab, and then click the **Users and Queues** tab.

2. Select the user or queue that you want to disable or enable, and then click **Disable**, or click **Enable**.

 Note

To select multiple items in the list, press **CTRL**, and click each item that you want.

3. Click **Publish**.

4. Stop the Microsoft CRM Email Router service. To do this, on the **Start** menu, type **services.msc**, and then press **ENTER**; or click **Run**, type **services.msc**, and then press **ENTER**. Right-click the Microsoft CRM Email Router service, and then click **Stop**.

5. Restart the Microsoft CRM Email Router service. To do this, in the services list, right-click Microsoft CRM Email Router, and then click **Start**.

6. Click **OK**, and then close the Services application.

To disable or enable a forward mailbox

1. Click the **Users, Queues, and Forward Mailboxes** tab, and then click the **Forward Mailboxes** tab.

2. Select the forward mailbox that you want to disable or enable, and then click **Disable**, or click **Enable**.

 Note

To select multiple items in the list, press **CTRL**, and click each item that you want.

3. Click **Publish**.

4. Stop the Microsoft CRM Email Router service. To do this, on the **Start** menu, type **services.msc**, and then press **ENTER**; or click **Run**, type **services.msc**, and then press **ENTER**. Right-click the Microsoft CRM Email Router service, and then click **Stop**.

5. Restart the Microsoft CRM Email Router service. To do this, in the services list, right-click Microsoft CRM Email Router, and then click **Start**.

6. Click **OK**, and then close the Services application.

See Also

Manage Users, Queues, and Forward Mailboxes
Load User, Queue, and Forward Mailbox Data (On Premises)
Load User, Queue, and Forward Mailbox Data (Online)
Specify a Forward Mailbox
Test Access for Users, Queues, and Forward Mailboxes
Modify a User, Queue, or Forward Mailbox
Managing Deployments

Set up CRM for Outlook

Applies To: CRM 2016 on-prem, CRM Online

If your users run a recent version of Microsoft Outlook, they can use Microsoft Dynamics CRM for Outlook. Dynamics CRM for Outlook makes it easier for your team to work with CRM data in the familiar Outlook environment.

This section covers installing and deploying Dynamics CRM for Outlook.

In This Section

Permissions required for CRM for Outlook tasks

Planning and installing CRM for Outlook for Microsoft Dynamics CRM 2016 and Dynamics CRM Online

Uninstall or repair Microsoft Dynamics CRM for Outlook

Configure synchronization for appointments, contacts, and tasks

Install Microsoft Dynamics CRM for Outlook using a command prompt

Microsoft Dynamics CRM for Outlook failure recovery

Control field synchronization between CRM and Outlook or Exchange

What fields can be synchronized between CRM and CRM for Outlook?

How field security affects synchronization between CRM and CRM for Outlook

Troubleshooting and things to know about Microsoft Dynamics CRM for Outlook

Privacy notices

To use Microsoft Dynamics CRM for Outlook, you are required to sign in by using your credentials (an email address and password). You may choose to save this information locally so that you are not prompted for your credentials each time you open Outlook. If you do choose to save this information locally, CRM for Outlook will automatically connect to Microsoft Dynamics CRM Online every time you open Outlook.

After the first time you sign in and use CRM for Outlook, the connection between your computer and CRM Online will always be open when you have access to the Internet. You may choose to turn off the connection between your computer and CRM only by using a configuration setting, but if you do turn off the connection, CRM for Outlook may exhibit decreased performance.

If you use CRM for Outlook to track email, the email thread will be visible to users in your organization who have permission to view it.

For every email you receive, CRM for Outlook will send CRM Online the sender's email address, the recipient's email address, and the subject line of the message. This allows CRM Online to validate whether or not a particular mail should be stored by the CRM Online service. When you track an item, a copy of that item will be maintained by the CRM service and will be visible to other users in your organization who have the appropriate permissions. When you untrack an item, that copy is automatically deleted from CRM Online only if you own the item.

If you use Microsoft Dynamics CRM for Outlook, when you go offline, a copy of the data you are working on is created and stored on your local computer. The data is transferred from CRM Online to your computer by using a secure connection, and a link is maintained between the local copy and CRM Online. The next time you sign in to CRM Online, the local data will be synchronized with CRM Online.

An administrator determines whether or not an organization's users are permitted to go offline with Microsoft Dynamics CRM for Outlook by using security roles.

Users and administrators can configure which entities are downloaded via Offline Sync by using the **Sync Filters** setting in the **Options** dialog box. Alternatively, users and Administrators can configure which fields are downloaded (and uploaded) by using **Advanced Options** in the **Sync Filters** dialog box.

If you use Microsoft Dynamics CRM Online, when you use the Sync to Outlook feature, the CRM data you are syncing is "exported" to Outlook. A link is maintained between the information in Outlook and the information in CRM Online to ensure that the information remains current between the two. Outlook Sync downloads only the relevant CRM record IDs to use when a user attempts to track and set regarding an Outlook item. The company data is not stored on the device.

An administrator determines whether your organization's users are permitted to sync CRM data to Outlook by using security roles.

Permissions required for CRM for Outlook tasks

Applies To: CRM 2016 on-prem, CRM Online

The following table shows the default security roles required to perform Dynamics CRM for Outlook tasks, and whether the task can be performed while using Dynamics CRM for Outlook offline.

Dynamics CRM for Outlook Tasks	Default Security Roles and Required Privileges	Can Task Be Done Offline?
Go Offline	Security roles: Any Privileges: Go Offline	Yes
Set synchronization options Microsoft Dynamics CRM to Outlook	Security roles: Any Privileges: Sync to Outlook	Yes
Set local data synchronization options	Security roles: Any Privileges: Go Offline	Yes
Synchronize Microsoft Dynamics CRM to Outlook	Security roles: Any Privileges: Sync to Outlook	Yes
Save and link Outlook tasks and appointments in Microsoft Dynamics CRM	Security roles: Any Privileges: For the record type: Write, Append To	Yes
Save and link Outlook contacts in Microsoft Dynamics CRM	Security roles: Any Privileges: Contact record type: Write, Append To	Yes
Remove tracking in Microsoft Dynamics CRM from a record	Security roles: Any Privileges: Contact record type: Write, Append To For the record type: Write, Append To	Yes

See Also

Set up CRM for Outlook

Planning and installing CRM for Outlook for Microsoft Dynamics CRM 2016 and Dynamics CRM Online

Applies To: CRM 2016 on-prem, CRM Online

Microsoft Dynamics CRM for Outlook enables access to the same data through Microsoft Outlook as the Microsoft Dynamics CRM Web client. Dynamics CRM for Outlook is for Microsoft Dynamics CRM users who need access to CRM data while they are using the familiar Outlook application.

◆ Important

Before you and your users install Dynamics CRM for Outlook, be sure to have completed your desired customizations. In particular, for best performance, you should ensure that you enable only the minimum required entities and views for offline use in Dynamics CRM for Outlook. For more information about customization, see the Customize your CRM system. For more information about setting up entities for synchronization, see Create and edit entities.

Installing Dynamics CRM for Outlook using System Center Operations Manager isn't supported.

🛡 Security Note

After you install Dynamics CRM for Outlook, you have to set some options so that users can send and receive email from Dynamics CRM for Outlook and to specify what data is synchronized.

Users who log on locally to a device that has Microsoft Dynamics CRM for Outlook installed can potentially access CRM data stored locally. Shared use of a device running Dynamics CRM for Outlook is not supported.

More information:

Help & Training: Set personal options that affect tracking and synchronization between CRM and Outlook or Exchange

Help & Training: Set address book options in Microsoft Dynamics CRM for Outlook

For upgrade information, see Upgrade to Microsoft Dynamics CRM 2016 for Outlook.

To download and install Dynamics CRM for Outlook, see Bookmark link 'BKMK_Task1_Install_CRMForOutlook' is broken in topic '{"project_id":"d1ee8af7-0e8f-4e94-9793-0d06bbfa9b16","entity_id":"7e846aff-e472-4a3a-810d-de2aea0817f0","entity_type":"Article","locale":"en-US"}'. Rebuilding the topic '{"project_id":"d1ee8af7-0e8f-4e94-9793-0d06bbfa9b16","entity_id":"7e846aff-e472-4a3a-810d-de2aea0817f0","entity_type":"Article","locale":"en-US"}' may solve the problem..

After you install and configure Dynamics CRM for Outlook, an individual user can use it to access Microsoft Dynamics CRM data. If a computer is shared by several users (that is, each user has a separate logon account and is a valid Microsoft Dynamics CRM user), you must configure Dynamics CRM for Outlook by running Dynamics CRM for Outlook configuration for each user.

📝 Note

We do not guarantee synchronization will work as expected if Cached Exchange Mode is turned off in

Microsoft Outlook. For example, sometimes, tracking email from the Outlook Search folder gives an error when Cached Exchange Mode is off when you set up your Exchange email account in Outlook. The best practice is to turn on Cached Exchange Mode when you set up your Exchange email account in Outlook. More information: Turn on Cached Exchange Mode

To install or upgrade Dynamics CRM for Outlook, you must have administrator permissions on the computer where you perform the installation or upgrade steps. The exception to this is when you install an update from Microsoft Update, in which case administrator privileges are not required. You can install Dynamics CRM for Outlook with offline capability. A user who has this capability installed can access Microsoft Dynamics CRM data when they are not connected to the LAN. You can add offline capability at either of the following times:

- During installation of Dynamics CRM for Outlook.

- After installation has completed. In this case, a user can add offline capability by clicking **Go Offline** in Microsoft Outlook. This starts the installation of additional required components and stores a copy of the user's Microsoft Dynamics CRM data locally. Subsequent offline sessions require no additional installations, but may require updating the local copy of the user's data.

 Note

Although multiple users can share a computer that uses Dynamics CRM for Outlook, go offline capability is not supported in a shared computer environment, such as when you use remote desktop services (formerly Terminal Services).

Using Folder Redirection with offline files is not supported for Dynamics CRM for Outlook. If the CRM data is stored with redirected offline files, users may be unable to use Dynamics CRM for Outlook.

See Also
Set up CRM for Outlook

Upgrade to Microsoft Dynamics CRM 2016 for Outlook

Applies To: CRM 2016 on-prem, CRM Online

There are three steps to follow for a smooth upgrade to Microsoft Dynamics CRM 2016 for Outlook.

1. Upgrade all Dynamics CRM for Outlook to Microsoft Dynamics CRM 2015 for Outlook.

2. Upgrade your CRM server to Microsoft Dynamics CRM 2016 – for on-premises editions.

3. Upgrade Dynamics CRM 2015 for Outlook to Dynamics CRM 2016 for Outlook.

In this topic

Microsoft Dynamics CRM for Outlook upgrade requirements

Requirement	Description
Understand Dynamics CRM 2016 for Outlook compatibility requirements	Dynamics CRM 2016 for Outlook has a variety of software dependencies that must be understood and adhered to for a successful upgrade. For a current and historical view of these dependencies, see CRM for Outlook support
Use a PC that has sufficient hardware	For the best performance when you run Dynamics CRM 2016 for Outlook, make sure your PC is running 64-bit Windows and 64-bit Microsoft Office and has sufficient hard disk and RAM. More information: Microsoft Dynamics CRM for Outlook hardware requirements
Verify that you have appropriate permission	To install or upgrade Dynamics CRM for Outlook, you must have local administrator permission on the computer where you perform the installation or upgrade.
Verify base language	To upgrade Dynamics CRM for Outlook, the base language of Dynamics CRM 2016 for Outlook must match the base language of Dynamics CRM 2015 for Outlook.
Verify Dynamics CRM 2015 for Outlook is in online mode	You cannot upgrade Dynamics CRM 2015 for Outlook when it is in **Go offline** mode. You must bring Dynamics CRM 2015 for Outlook online before you can upgrade to Dynamics CRM 2016 for Outlook. To check, in Outlook: click **File** > **CRM** and verify the tile says **Go Offline**.

Task 1: Upgrade CRM 2015 for Outlook to CRM 2016 for Outlook

Follow this procedure to upgrade to Dynamics CRM 2016 for Outlook on a computer that has Dynamics CRM 2015 for Outlook installed.

1. Log on to the computer as a user who has local Administrators group permissions.
2. Best practice: Make sure that all Microsoft Office security updates are installed. To verify, visit [Microsoft Update](#).
3. Locate and run the appropriate installation file:
   - To install from a DVD, double-click **SetupClient.exe** in the installation folder for the architecture (32-bit or 64-bit) of Microsoft Office that you've installed:
     - ... \Client\amd64 for 64-bit
     - ... \Client\i386 for 32-bit
   - To install from the web, open the [Microsoft Dynamics CRM 2015 for Outlook (Outlook Client)](#) download page and then download and run the installation package.
   - To install from the Microsoft Dynamics CRM user interface, click **Get CRM for Outlook** on the message bar. If you see any dialog boxes titled **Security Warning**, click **Run** in each.

   The **Microsoft Dynamics CRM 2016 for Outlook Setup** wizard starts.
4. On the **License Agreement** page, review the information. If you accept the license agreement, select **I accept the license agreement**, and then click **Next**.
5. On the **Upgrade** page, click **Upgrade Now**.
6. Setup stores your configuration information, installs the program features, and displays a progress indicator. Your configuration information is reapplied in the new installation.
7. On the completion page of the **Microsoft Dynamics CRM 2016 for Outlook Setup** wizard, click **Close**.

Task 2: Configure CRM 2016 for Outlook

After the upgrade from Dynamics CRM 2015 for Outlook, Dynamics CRM for Outlook attempts to use the configuration information that was used by Dynamics CRM 2015 for Outlook.

When your restart Outlook after the upgrade of Dynamics CRM for Outlook, you will know that reconfiguration is necessary if the Configuration Wizard automatically starts.

If you don't want to configure Dynamics CRM for Outlook immediately after you install it, click **Cancel** on the **Configure Organization** page of the wizard. A **Configure Microsoft Dynamics CRM for Outlook** button then appears on the Outlook toolbar and remains there until you configure Dynamics CRM for Outlook.

If the Configuration Wizard doesn't start automatically, you can start it as described in the following procedure.

To configure Microsoft Dynamics CRM for Outlook

1. Start the Configuration Wizard: On the Start screen, click **Configuration Wizard** or on earlier versions of Windows click **Start** > **All Programs** > **Microsoft Dynamics CRM 2016** > **Configuration Wizard**. Alternatively, click **Configure Dynamics CRM for Outlook** on the **CRM** tab in Outlook.

2. Click **Delete** or **Add** to remove or add a CRM organization.

3. To add an organization, choose the option appropriate for you.

   - To connect to a Microsoft Dynamics CRM Online organization, choose **CRM Online** from the drop-down menu.

   - To connect to an on-premises deployment of CRM 2016, type the discovery-service URL for Microsoft Dynamics CRM in the format https://orgname.contoso.com for Internet-facing deployments (IFD) or http://crmserver:5555 for internal deployments. Contact your system administrator for the correct URL.

4. Click **Connect**.

   If you are prompted for credentials, select from the following options.

   - For a Microsoft Dynamics CRM Online organization, enter your Microsoft Online Services user name and password, and then click **OK**. This information should have been sent to you in email when your account was added.

   - For an on-premises deployment of CRM 2016, you may not be prompted because Microsoft Dynamics CRM will use your Active Directory domain credentials.

5. Click **Close**.

6. If you are a member of more than one organization, restart the Configuration Wizard to designate a different organization as your current organization.

Silent installation and configuration

You use the command prompt to install and configure Dynamics CRM 2016 for Outlook. More information: Install Microsoft Dynamics CRM for Outlook using a command prompt

Cross-architecture upgrade of Microsoft Dynamics CRM for Outlook

If you intend to change to a different architecture (move from 32-bit to 64-bit) while upgrading, note the following:

- In-place cross-architecture upgrade is not supported. If you are running Dynamics CRM 2015 for Outlook 32-bit, you can perform an in-place upgrade only to 32-bit Dynamics CRM 2016 for Outlook. This also applies to Microsoft Office: If you are running and intend to retain a 32-bit version of Microsoft Office, you can upgrade only to 32-bit Dynamics CRM 2016 for Outlook.

- **Cross-architecture upgrade requires uninstalling and reinstalling**. If you have a 64-bit PC running a 64-bit version of Microsoft Windows, you can change from 32-bit to 64-bit Dynamics CRM 2016 for Outlook by performing the following steps in the order listed.

   a. Make sure that your PC has a 64-bit version of Windows. How to determine whether a computer is running a 32-bit version or 64-bit version of the Windows operating system.

   b. Uninstall Dynamics CRM 2015 for Outlook.

c. Uninstall Microsoft Office.

d. Install a 64-bit edition of Microsoft Office.

e. Install the 64-bit edition of Dynamics CRM 2016 for Outlook.

For more information about installing Dynamics CRM 2016 for Outlook, see Install CRM for Outlook.

See Also

Planning and installing CRM for Outlook for Microsoft Dynamics CRM 2016 and Dynamics CRM Online

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Install CRM for Outlook

Applies To: CRM 2016 on-prem, CRM Online

To set up Microsoft Dynamics CRM for Outlook on a user's computer, you need to install the software, and then configure it. This topic describes how to set up and configure Dynamics CRM for Outlook, and also how to enable multi-factor authentication (MFA) through OAuth. Using MFA can help make client authentication more secure, especially for mobile users.

For information about installing Dynamics CRM for Outlook at a command prompt (silent installation), see Install Microsoft Dynamics CRM for Outlook using a command prompt.

◆ **Important**

- You can't install Dynamics CRM for Outlook on a computer running Microsoft Exchange Server.

- We don't support installing Dynamics CRM for Outlook by using System Center Configuration Manager.

In This Topic

Install Dynamics CRM for Outlook
Configure Dynamics CRM for Outlook
Enable multi-factor authentication through OAuth

Install Dynamics CRM for Outlook

You can add offline capability for the user either during this installation or at a later time.

1. Meet the Dynamics CRM for Outlook requirements specified in Microsoft Dynamics CRM for Outlook hardware requirements and CRM for Outlook support.

2. Log on to the computer as a local administrator.

3. Make sure that the latest Microsoft Office updates are installed, including all security updates. To verify, visit Microsoft Update.

4. Locate and run the appropriate installation file by choosing one of the following methods:

   - To install from the web, go to Microsoft Dynamics CRM 2016 for Microsoft Office Outlook (Outlook Client), and then download and run the executable file that matches the installed Microsoft Office architecture.

   - To install from a DVD, double-click **SetupClient.exe** in the installation folder for the architecture (32-bit or 64-bit) of Microsoft Office that you've installed:

     - ... \Client\amd64 for 64-bit

     - ... \Client\i386 for 32-bit

   - To install from the Microsoft Dynamics CRM web application:

     i. Click the **Settings** button , and then click **Apps for Dynamics CRM**.

     ii. On the **Apps for Dynamics CRM** page, click **Download from Microsoft Download Center**.

     iii. If you see any dialog boxes titled **Security Warning**, click **Run** in each.

   The **Microsoft Dynamics CRM 2016 for Microsoft Office Outlook Setup** wizard starts.

5. On the **License Agreement** page, review the information. If you accept the license agreement, select **I accept the license agreement**, and then click **Next**.

6. If the **Get Recommended Updates** page appears, indicate whether you want to obtain updates through the Microsoft Update program, and then click **Next**.

 Note

Microsoft releases improvements to Dynamics CRM for Outlook as software updates. If you click **Get Recommended Updates**, those updates will be installed automatically. The exact level of automation, for example, whether any user interaction is required during the installation, is determined by the group policy of your organization.

7. Click **Install Now** or **Options**.

   - To install Dynamics CRM for Outlook with offline capability, click **Options**, select **Offline Capability** on the **Customize Installation** page, and then click **Install Now**. Although offline capability lets you run Microsoft Dynamics CRM without a network or Internet connection, it does require the installation of additional technologies and places more demand on your computer's processor and memory. For more information about the minimum recommended requirements, see Microsoft Dynamics CRM for Outlook hardware requirements.

   - To install Dynamics CRM for Outlook without offline capability, click **Install Now**.

◆ Important

If you don't install offline capability at this point, the user will initially have no offline capability. If you
click **Install Now**, the Outlook user can add offline capability later by clicking **Go Offline** in Outlook.

The program features are installed and a progress indicator is displayed. You may be asked to
restart your computer to complete the installation.

8. On the completion page of the **Microsoft Dynamics CRM 2016 for Microsoft Office Outlook
Setup** wizard, click **Close**.

Configure Dynamics CRM for Outlook

After Dynamics CRM for Outlook is installed, it must be configured. When you restart Outlook after
you've installed Dynamics CRM for Outlook, the configuration wizard starts automatically.

☑ Note

If you don't want to configure Dynamics CRM for Outlook immediately after you install it, click **Cancel**. A
Configure Microsoft Dynamics CRM for Outlook button then appears on the Outlook toolbar and will
remain there until you configure Dynamics CRM for Outlook.

If the wizard doesn't start automatically, you can start it as follows: On the Start screen, click
Configuration Wizard or on earlier versions of Windows click **Start** > **All Programs** > **Microsoft
Dynamics CRM 2016**, and then click **Configuration Wizard**. Alternatively, click **Configure Microsoft
Dynamics CRM for Outlook** on the **CRM** tab in Outlook.

If you encounter an issue configuring Dynamics CRM for Outlook with your CRM Online organization,
use the Microsoft Dynamics CRM for Outlook Configuration Diagnostic to fix the issue. You'll need to
sign in to the diagnostics tool with your CRM Online credentials.

1. To add an organization, choose one of the following:

   - To connect to a Microsoft Dynamics CRM Online organization, choose **CRM Online** from the
     drop-down list.

   - To connect to an on-premises deployment of Microsoft Dynamics CRM, type the discovery-
     service URL for Microsoft Dynamics CRM in the format https://orgname.contoso.com for
     Internet-facing deployment (IFD) or http://crmserver:5555 for internal deployments.

2. Click **Connect**.

   If you are prompted for credentials, select from the following options.

   - For a Microsoft Dynamics CRM Online organization, enter your Microsoft Online Services user
     name and password, and then click **OK**. This information should have been sent to you in email
     when your account was added.

- For an on-premises deployment of Microsoft Dynamics CRM, you may not be prompted because Microsoft Dynamics CRM will use your Active Directory domain credentials.

3. Click **Close**.

4. If you're a member of more than one organization, restart the Configuration Wizard to designate a different organization as your current organization.

Enable multi-factor authentication through OAuth

In the Microsoft Dynamics CRM for Outlook Configuration Wizard, System Administrators can enable multi-factor authentication through the OAuth 2.0 Framework. OAuth 2.0 is an open framework for authorization that lets users provide access tokens, instead of credentials, to access data hosted by a given service provider (such as CRM). Using MFA can help make client authentication more secure, especially for mobile users. CRM Online and on-premises versions of Microsoft Dynamics CRM 2016 can take advantage of MFA; Microsoft Dynamics CRM 2016 on-premises requires at least Windows Server 2012 R2. CRM Online automatically uses OAuth.

If you have upgraded your authentication server to use OAuth **prior** to installing Dynamics CRM 2016 for Outlook, Dynamics CRM 2016 for Outlook will automatically check for and use OAuth for MFA. Users will see the OAuth sign-in form the first time they use Dynamics CRM 2016 for Outlook.

If you upgrade your authentication server to use OAuth **after** rolling out Dynamics CRM 2016 for Outlook, you have two options to set Dynamics CRM 2016 for Outlook to use OAuth.

1. Reconfigure Dynamics CRM for Outlook on all computers. Run the Microsoft Dynamics CRM for Outlook Configuration Wizard and remove and re-add your organization.

   -- OR --

2. Use Group Policy to update the following registration key:

   `HKEY_CURRENT_USER\Software\Microsoft\MSCRMClient\{orgid}.`

   Set `AuthenticationProvider` to 0

   After the registry change, Dynamics CRM 2016 for Outlook will automatically check for and use OAuth for MFA.

See Also

Planning and installing CRM for Outlook for Microsoft Dynamics CRM 2016 and Dynamics CRM Online
CRM Blog: Microsoft Dynamics CRM for Outlook Configuration Diagnostic
Deploy Microsoft Dynamics CRM for Outlook by using Group Policy

Advanced deployment options for Microsoft Dynamics CRM for Outlook

Applies To: CRM 2016 on-prem, CRM Online

This section describes advanced deployment options that can be used for a large scale deployment of Microsoft Dynamics CRM 2016 for Outlook.

In This Section

See Also

Deploy Microsoft Dynamics CRM for Outlook by using Group Policy

Applies To: CRM 2016 on-prem, CRM Online

Group Policy provides an infrastructure for centralized configuration management of the operating system and applications, such as Microsoft Dynamics CRM for Outlook, that run on the operating system. The Group Policy settings you create are contained in a Group Policy Object (GPO). To create and edit a GPO, use the Group Policy Management Console (GPMC). By using the GPMC to link a GPO to selected Active Directory sites, domains, and organizational units (OUs), you apply the policy settings in the GPO to the users and computers in those Active Directory objects. More information: [TechNet: Group Policy Overview](#)

Using Group Policy, you can deploy Dynamics CRM for Outlook. This topic shows you how to perform a Group Policy-based software deployment that publishes Dynamics CRM for Outlook making it available for users to install from Control Panel. When you publish software for users, you give them the opportunity to decide if and when they want to install it.

◆ Important

You must run the Microsoft Dynamics CRM for Outlook Setup program (SetupClient.exe) by using the administrative installation option (/A) to create a Windows Installer package (CRMClient_*bitversion*.msi) for Group Policy deployment. You cannot use the Windows Installer package (Client.msi) that is included with the Dynamics CRM for Outlook installation files to deploy by using Group Policy. For more information about how to perform an administrative installation, see [Install Microsoft Dynamics CRM for Outlook using a command prompt](#).

To complete this procedure, you must be a member of the Domain Administrators security group, the Enterprise Administrators security group, or the Group Policy Creator Owners security group.

Preparing CRM for Outlook for a Group Policy deployment

Use this procedure to create the CRMClient_*bitversion*.msi file that is required for a Dynamics CRM for Outlook Group Policy deployment.

Create the CRMClient_bitversion.msi file

1. Before you build the CRMClient_*bitversion*.msi file, you can edit the Default-Client_Config.xml file that is included with the installation files. This file is used by the Microsoft Dynamics CRM for Outlook Configuration Wizard to establish settings, such as the organization URL, after Dynamics CRM for Outlook is installed on the user's computer. Although this step is optional, it can simplify Dynamics CRM for Outlook configuration for Microsoft Dynamics CRM users. More information: Step 2: Configure Active Directory

2. Determine the distribution share, and then run Microsoft Dynamics CRM for Outlook Setup to build the administrative installation files.

❖ **Important**

The CRMClient_*bitversion*.msi file is used as the package for Group Policy software installation. After you follow this procedure, users can select Dynamics CRM for Outlook in Control Panel for on-demand installation. You can't use the CRMClient_*bitversion*.msi file directly to install Dynamics CRM for Outlook.

   a. Create a network share that all Dynamics CRM for Outlook users will have access to. This share will be the distribution location for the GPO.

   b. Run SetupClient.exe at the command prompt by using the /A and /targetdir parameters. The /A parameter specifies an administrative installation, and /targetdir parameter specifies the distribution share that you created in the previous step. For more information about Microsoft Dynamics CRM for Outlook Setup command prompt parameters, see Install the Language Pack (on-premises only).
   Example:

   ```
   setupclient.exe /a /q /targetdir \\FileShare\CRMforOutlook
   ```

   c. Consider using Microsoft Distributed File System (DFS) to help improve the security and availability of your distribution points. For more information about DFS, see DFS Namespaces and DFS Replication Overview. We recommend that you understand the DFS features before you configure your distribution point servers.

3. Create the Group Policy Object (GPO) and target the application to Microsoft Dynamics CRM users. To do this, follow these steps:

   a. On a domain controller in the domain where Microsoft Dynamics CRM is installed, start Group Policy Management.

b. In Group Policy Management, expand **Forest**, **Domains** right-click the domain, and then click **Create a GPO in this domain, and Link it here**.

c. In the **New GPO** dialog, type a name for the GPO, such as *Microsoft Dynamics CRM Users*, and then click **OK**.

    Creating a GPO at the domain level configures the GPO with domain-wide scope.

d. In the group policy pane, right-click the GPO that you created in the previous step, and then click **Edit**.

    The Group Policy Management Editor opens.

e. In **Group Policy Management Editor**, under **User Configuration**, expand **Policies**, and then expand **Software Settings**.

f. Right-click **Software Installation**, point to **New**, and then click **Package**.

g. Type the full path or locate the Dynamics CRM for Outlook Windows Installer package (CRMClient_64.msi or CRMClient_32.msi) that was created by the administrative installation, and then click **Open**. For more information about how to create an administrative install package for Dynamics CRM for Outlook, see the /A parameter in [Install Microsoft Dynamics CRM for Outlook using a command prompt](#).

⬥ **Important**

The Dynamics CRM for Outlook administrative installation folders must be on a network share that can be read-accessed by Microsoft Dynamics CRM users in the domain.

💡 **Tip**

 By default, the package name is *Microsoft Dynamics CRM <version> for Outlook* for both 32-bit and 64-bit packages. Consider renaming the package to Dynamics CRM for Outlook <version> 64-(bit) or Dynamics CRM for Outlook <version> (32-bit). This name appears in Control Panel in the list of programs to install from the network.

h. In the Deploy Software dialog, select **Publish** to publish the Dynamics CRM for Outlook application, and then click **OK**.

i. By default, Dynamics CRM for Outlook is available in Control Panel for all authenticated users the next time that they log on to the domain. To limit the scope to a specific organizational unit (OU), group, or individual user, in Group Policy Management, expand **Group Policy Objects**, and click the GPO named *Microsoft Dynamics CRM Users*, and then add or remove the security objects that you want, such as a group, in the **Security Filtering** area of the publication on the **Scope** tab.

Publish versus Assign

When you publish an application by using GPO deployment, it is made available for users to install by using Program and Features (or in previous versions of Windows, Add or Remove Programs) in Control Panel. Assigned applications are installed when a user logs on to the domain.

 Note

Dynamics CRM for Outlook doesn't support application assignment through GPO installation. For more information about publishing versus assigning software, see the Group Policy deployment documentation for your operating system.

See Also

Advanced deployment options for Microsoft Dynamics CRM for Outlook
Install Microsoft Dynamics CRM for Outlook for desktop virtualization
Referenced topic '25af20e4-2eac-4bed-888e-be35015b59fb' is not in the TOC.

Install Microsoft Dynamics CRM for Outlook for desktop virtualization

Applies To: CRM 2016 on-prem, CRM Online

This topic describes how to install Dynamics CRM for Outlook with roaming user profiles by using Windows Server Remote Desktop Services. Remote Desktop Services, formerly Terminal Services, is a server role in Windows Server that provides technologies that enable users to access session-based desktops, virtual machine-based desktops, or applications in the data center from both within a corporate network and from the Internet.

In This Topic

Roaming user profiles

Windows Server Remote Desktop Services

Support for Citrix XenApp 6.5 and 7.0-7.6 session virtualization for Microsoft Dynamics CRM for Outlook on a single XenApp instance

Roaming user profiles

A roaming user profile is a copy of the local user profile that is copied to, and stored on, a server share. The advantage of roaming user profiles is that users do not have to create a profile on each computer that they use on a network. Their profile is downloaded to each computer that they log on to on a network. Changes made to a roaming user profile are synchronized with the server copy of the profile when the user logs off.

While the roaming user profile moves with the user, software applications such as Dynamics CRM for Outlook do not. Identical applications have to be installed on each computer that the user logs on to.

Windows Server Remote Desktop Services

Dynamics CRM for Outlook is supported for running on Windows Server 2012 Remote Desktop Services. When users run an application on Remote Desktop Services, the application execution occurs on the server. Only keyboard, mouse, and display information are transmitted over the network. Users see only their own individual sessions, which are managed transparently by the server operating system and remain independent of any other client session.

More information: Remote Desktop Services

Deploy CRM for Outlook to use as a Remote Desktop Services application

The following is the basic procedure required to deploy Dynamics CRM for Outlook to use as a Remote Desktop Services application.

1. Provide at least one Microsoft Windows Server that is running the Remote Desktop Services server role. More information: Remote Desktop Services

2. Install Dynamics CRM for Outlook using the /disableofflinecapability parameter on the Remote Desktop Services server. Go offline mode is not supported when Dynamics CRM for Outlook is installed for Remote Desktop Services use. More information: Install Microsoft Dynamics CRM for Outlook using a command prompt

◆ Important

The Dynamics CRM for Outlook offline database is not supported for roaming profile use.

3. Run the Microsoft Dynamics CRM Configuration Wizard on the Remote Desktop Services server. For instructions, see Configure Dynamics CRM for Outlook.

4. Disable the Microsoft Dynamics CRM Configuration Wizard on all desktops that will be used to connect to Remote Desktop Services and run Dynamics CRM for Outlook. For details, see the section below.

Disable the CRM for Outlook Configuration Wizard

☑ Note

The information in this topic applies to Dynamics CRM for Outlook deployments that use Remote Desktop Services. To remove only the **Get CRM for Outlook** button for Dynamics CRM for Outlook deployments that don't use Remote Desktop Services, see the "Set whether users see CRM for Outlook message" setting in Help & Training: System Settings dialog box – Outlook tab.

The Dynamics CRM for Outlook Configuration Wizard starts every time a roaming user connects to a Windows Server that is running Remote Desktop Services. In addition, users will see the option to configure Dynamics CRM for Outlook when they run Microsoft Office Outlook.

💡 **Tip**

Instead of manually creating the registry key as described here, you can use Group Policy or a logon script to create the registry key for the Remote Desktop Services users who do not use Dynamics CRM for Outlook.

⚠ **Warning**

Serious problems might occur if you modify the registry incorrectly by using Registry Editor or by using another method. These problems might require you to reinstall the operating system and Microsoft Dynamics CRM. We can't guarantee that these problems can be resolved. Modify the registry at your own risk.

To disable the Dynamics CRM for Outlook Configuration Wizard and the option to configure Dynamics CRM for Outlook, follow these steps on the client computer.

Disable the Configuration Wizard

1. On the computer where Microsoft Office is installed, start Registry Editor (regedit.exe).
2. Locate the following registry subkey:
   HKEY_CURRENT_USER\Software\Microsoft\Office\Outlook\Addins
3. Right-click **Addins**, point to **New**, and then click **Key**.
4. Type **crmaddin.Addin**, and then press ENTER.
5. Right-click **crmaddin.Addin**, point to **New**, and then click **DWORD Value** or **DWORD (32-bit) Value**.
6. Type **LoadBehavior** and then press ENTER.
7. Right-click **LoadBehavior**, and then click **Modify**.
8. Type **8** in the **Value Data** box, click **Decimal**, and then click **OK**.
9. Exit Registry Editor.

Support for Citrix XenApp 6.5 and 7.0-7.6 session virtualization for Microsoft Dynamics CRM for Outlook on a single XenApp instance

Microsoft will support Citrix XenApp 6.5 and 7.0 -7.6 with session virtualization for Microsoft Dynamics CRM 2016 for Outlook on a single XenApp instance.

Please note that Citrix deployment may include a complex configuration topology based on other configurations, and these are not supported. For example, these configurations are not supported:

- Citrix products like XenApp (except for versions 6.5 and 7.0-7.6), XenDesktop, and XenServer and versions of these products

- Application streaming modes

- Modes of application deployment

- Application virtualization layered on top of other virtualization technologies (such as Network and storage virtualization technologies)

See Also

Advanced deployment options for Microsoft Dynamics CRM for Outlook
Referenced topic '25af20e4-2eac-4bed-888e-be35015b59fb' is not in the TOC.
Planning and installing CRM for Outlook for Microsoft Dynamics CRM 2016 and Dynamics CRM Online

Install CRM 2016 for Outlook without an Internet connection

Applies To: CRM 2016 on-prem, CRM Online

This section applies to Microsoft Dynamics CRM for Outlook when you use either Microsoft Dynamics CRM 2016 (on-premises) or Microsoft Dynamics CRM Online.

There may be occasions when you have to install Dynamics CRM for Outlook where there is no Internet connection available. Common occasions are when you are creating virtual demonstration environments, such as when you use Hyper-V, and environments that use firewalls or other security requirements that block Internet access.

To install Dynamics CRM for Outlook without an Internet connection, you must first download all prerequisite components. To do this, you will need a computer that has an Internet connection to download all the prerequisites beforehand.

Notice that, when you download the CRM 2016 ISO from MSDN, or have a physical DVD that you are installing from, you will already have the Redist folder and all the prerequisites downloaded. However, if you download the Dynamics CRM for Outlook installation media from the Microsoft Download Center, you must manually build this Redist prerequisite folder structure.

In This Topic

Step 1: Create the Redist folder structure
Step 2: Create the subfolders under the Redist folder
Step 3: Download the prerequisite files
Step 4: Run CRM for Outlook Setup

Step 1: Create the Redist folder structure

First, create the Redist folder structure in the installation media. The Redist should be one level above the Client folder.

The installation media folder structure will appear similar to the following list.

- Client

- Redist

- Depending on the installation media, there may be additional files such as autorun.inf, msvp100.dll, and so on.

◆ **Important**

You must put the **Redist** folder one level above the extracted files. For example, if files are extracted to *C:\mscrminstaller*, the **Redist** folder should be located at C:\Redist\. If you extract files to a folder next to the **Redist** folder, you don't have to manually run SetupClient.exe.

Step 2: Create the subfolders under the Redist folder

Create the following subfolders directly under the Redist folder.

1. dotNETFX

2. ReportViewer

3. SQLCE

4. SQLExpr – Required if you use the Go offline capability with Dynamics CRM for Outlook

5. SQLExprRequiredSp - Required in order to upgrade SQL Express 2008 to 2012. Not required for a new install of SQL Express 2012.

6. VCRedist

7. VCRedist10

8. WindowsIdentityFoundation

9. SQLSystemCLRTypes\

Step 3: Download the prerequisite files

Download the prerequisite components and copy them into the Redist folder under the appropriate subfolders, by using the following list.

1. dotNETFX

Description	File name and direct download link
Microsoft .NET Framework 4 (Offline Installer (64 and 32-bit))	NDP452-KB2901907-x86-x64-AllOS-ENU.exe

2. ReportViewer

Description	File name and direct download link
Microsoft Report Viewer 2012 Runtime	ReportViewer.msi

3. SQLCE

Description	File name and direct download link
Microsoft SQL Server Compact 4.0 SP1 (64-bit)	SSCERuntime_x64-ENU.exe
Microsoft SQL Server Compact 4.0 SP1 (32-bit)	SSCERuntime_x86-ENU.exe

4. SQLExpr

Description	File name and direct download link
SQL Express 2012 Express SP2 x86 (32-bit, used by both 64 and 32-bit versions of Dynamics CRM for Outlook)	SQLEXPR_x86_ENU.exe

5. SQLExprRequiredSp

Description	File name and direct download link
SQL Express 2008 R2 SP3	SQLEXPR_x86_ENU.exe

6. VCRedist

Description	File name and direct download link
Microsoft Visual C++ 2013 Redistributable (64-bit) - 12.0.21005	vcredist_x64.exe
Microsoft Visual C++ 2013 Redistributable (32-bit) - 12.0.21005	vcredist_x86.exe

7. VCRedist10

Description	File name and direct download link
Microsoft Visual C++ Redistributable SP 1 (64-bit) - 10.0.40219	vcredist_x64.exe
Microsoft Visual C++ Redistributable SP 1 (32-bit) - 10.0.40219	vcredist_x86.exe

8. WindowsIdentityFoundation

Description	File name and direct download link
Windows Identity Foundation, Windows 7 (64-bit) - 6.1.7600.0	Windows6.1-KB974405-x64.msu
Windows Identity Foundation, Windows 7 (32-bit) - 6.1.7600.0	Windows6.1-KB974405-x86.msu

 Note

By default, Windows Identity Foundation (WIF) is already included with Windows 8.

9. SQLSysClrTypes.msi

Description	File name and direct download link
SQLSysClrTypes.msi (32-bit)	SQLSysClrTypes
SQLSysClrTypes.msi (64-bit)	SQLSysClrTypes

 Important

After downloading the file, you must rename it according to the bitness of the client. Rename SQLSysClrTypes.msi to: SQLSysClrTypes_x86.msi for the 32-bit client; SQLSysClrTypes_x64.msi for the 64-bit client.

Step 4: Run CRM for Outlook Setup

Now that you have all the prerequisites downloaded and saved in the correct folders, you can run Dynamics CRM for Outlook Setup without an Internet connection.

See Also

Advanced deployment options for Microsoft Dynamics CRM for Outlook

Uninstall or repair Microsoft Dynamics CRM for Outlook

Applies To: CRM 2016 on-prem, CRM Online

If other users run Dynamics CRM for Outlook on the same device, those users should sign out of Microsoft Windows before uninstalling Dynamics CRM for Outlook. This is especially true for Citrix or Remote Desktop environments where additional sessions are common and should be closed before uninstalling Dynamics CRM for Outlook.

Tip

You might want to disable Dynamics CRM for Outlook instead of uninstalling it. To disable Dynamics CRM for Outlook, go to **File > Options**. Click **Add-Ins**, click the **Go** button next to **Manage: COM Add-ins**, clear both **Microsoft Dynamics CRM** add-ins, and then click **OK**.

1. Start **Programs and Features** in the Control Panel.

2. On the **Uninstall or change a program** page, select the version of Dynamics CRM for Outlook you want to uninstall, and then click **Uninstall/Change**.

3. In the Setup wizard, on the **Choose the installation you want** page, click **Uninstall** or **Repair**.

4. When the wizard finishes, click **Close**.

5. If prompted, restart your computer.

Note

If an uninstallation is not completed while you are logged on to the client computer as the user who originally installed the application, the offline database will remain attached to the instance of Microsoft SQL Server Express. After the uninstall is complete, you can manually detach the offline database.

Files not removed during a Microsoft Dynamics CRM for Outlook uninstall

The following files aren't removed when you uninstall Dynamics CRM for Outlook.

- *Program Files\Microsoft Dynamics CRM\Client\ConfigWizard\CrmForOutlookInstaller.exe

- Windows\CrmClient.mif

*The default folder name is **Program Files** or **Program Files (x86)**.

See Also

Set up CRM for Outlook
Referenced topic 'd81f7479-4e46-4cc8-9ae0-cb1761b68fa3' is not in the TOC.
Referenced topic '48d19bce-bbe6-4002-bc62-794d8460e55f' is not in the TOC.

Configure synchronization for appointments, contacts, and tasks

Applies To: CRM 2016 on-prem, CRM Online

By default, some synchronization between Microsoft Dynamics CRM and Outlook for CRM is disabled so organizations can control what gets synced according to their business requirements. CRM admins can enable synchronization using **Settings** > **Administration** > **System Settings** > **Synchronization**.

Note

Users should have the latest [CRM for Outlook](#) installed.

This topic covers the highlighted settings below.

Enable appointment attachment synchronization with Outlook or Exchange

Note

This section applies to message synchronization done through Microsoft Dynamics CRM for Outlook or server-side synchronization. More information: [Integrate your email system with Microsoft Dynamics CRM](#)

Users can attach documents, pictures, recordings, etc. to the appointments they create in the CRM web application or Dynamics CRM for Outlook. By default, appointment attachment synchronization is disabled. To enable:

1. Go to **Settings** > **Administration**.

2. Choose **System Settings**, then choose **Synchronization**.

3. Choose **Synchronize appointment attachments with Outlook or Exchange**

Considerations

- When you disable attachment synchronization, the attachments will not appear in appointments in CRM but will remain in CRM for Outlook appointments.

- Recurring appointment attachment synchronization is not supported. When users synchronize recurring appointments with attachments, the attachments do not synch.

- Attachments could affect synchronization times so you may want to use attachments sparingly if attached to a low bandwidth network.

- Service activity attachment synchronization is not supported.

Address synchronization for Contacts

 Note

This section applies to message synchronization done through Dynamics CRM for Outlook or server-side synchronization. More information: [Integrate your email system with Microsoft Dynamics CRM](#)

Admins have two options they can specify for how contact synchronization occurs.

Synchronize mailing address only in Outlook contact

By default, just one Outlook mailing address field is synchronized between CRM and Outlook. This is sufficient for most organizations.

Synchronize all three addresses (Business, Home, Other) in Outlook contact

Choose this option to synchronize all three Outlook mailing address fields (Business, Home, and Other fields) between CRM and Outlook.

 Warning

Enabling this option can cause data loss if you have existing data. This is due to the remapping of the attributes for existing tracked contacts. We recommend you test this option prior to deployment to understand how the re-mapping affects your environment and your data. In most cases, you should have the full data in one side (normally in CRM) and have them sync to the other side (normally Outlook or Exchange).

More information: [What fields can be synchronized between CRM and CRM for Outlook?](#)

Enable synchronization for tasks that are assigned in Outlook

Note

This section applies to message synchronization done through Dynamics CRM for Outlook only. More information: Integrate your email system with Microsoft Dynamics CRM

By default, task synchronization is disabled. User created tasks in Dynamics CRM for Outlook are not synchronized with the CRM web application. To enable:

1. Go to **Settings** > **Administration**.
2. Choose **System Settings**, then choose **Synchronization**.
3. Choose **Synchronize tasks that are assigned in Outlook**

Considerations

- Recurring task synchronization is not supported. When users synchronize recurring tasks, the tasks do not synch.
- The person assigning the task and the person the task is assigned to must be in the same organization.
- Tasks cannot be synchronized to multiple email addresses.

See Also

Set up CRM for Outlook

Install Microsoft Dynamics CRM for Outlook using a command prompt

Applies To: CRM 2016 on-prem, CRM Online

Installing Microsoft Dynamics CRM for Outlook is a two-step procedure. First, you must run Setup to install the files on the computer. Next, run the Microsoft Dynamics CRM Configuration Wizard to configure the application and complete the installation.

Important

If there's a conflict between a value in the configuration file and a value in the command-line parameters, the command-line parameter takes precedence.

In This Topic

Step 1: Install files

The following command displays the available options to run Microsoft Dynamics CRM for Outlook Setup at the command prompt:

Setupclient.exe [/**A**] [/**Q**] [/**X**] [/**L** or /**LV** "[*drive*:][[*path*] *logfilename*.log]"] [/targetdir "[*drive*:][*path*]"] [/installofflinecapability] [/disableofflinecapability] [/ignoreofflinequeue]

Command examples for CRM for Outlook installation

For users who travel or who are not always connected to the Microsoft Dynamics CRM Server, Microsoft Dynamics CRM for Microsoft Office Outlook with Offline Access provides access to their customer data. To install Microsoft Dynamics CRM for Microsoft Office Outlook with Offline Access in quiet mode:

```
Setupclient /Q /l c:\clientinstalllog.txt /installofflinecapability /targetdir "c:\Program

Files\Microsoft Dynamics CRM Client"
```

To uninstall Microsoft Dynamics CRM for Microsoft Office Outlook with Offline Access in quiet mode:

```
SetupClient /x /q
```

Parameters for CRM for Outlook installation

Parameter	Description
None	Used without parameters, **Setupclient.exe** will run with all display screens.
installofflinecapability	Determines whether offline capability will be installed. When you include this parameter, offline capability and components are installed. If you don't specify this parameter, the online-only client is installed.
/targetdir <"drive:\path">	Specifies the folder in which Dynamics CRM for Outlook files will be installed.
/A	Creates an administrative installation of Dynamics CRM for Outlook by creating a Windows Installer package. This package lets users run Setup from a network share or lets non-administrative users run Setup that is driven from a group policy. This

Parameter	Description

	parameter must be used with the **/targetdir** parameter described earlier. When using this parameter, the **/targetdir** value doesn't have to be located on the local computer. A mapped drive or network share, such as *share\mscrm_client_admin*, can be used.
	
	 ◆ **Important**
	
	 If you don't specify a target folder by using the /targetdir parameter, Setup installs the administrative installation to the default folder <*drive*:> Program Files\Microsoft Dynamics CRM.
	
	 For example, the command:
	
	 `Setupclient /Q /A /targetdir`
	 `"\\share\mscrm_client_admin"`

/Q	Quiet mode installation. This parameter requires a configuration file in XML format. The /i parameter contains the name of the XML configuration file. No dialog boxes or error messages will appear on the display screen. To capture error message information, include the log file parameter (/**L** or /**LV**).
/L [drive:][[path] logfilename.log]	Creates a log file of installation activity. You must specify the file name of the log file and where to put it, but the path can't be a relative path, such as %appdata%\CRMLogs.
/LV [drive:][[path] logfilename.log]	Creates a verbose log file of installation activity. You must specify the file name of the log file and where to put it, but the path can't be a relative path, such as %appdata%\CRMLogs.
disableofflinecapability	When you specify this parameter, Dynamics CRM for Outlook is configured to hide the "go offline" button in the application. This button lets users switch to Dynamics CRM for Outlook with offline capability.
ignoreofflinequeue	When you specify this parameter, Setup will not attempt to synchronize items that may remain in the offline queue during upgrade.
/X	Uninstalls Dynamics CRM for Outlook. This is a maintenance mode option that is only available when the application is already installed.

Sample CRM for Outlook XML configuration file for installation

The following configuration-file example installs Dynamics CRM for Outlook without offline access capability into the Program Files folder.

Note

You can use the same file that includes both the installation and configuration elements. Setup and the Configuration Wizard ignore the elements that aren't relevant to the operation.

```
<Deployments>

<TargetDir>c:\program files\Microsoft Dynamics CRM\Client</TargetDir>

<InstallOfflineCapability>false</InstallOfflineCapability>

</Deployments>
```

Step 2: Configure CRM for Outlook by using an XML configuration file

After you install Dynamics CRM for Outlook, you must configure it. You can do this by running the Dynamics CRM for Outlook Configuration Wizard at the command prompt. The Configuration Wizard file is named **Microsoft.Crm.Application.Outlook.ConfigWizard.exe** and is located in the Client\ConfigWizard folder where Dynamics CRM for Outlook is installed. By default, the folder is C:\Program Files\Microsoft Dynamics CRM.

Note

The credentials of the user who will run Dynamics CRM for Outlook are used to authenticate to Microsoft Dynamics CRM. Therefore, to perform a silent configuration of Dynamics CRM for Outlook, you must run the Configuration Wizard under the user's context, such as by running a user-invoked batch file or as a one-time entry in a logon script. For more information, see User credentials are required when you run the Configuration Wizard. To deploy Dynamics CRM for Outlook by using Microsoft Group Policy, see Deploy Microsoft Dynamics CRM for Outlook by using Group Policy.

If a path to the configuration file isn't specified, the Configuration Wizard looks for the default configuration file (**default_client_config.xml**) in the non-roaming profile folder (%localappdata%\Microsoft\MSCRM\). If the file isn't located in the non-roaming profile folder, the Configuration Wizard looks for the folder where Dynamics CRM for Outlook is installed. By default, Dynamics CRM for Outlook is installed in the C:\Program Files\Microsoft Dynamics CRM folder.

If the configuration file is located in the roaming location used by other applications (AppData\Roaming\Microsoft\MSCRM\), it won't be honored.

Command examples for the CRM for Outlook configuration

The following command configures Microsoft Dynamics CRM for Outlook with Offline Access by using a file named **config_client.xml** in quiet mode, and outputs a log file named **clientinstall.log**:

```
Microsoft.Crm.Application.Outlook.ConfigWizard.exe /Q /i c:\config_client.xml /xa /l

c:\clientinstall.log
```

The /**Q** quiet mode configuration parameter requires a configuration file in XML format. No dialog boxes or error messages will appear on the display screen. To capture error message information, include the log file parameter (/**L**) or verbose logging (/**LV**).

◆ Important

Valid user credentials stored in the Windows Vault are required to run the Configuration Wizard in quiet mode. More information: User credentials are required when you run the Configuration Wizard

The /i [*drive*:] [[*path*] *configfilename.xml*]] command-line parameter provides Microsoft Dynamics CRM for Outlook Setup with required information. It is the same information that each installation screen requires. The XML elements must be in English (US); special or extended characters can't be used. An XML configuration file that has localized XML elements will not work correctly. An explanation of each XML element and a sample XML file follows:

The /xa parameter, when used with the /q parameter, removes all organizations that are configured for Dynamics CRM for Outlook.

The /R parameter may be used to suppress the Configuration Wizard user interface and only display the progress dialog box. This parameter requires a valid XML Setup file that is named Default_Client_Config.xml and must be located in either the local user AppData or Client installation folder.

CRM for Outlook XML configuration file elements

Element	Description
<Deployments> </Deployments>	The configuration file must be a valid XML file that uses <**Deployment**> as the root element.
<InstallOfflineCapability>true/false</InstallOfflineCapability>	Specifies the type of Dynamics CRM for Outlook installation. Specifying true will install Microsoft Dynamics CRM for Outlook with Offline Access capability.
<TargetDir>drive:\path</TargetDirectory>	Specifies the folder in which Dynamics CRM for Outlook files will be installed.
<Deployment> </Deployment>	Parent element for all of the following elements.

Element	Description
<DiscoveryUrl>https://website:portnumber</DiscoveryUrl>	Specifies the URL for the Microsoft Dynamics CRM Discovery Web Service.
	For an on-premises deployment of Microsoft Dynamics CRM Server, the supported binding can be HTTPS or HTTP. If the Discovery Web Service is using a port other than the default ports 80 (HTTP) or 443 (HTTPS), you must specify the port number. If this is a Full Server deployment of Microsoft Dynamics CRM Server, the Discovery Web Service URL is the same as the one for the web application, such as http://*crmserver*.
	For Microsoft Dynamics CRM Online, use the full organization URL, such as https://orgname.crm.dynamics.com, or depending on your online environment and location, use the discovery service URL, in the form https://disco.crm.dynamics.com. For a list of URLs, see [MSDN: Discovery service](#).
<FederatedAuthentication>true/false</FederatedAuthentication>	Specifies if federated (Azure Active Directory) credentials are used for authentication in the Configuration Wizard. If you specify **false**, you can use credentials such as user@contoso.onmicrosoft.com.
<Organizations> </Organizations>	This is the parent element for the following <**Organization**> element.
<Organization FriendlyName="*My Friendly Organization Name*" IsPrimary="true"/"false">OrganizationName</Organization>	Specifies the name of the organization that the client will connect to.
	FriendlyName. Specifies a different display name other than the organization name in Outlook.
	IsPrimary. Specifies the organization that will be configured as the synchronizing organization in Dynamics CRM for Outlook.
	📝 **Note**

Element	Description
	OrganizationName is case-sensitive.
`<CEIPNotification>true/false</CEIPNotification>`	Specifies whether Dynamics CRM for Outlook will display the "I want to join the Customer Experience Improvement Program" notification banner. The default setting is **true** and the notification banner is displayed. If you specify **false**, the notification banner doesn't appear in Dynamics CRM for Outlook. More information: Microsoft Customer Experience Improvement Program

User credentials are required when you run the Configuration Wizard

The Configuration Wizard requires user credentials. During a silent configuration, by using /Q with the Microsoft.Crm.Application.Outlook.ConfigWizard.exe file, the Configuration Wizard will look for the user's credentials in the Windows Vault. If the Configuration Wizard can't find the credentials, or the credentials aren't in the required format, the configuration will not finish and an error will be recorded to the configuration log file. Notice that the Configuration Wizard doesn't support adding the user UPN or password in the XML configuration file. For information about how to add user credentials from a command script to the Windows Vault, see the blog post Silent configuration of CRM for Outlook client in CRM 2011 claims enabled environment. For more information about the Windows Vault and Credential Manager, see What is Credential Manager

Sample CRM for Outlook XML configuration file for configuration

The following configuration file example configures Dynamics CRM for Outlook to connect to a primary organization named *Contoso* and another organization named *AdventureWorksCycle* on the Microsoft Dynamics CRM Server that is named *crmserver*.

Note

You can use the same file that includes both the installation and configuration elements. Setup and the Configuration Wizard will ignore the elements that aren't relevant to the operation.

Example Default_Client_Config.xml file

```
<Deployments>
```

```
<Deployment>

<DiscoveryUrl>http://crmserver</DiscoveryUrl>

<Organizations>

<Organization IsPrimary='true'>Constoso</Organization>

<Organization>AdventureWorksCycle</Organization>

</Organizations>

<CEIPNotification>false</CEIPNotification>

</Deployment>

</Deployments>
```

📝 Note

The preceding example specifies two different organizations that the user has access to and configures Dynamics CRM for Outlook to not display the "I want to join the Customer Experience Improvement Program" notification banner. The value in the **Organization** element can't contain special characters or spaces. For Microsoft Dynamics CRM (on-premises), you can find the organization unique name by running the Get-CrmOrganization Windows PowerShell cmdlet or in the **Name** column in the **Organizations** area of Deployment Manager.

Configure CRM for Outlook by using a script

1. Write a script that automatically updates the configuration settings for users of Dynamics CRM for Outlook. You could use lines such as the following to perform the basic configuration actions, based on a new configuration file that is stored on the computer indicated as <servername>.

   In the following script, the default client configuration file is overwritten, previously configured organizations are removed, user credentials are added to the Windows Vault, and the new organization is installed.

   ```
   copy /y \\<servername>\share\Default_Client_Config.xml "c:\Program Files\Microsoft

   Dynamics CRM\Default_Client_Config.xml"

   "C:\Program Files\Microsoft Dynamics

   CRM\Client\ConfigWizard\Microsoft.Crm.Application.Outlook.ConfigWizard.exe" /q /xa

   cmdkey /generic:Microsoft_CRM_https://contoso.crm.dynamics.com/

   /user:user@contoso.com /password{password_goes_here}

   "C:\Program Files\Microsoft Dynamics

   CRM\Client\ConfigWizard\Microsoft.Crm.Application.Outlook.ConfigWizard.exe" /q /i

   "C:\Program Files\Microsoft Dynamics CRM\Default_Client_Config.xml"
   ```

💡 Tip

Consider running your script as a logon script, or forcing the script to run at a specific time, such as by

using Microsoft System Center 2012 Configuration Manager.

In the script, you might also want to include detection logic that determines whether the client computer has already been configured. If it has, you can have the script exit without taking action.

Example Default_Client_Config.xml file

```
<Deployment>

<DiscoveryUrl>http://CrmDiscoveryUrl</DiscoveryUrl>

<Organizations>

<Organization IsPrimary='true'>Organization1</Organization>

</Organizations>

</Deployment>
```

2. Run the script on each client computer in the organization whose server has changed. You can run the script in various ways, including through the **Profile** tab of the user properties dialog box in Active Directory Users and Computers (ADUC), or through Group Policy Objects (GPO).

See Also

Set up CRM for Outlook
Referenced topic '0497afad-c0d9-4f6a-8b10-b08fe6b4e559' is not in the TOC.
CRM for Outlook

Microsoft Dynamics CRM for Outlook failure recovery

Applies To: CRM 2016 on-prem, CRM Online

Microsoft Dynamics CRM for Outlook with "Go offline" capability uses Microsoft SQL Server Express for local data storage on the user's computer. This enables Microsoft Dynamics CRM users to work offline and later synchronize local data with SQL Server (on-premises) or Microsoft Dynamics CRM Online when Dynamics CRM for Outlook is brought online again.

In some cases, Microsoft Dynamics CRM users may want to back up the local Microsoft SQL Server Express database. This is especially useful when Microsoft Dynamics CRM users are offline for prolonged periods. The following table indicates different methods that can be used for backing up the SQL database used with Dynamics CRM for Outlook.

Backup method	What to back up	Comments
Offline backup	Contents of Microsoft Dynamics CRM data directory. The default location of 64-bit Microsoft Office on 32-bit Windows:	Before you start the backup, make sure that the SQL Server (CRM) service is stopped. Restart the service

Backup method	What to back up	Comments
	%programfiles%\Microsoft Dynamics CRM*LocaleCode*\sql\7 The default location of 32-bit Microsoft Office on 64-bit Windows: %programfiles(x86)%\Microsoft Dynamics CRM*LocaleCode*\sql\7	after the backup is complete. *LocaleCode* is the 4-digit number representing the language locale.
Online backup using Microsoft tools	MSDE_MSCRM7.mdf MSDE_MSCRM7_log.LDF	Use Microsoft SQL Server Management Studio Express (SSMSE) or sqlcmd.exe (a command-line tool).
Online backup using non-Microsoft tools	MSDE_MSCRM7.mdf MSDE_MSCRM7_log.LDF	Look for tools that are compatible with Microsoft SQL Server Express.

Backup and recovery tools

Microsoft SQL Server 2012 Express provides a graphical management tool (SQL Server Management Studio Express (SQLManagementStudio)) that includes backup and recovery features. You can download SQL Server Management Studio Express at Microsoft SQL Server® 2012 Service Pack 2 (SP2) Express.

Restoring from backup

If there is a problem with Dynamics CRM for Outlook offline synchronization, the backup can be used to restore Microsoft Dynamics CRM functionality. Dynamics CRM for Outlook should be in offline mode before you restore the backup. When restored, you can then connect to Microsoft Dynamics CRM (online mode). The data that isn't already on the server will be transferred to the server from the client. Be careful when reconnecting to the server. If you restore from an outdated backup, the existing data on the server may have subsequently changed and you run the risk of overwriting current data on the server with older data from the offline client backup.

See Also

Set up CRM for Outlook
Referenced topic '09348882-9013-4a0c-a616-222a768bce5e' is not in the TOC.

Control field synchronization between CRM and Outlook or Exchange

Applies To: CRM 2016 on-prem, CRM Online

With field synchronization, admins can set the sync direction between Microsoft Dynamics CRM and Microsoft Dynamics CRM for Outlook fields. You can control synchronization when using either Outlook synchronization or server-side synchronization (Exchange).

For example, a salesperson may want to take personal notes about a contact and not want the notes to synchronize with CRM data available to all users. You can set the Personal Notes field for contacts in Outlook to not Dynamics CRM for Outlook with CRM so the salesperson's notes will remain private.

💡 **Tip**

📹 Check out the following video: Configurability in Synchronizing Data with Outlook or Exchange in Microsoft Dynamics CRM 2015

Set field synchronization between CRM and CRM for Outlook

1. In CRM, Go to **Settings** > **Email Configuration**.

2. Choose **Email Configuration Settings**.

3. Choose the **Synchronization** tab > **synchronized fields**

4. For the fields you want to change synchronization, choose the arrows in the Sync Direction column. Each choice will change the direction.

Tip

Hover over a field name to see the fields mapped to it.

5. Choose **OK** > **OK** to close the open dialog boxes.

Let your users know they can view (not change) the synchronization settings. More information: What fields can be synchronized between CRM and CRM for Outlook?

Performance and synchronization

Configuring synchronization might have an impact on the time it takes to sync between Dynamics CRM for Outlook and CRM. You should test your configuration before deploying to ensure satisfactory sync times.

Permissions and synchronization

Role-based security controls access to a specific entity type, record-based security controls access to individual records, and field-level security controls access to specific fields. All these can impact what is synchronized between CRM and Dynamics CRM for Outlook or Exchange.

Best practice is to review the security settings for these security methods to ensure field synchronization is processes as desired. For more information see:

- Securing roles: Create or edit a security role

- Securing fields: Help & Training: Add or remove security from a field

More information: How field security affects synchronization between CRM and CRM for Outlook and Security concepts for Microsoft Dynamics CRM

See Also

Set up CRM for Outlook

What fields can be synchronized between CRM and CRM for Outlook?

Applies To: CRM 2016 on-prem, CRM Online

CRM administrators can set whether a sync occurs and the sync direction for Microsoft Dynamics CRM and Microsoft Dynamics CRM for Outlook fields.

You can set synchronization for the entities listed in the following tables. For information on how to set field synchronization, see Control field synchronization between CRM and Outlook or Exchange

Entity: Appointment

CRM for Outlook field	Default sync	Settable sync	CRM field	Notes
Appointment Time	⟷	⟷	Appointment Time	Aggregation of Start Time, End Time, Duration, All Day Event, etc.
Attachments	⟷	Computed	Attachments	Changes to ⟷ based on System Settings.
Body	⟷	⟷ , ⟶ , ⟵ , ⟷	Description	Outlook and Exchange can contain things like images and links. CRM can only contain multiple lines of text.
Importance	⟷	⟷	Priority	Outlook has High Importance, Low Importance.
Location	⟷	⟷ , ⟶ , ⟵ , ⟷	Location	
Optional Attendees	⟷	⟷	Optional Attendees	

CRM for Outlook field	Default sync	Settable sync	CRM field	Notes
Organizer	↔	↔	Organizer	See below.
Regarding	↔	↔	Regarding	See below.
Required Attendees	↔	↔	Required Attendees	
Show Time As	↔	↔	Appointment Status	
Subject	↔	↔, →, ←, ↮	Subject	

Notes

1. **Organizer:** In Outlook sync, an appointment created in CRM will not result in filling in the Outlook Organizer field until it is further modified in Outlook. This applies to Appointment, Recurring Appointment, and Service Activity. In server-side sync, a service activity created in CRM will result in filling in the Exchange Organizer field with the person who synchronizes this appointment.

2. **Regarding:** When you do a **Set Regarding**, the Regarding field in Outlook is replaced by the name of the regarding object from CRM. Until you sync, the **Set Regarding** action in Dynamics CRM for Outlook and in CRM should not change the Regarding field in Outlook.

Entity: Contact

CRM for Outlook field	Default sync	Settable sync	CRM field	Notes
Anniversary	↔	↔, →, ←, ↮	Anniversary	
Assistant's Name	↔	↔, →, ←, ↮	Assistant	
Assistant's Phone	↔	↔, →, ←, ↮	Assistant Phone	
Birthday	↔	↔, →, ←, ↮	Birthday	
Business Fax	↔	↔, →, ←, ↮	Fax	
Business Phone	↔	↔, →, ←, ↮	Business Phone	
Business Phone 2	↔	↔, →, ←, ↮	Business Phone 2	
Callback	↔	↔, →, ←, ↮	Callback Number	
Children	↔	↔, →, ←, ↮	Children's Names	

CRM for Outlook field	Default sync	Settable sync	CRM field	Notes
Company Main Phone	↔	↔, →, ←, ↮	Company Phone	
Department	↔	↔, →, ←, ↮	Department	
E-mail	↔	↔, →, ←, ↮	Email	
E-mail 2	↔	↔, →, ←, ↮	Email Address 2	
E-mail 3	↔	↔, →, ←, ↮	Email Address 3	
FTP Site	↔	↔, →, ←, ↮	FTP Site	
Full Name	↔		Full Name	
Government ID Number	↔	↔, →, ←, ↮	Government	
Home Address	↔	↔, →, ←, ↮	Address 2	Changes to ↔ based on System Settings.
Home Phone	↔	↔, →, ←, ↮	Home Phone	
Home Phone 2	↔	↔, →, ←, ↮	Home Phone 2	
Job Title	↔	↔, →, ←, ↮	Job Title	
Mailing Address/Business Address	↔	↔, →, ←, ↮	Address 1	Mailing Address changes to Business Address based on System Settings.
Manager's Name	↔	↔, →, ←, ↮	Manager	
Mobile	↔	↔, →, ←, ↮	Mobile Phone	
Nickname	↔	↔, →, ←, ↮	Nickname	
Notes	↔	↔, →, ←, ↮	Description	Outlook and Exchange can contain things like images and

CRM for Outlook field	Default sync	Settable sync	CRM field	Notes
				links. CRM can only contain multiple lines of text.
Other Address	↔	↔, →, ←, ⇠⇢	Address 3	Changes to ↔ based on System Settings.
Other Phone	↔	↔, →, ←, ⇠⇢	Telephone 3	
Pager	↔	↔, →, ←, ⇠⇢	Pager	
Parent (Regarding)	↔		Company Name (Regarding)	See Notes below.
Spouse/Partner	↔	↔, →, ←, ⇠⇢	Spouse/Partner Name	
Web Page	↔	↔, →, ←, ⇠⇢	Website	
Yomi First Name	↔	↔, →, ←, ⇠⇢	Yomi First Name	
Yomi Last Name	↔	↔, →, ←, ⇠⇢	Yomi Last Name	

Notes

1. **Parent (Regarding):** When you do a **Set Regarding**, the Company field in Outlook is replaced by the name of the regarding object from CRM. If not syncing, the set regarding action in Dynamics CRM for Outlook and in CRM should not change the Company field in Outlook. Users can control updating the Company field for Outlook contacts in Dynamics CRM for Outlook. More information: Help & Training: Set personal options that affect tracking and synchronization between CRM and Outlook or Exchange

2. When the Contact entity is deactivated (**Status Reason: Inactive**), the Outlook field in Outlook will have **Category [CRM] Inactive**. This is to help differentiate the inactive vs. active status from a pool of tracked Outlook contacts.

Entity: Fax

CRM for Outlook field	Default sync	Settable sync	CRM field	Notes
Date Completed	→	↔, →, ←, ⇠⇢	Actual End	

CRM for Outlook field	Default sync	Settable sync	CRM field	Notes
Due Date	←→	←→, →, ←, ←×→	Due Date	See Notes below.
Importance	←→		Priority	Outlook has High Importance, Low Importance.
Notes	←→	←→, →, ←, ←×→	Description	Outlook and Exchange can contain things like images and links. CRM can only contain multiple lines of text.
Regarding	←→		Regarding	See Notes below.
Start Date	←→	←→, →, ←, ←×→	Start Date	
Status	←→		Status	Computed from Activity Status and Status Reason.
Subject	←→	←→, →, ←, ←×→	Subject	

Notes

1. **Due Date:** Includes Date and Time. When a task is created in Outlook, the system assigns the task a reminder time. Reminder information is not synced from Outlook to CRM. However, when a task has Due Time set in CRM, it will be synchronized to reminder time in Outlook.

   If there is a Start Date value but no Due Date value in Outlook/Exchange, Outlook/Exchange will auto fill the Due Date value with the Start Date whenever you change the Start Date directly in Outlook; If there is Start Date value but no Due Date value in CRM, CRM will auto fill the Due Date value with the Start Date. These are controlled by Outlook/Exchange and CRM independently, not controlled by sync directions here.

2. **Regarding:** When you do a **Set Regarding**, the Regarding field in Outlook is replaced by the name of the regarding object from CRM. Until you sync, the **Set Regarding** action in Dynamics CRM for Outlook and in CRM should not change the Regarding field in Outlook.

Entity: Letter

CRM for Outlook field	Default sync	Settable sync	CRM field	Notes
Date Completed	←→	←→, →, ←, ←×→	Actual End	

CRM for Outlook field	Default sync	Settable sync	CRM field	Notes
Due Date	↔	↔, →, ←, ⇹	Due Date	See Notes below.
Importance	↔		Priority	Outlook has High Importance, Low Importance.
Notes	↔	↔, →, ←, ⇹	Description	Outlook and Exchange can contain things like images and links. CRM can only contain multiple lines of text.
Regarding	↔		Regarding	See Notes below.
Start Date	↔	↔, →, ←, ⇹	Start Date	
Status	↔		Status	Computed from Activity Status and Status Reason.
Subject	↔	↔, →, ←, ⇹	Subject	

Notes

1. **Due Date:** Includes Date and Time. When a task is created in Outlook, the system assigns the task a reminder time. Reminder information is not synced from Outlook to CRM. However, when a task has Due Time set in CRM, it will be synchronized to reminder time in Outlook.

   If there is a Start Date value but no Due Date value in Outlook/Exchange, Outlook/Exchange will auto fill the Due Date value with the Start Date whenever you change the Start Date directly in Outlook; if there is Start Date value but no Due Date value in CRM, CRM will auto fill the Due Date value with the Start Date. These are controlled by Outlook/Exchange and CRM independently, not controlled by sync directions here.

2. **Regarding:** When you do a **Set Regarding**, the Regarding field in Outlook is replaced by the name of the regarding object from CRM. Until you sync, the **Set Regarding** action in Dynamics CRM for Outlook and in CRM should not change the Regarding field in Outlook.

Entity: Phone Call

CRM for Outlook field	Default sync	Settable sync	CRM field	Notes
Date Completed	↔	↔, →, ←, ⇹	Actual End	

CRM for Outlook field	Default sync	Settable sync	CRM field	Notes
Due Date	↔	↔, →, ←, ⇹	Due Date	See below.
Importance	↔		Priority	Outlook has High Importance, Low Importance.
Notes	↔	↔, →, ←, ⇹	Description	Outlook and Exchange can contain things like images and links. CRM can only contain multiple lines of text.
Regarding	↔		Regarding	See Notes below.
Start Date	↔	↔, →, ←, ⇹	Start Date	
Status	↔		Status	Computed from Activity Status and Status Reason.
Subject	↔	↔, →, ←, ⇹	Subject	

Notes

1. **Due Date:** Includes Date and Time. When a task is created in Outlook, the system assigns the task a reminder time. Reminder information is not synced from Outlook to CRM. However, when a task has Due Time set in CRM, it will be synchronized to reminder time in Outlook.

   If there is a Start Date value but no Due Date value in Outlook/Exchange, Outlook/Exchange will auto fill the Due Date value with the Start Date whenever you change the Start Date directly in Outlook; if there is Start Date value but no Due Date value in CRM, CRM will auto fill the Due Date value with the Start Date. These are controlled by Outlook/Exchange and CRM independently, not controlled by sync directions here.

2. **Regarding:** When you do a **Set Regarding**, the Regarding field in Outlook is replaced by the name of the regarding object from CRM. Until you sync, the **Set Regarding** action in Dynamics CRM for Outlook and in CRM should not change the Regarding field in Outlook.

Entity: Recurring Appointment

CRM for Outlook field	Default sync	Settable sync	CRM field	Notes
Body	↔	↔, →, ←, ⇹	Description	Outlook and Exchange can contain things like

CRM for Outlook field	Default sync	Settable sync	CRM field	Notes
				images and links. CRM can only contain multiple lines of text.
Importance	↔		Priority	Outlook has High Importance, Low Importance.
Location	↔	←, →, ↔, ⟷̸	Location	
Optional Attendees	↔		Optional Attendees	
Organizer	↔		Organizer	See Notes below.
Recurrence Pattern	↔		Recurrence Pattern	
Regarding	↔		Regarding	See Notes below.
Required Attendees	↔		Required Attendees	
Show Time As	↔		Appointment Status	Computed by Activity Status and Status Reason.
Subject	↔	→, ←, ←, ⟷̸	Subject	

Notes

1. **Organizer:** In Outlook sync, an appointment created in CRM will not result in filling in the Outlook Organizer field until it is further modified in Outlook. This applies to Appointment, Recurring Appointment, and Service Activity. In server-side sync, a service activity created in CRM will result in filling in the Exchange Organizer field with the person who synchronizes this appointment.

2. **Regarding:** When you do a **Set Regarding**, the Regarding field in Outlook is replaced by the name of the regarding object from CRM. Until you sync, the **Set Regarding** action in Dynamics CRM for Outlook and in CRM should not change the Regarding field in Outlook.

Entity: Service Activity

CRM for Outlook field	Default sync	Settable sync	CRM field	Notes
Appointment Time	←		Appointment Time	Aggregation of Start Time, End Time, Duration, All Day Event, etc.
Importance	←		Priority	Outlook has High

CRM for Outlook field	Default sync	Settable sync	CRM field	Notes
				Importance, Low Importance.
Location	←		Location	
Notes	←		Description	Outlook and Exchange can contain things like images and links. CRM can only contain multiple lines of text.
Optional Attendees	←		Optional Attendees	
Organizer	←		Organizer	See Notes below.
Regarding	←		Regarding	See Notes below.
Required Attendees	←		Required Attendees	
Show Time As	←		Appointment Status	Computed by Activity Status and Status Reason.
Subject	←		Subject	

Notes

1. **Organizer:** In Outlook sync, an appointment created in CRM will not result in filling in the Outlook Organizer field until it is further modified in Outlook. This applies to Appointment, Recurring Appointment, and Service Activity; in server-side sync, a service activity created in CRM will result in filling in the Exchange Organizer field with the person who synchronizes this appointment.

2. **Regarding:** When you do a **Set Regarding**, the Regarding field in Outlook is replaced by the name of the regarding object from CRM. Until you sync, the **Set Regarding** action in Dynamics CRM for Outlook and in CRM should not change the Regarding field in Outlook.

Entity: Task

CRM for Outlook field	Default sync	Settable sync	CRM field	Notes
% Complete	↔	←, →, ←, ↔	Percent Complete	
Date Completed	↔	←, →, ←, ↔	Actual End	
Due Date	↔	←, →, ←, ↔	Due Date	See Notes below.

CRM for Outlook field	Default sync	Settable sync	CRM field	Notes
Importance	↔		Priority	Outlook has High Importance, Low Importance.
Notes	↔	↔, →, ←, ⇠⇢	Description	Outlook and Exchange can contain things like images and links. CRM can only contain multiple lines of text.
Regarding	↔		Regarding	See Notes below.
Start Date	↔	↔, →, ←, ⇠⇢	Start Date	See Notes below.
Status	↔		Status	Computed from Activity Status and Status Reason.
Subject	↔	↔, →, ←, ⇠⇢	Subject	

Notes

1. **Due Date:** Includes Date and Time. When a task is created in Outlook, the system assigns the task a reminder time. Reminder information is not synced from Outlook to CRM. However, when a task has Due Time set in CRM, it will be synchronized to reminder time in Outlook.

   If there is a Start Date value but no Due Date value in Outlook/Exchange, Outlook/Exchange will auto fill the Due Date value with the Start Date whenever you change the Start Date directly in Outlook; if there is Start Date value but no Due Date value in CRM, CRM will auto fill the Due Date value with the Start Date. These are controlled by Outlook/Exchange and CRM independently, not controlled by sync directions here.

2. **Regarding:** When you do a **Set Regarding**, the Regarding field in Outlook is replaced by the name of the regarding object from CRM. Until you sync, the **Set Regarding** action in Dynamics CRM for Outlook and in CRM should not change the Regarding field in Outlook.

3. **Start Date:** When a task is created and tracked in Outlook, the system assigns the task a reminder time. Reminder information is not synced from Outlook to CRM. However, when a task has Due Time set in CRM, it will be synchronized to Reminder Time in Outlook.

See Also

[Set up CRM for Outlook](#)
What fields can be synchronized between CRM and CRM for Outlook?

How field security affects synchronization between CRM and CRM for Outlook

Applies To: CRM 2016 on-prem, CRM Online

Securing a field in Microsoft Dynamics CRM with field level security can impact synchronization between CRM and Microsoft Dynamics CRM for Outlook. Consider the following scenario.

Note

We do not recommend securing a field in CRM when the field is set to sync. Best practice is to NOT secure any sync fields. If you do decide to secure sync fields, you'll need to do the following:

1. Secure the field using field level security. More information: see "Set field level security" below.

2. Change the sync direction so that sync does not attempt to update or write the field during synchronization. More information: Control field synchronization between CRM and Outlook or Exchange

Scenario: Restrict users from changing Job Title

The Contoso company wants to promote consistent data entry. While sales personnel are out in the field, it's easy for them to create different data entries to describe the same thing. For example, the same job title could be entered as "Construction Manager", "Foreman", or "Site Manager". To prevent this, the Job Title field is secured. This has consequences for synchronization.

Set field level security

John, the CRM admin for Contoso, sets security on several fields.
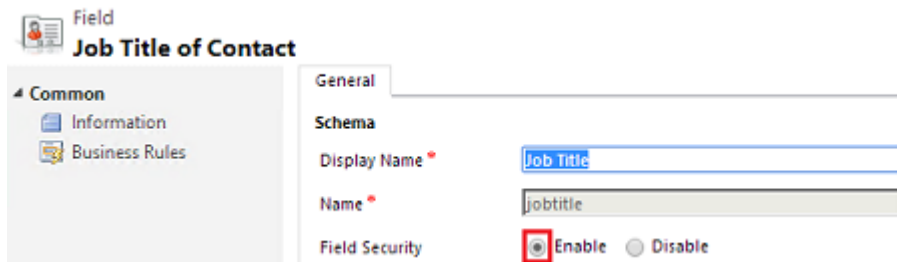
He did the following steps:

1. Go to **Settings** > **Customizations**.

2. Choose **Customize the System**.

3. Expand **Entities** > **Contact**.

4. Choose **Fields** and select **jobtitle**. There are a lot of Contact fields so you'll need to advance several pages.

5. Choose **Edit**.

6. For Field Security, choose **Enable** > **Save and Close**.

7. Choose **Publish All Customizations**.

John also secured the following Contact fields so they won't appear in CRM: ftpsiteurl, governmentid

Create and configure a field security profile

John creates a field security profile and assigns sales team members to the profile.
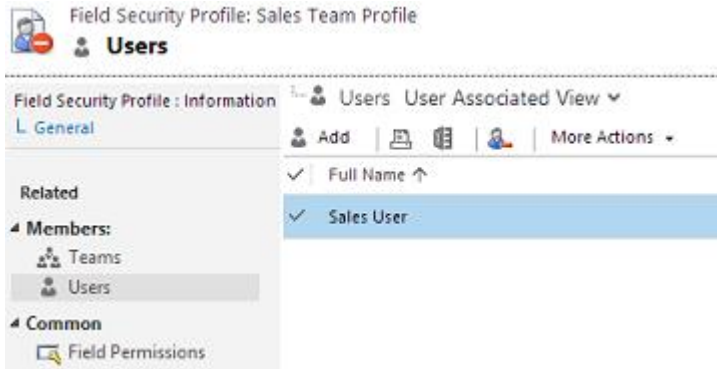
He did the following to create the field security profile:

1. Go to **Settings** > **Security**.

2. Choose **Field Security Profiles**.

3. Create a profile. Choose **New** and enter a Name.

4. Choose **Save and Close**.

5. Choose the new profile > **Users** > **Add**

6. Select users and then choose **Select** > **Add**.

Set field permissions

With a field security profile created and users added to the profile, John can now set permissions on the fields to match his organization's requirements.

1. Go to **Settings** > **Security**.

2. Choose **Field Security Profiles** > your profile.

3. Choose **Field Permissions** > the field to secure > **Edit**

4. Change the security settings to match your company's requirements and then choose **OK** > **Save and Close**.

What the user sees

Nancy, a salesperson at Contoso, uses Dynamics CRM for Outlook and creates a new contact and tracks it in CRM.
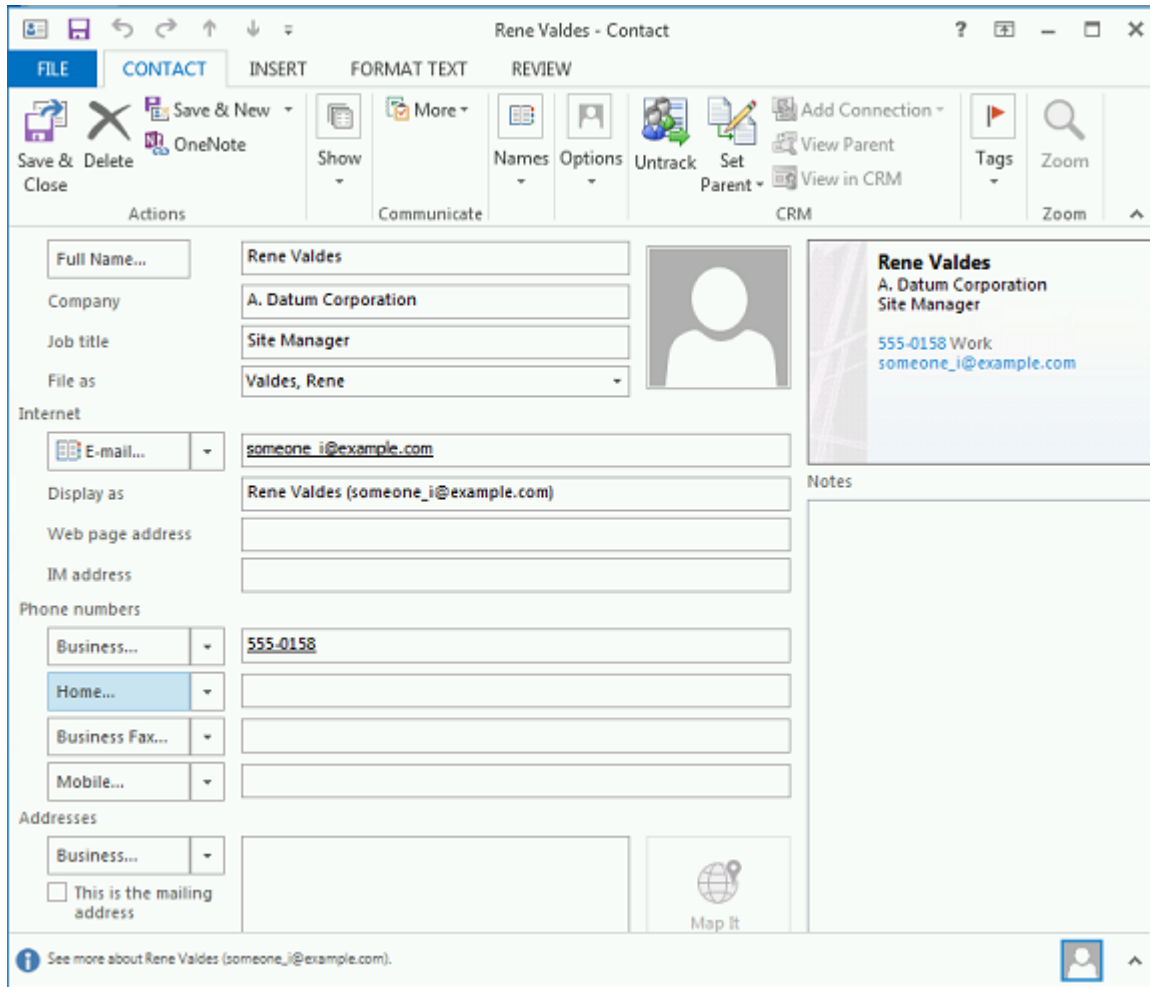
When Nancy synchronizes with CRM, she notices that the Job Title field is gone from the contact. This is because Nancy doesn't have update rights for the Job Title field.

Nancy's manager, with update rights to the Job Title field, fills in the field with the correct job title: Construction Manager.

Nancy synchronizes again with CRM and now the Job Title field is in the contact with the correct title.

See Also

[Set up CRM for Outlook](#)
[Field level security](#)

Troubleshooting and things to know about Microsoft Dynamics CRM for Outlook

Applies To: CRM 2016 on-prem, CRM Online

This section describes how to troubleshoot Dynamics CRM for Outlook installation and upgrade issues.

If you encounter an issue configuring Dynamics CRM for Outlook with your CRM Online organization, use the [Microsoft Dynamics CRM for Outlook Configuration Diagnostic](#) to fix the issue. You'll need to sign in to the diagnostics tool with your CRM Online credentials.

In This Topic

Potential issues and resolutions

Assigned tasks not updated in Outlook after updated in CRM

Consider the following scenario:

- In Outlook, User 1 assigns Outlook task to User 2.

- In Outlook, User 2 accepts and tracks the task.

- In CRM, User 2 opens the task and makes a change such as changing the subject or marking the task complete.

Result: for User 1, in Outlook, the task status remains unchanged.

To force a status change: User 2, in Outlook, can open the Outlook task and click **Send Status Report** to update User 1's Outlook with the latest information.

Enabling the following settings in Outlook Task options (**Home tab** > **New Items** > **Task** > **Assign Task**) do not impact this issue:

- Keep an updated copy of this task on my task list.

- Send me a status report when this task is complete.

This is a known issue and is not supported.

Can't add a related record type when offline

If you're offline, you can't add a related record type by using the **Add** button (+). Add the related record type while you're online, and then go offline.

Inserted picture replaced by text after sync

Inserting a picture from a file into an appointment is not supported.

Some fields synchronize data when an activity is created despite synchronization settings

When an activity is created, such as a task, some fields may synchronize even if field synchronization is set to not sync. This is a known issue as some fields cannot have an empty value.

Users in a different domain cannot install CRM for Outlook

If the user domain account is in a domain different from the CRM organization, the user will receive an error message (see below) when installing Dynamics CRM for Outlook. This is not a supported scenario.

Error message

There is a problem communicating with the Microsoft Dynamics CRM server. The server might be unavailable. Try again later. If the problem persists, contact your system administrator.

The caller was not authenticated by the service.

No synchronization support on non-Cached Exchange Mode

Synchronization is not supported if Cached Exchange Mode is set to non-cached in Outlook. See: [Turn on Cached Exchange Mode](#)

Automatic email tagging off by default

This setting is in the Microsoft Dynamics CRM Diagnostics tool included with Dynamics CRM for Outlook. Click **Start** > **All Programs** > **Microsoft Dynamics CRM 2016** > **Diagnostics** > **Synchronization Troubleshooting** tab.

Automatic email tagging is set to be off by default. If you enable this setting but reinstall Dynamics CRM for Outlook, automatic email tagging will be off.

Service Appointments and Activities don't synchronize from Outlook to CRM

Changes made to Service Appointments and Activities in CRM will update in Dynamics CRM for Outlook when you synchronize, but the reverse is not true. When you make changes to Service Appointments or Activities in Dynamics CRM for Outlook, the changes are not synchronized to CRM.

Different time value in date and time fields with User Local or Time-Zone Independent behavior

If you have system out-of-the box or custom date and time fields with User Local or Time-Zone Independent behavior, the date/time information for years before 1900 won't display as entered when viewing in the list of records and reading pane in Dynamics CRM for Outlook. The date and time values are correct in the database and will appear as expected in the CRM web application.

Microsoft Dynamics CRM Online with Office 365

When you try to connect to an organization that is part of your Microsoft Office 365 subscription by using the Configuration Wizard or Microsoft Dynamics CRM Online for Outlook, you cannot connect. To resolve this issue, verify, and if necessary, correct the following:

- Make sure that you can connect to the organization by using Internet Explorer. There may be incomplete information with your Microsoft Online Services account that is preventing you from authenticating with the service. The URL for the organization is provided in the invitation email message you should have received from Microsoft Online Services, and is typically in the form of

https://*OrganizationName*.onmicrosoft.com or https://*OrganizationName*.crm.dynamics.com. If you are not certain of the URL, contact your system administrator

Log files

When you install and configure Dynamics CRM for Outlook, the system creates log files that you can use for troubleshooting.

By default, the location of the Setup log files (including crmsetup.log and crm60clientmsi.log files), where User is the account of the user who ran Setup, is as follows:

- Windows 10, Windows 8, and Windows 7:
  SystemDrive:\Users\<User>\AppData\Local\Microsoft\MSCRM\Logs

By default, the location of the configuration log files (including crm50clientconfig.log), where User is the account of the user who ran Configuration Wizard, is as follows:

- Windows 10, Windows 8, and Windows 7:
  SystemDrive:\Users\<User>\AppData\Local\Microsoft\MSCRM\Logs

◆ **Important**

By default, the AppData folder is hidden. To view the AppData folder, use **Folder Options** in **Control Panel** to enable viewing for hidden files and folders.

💡 **Tip**

You can use the shortcut path to access the AppData folder, %LocalAppData%\Microsoft\MSCRM\Logs.

Event Viewer

To access event logging information for Dynamics CRM for Outlook, open Event Viewer from the client computer where Dynamics CRM for Outlook is installed, and then view the entries in the Application log.

To view the Application log in Event Viewer:

1. On the computer where Dynamics CRM for Outlook is installed, start Event Viewer.

2. In the navigation pane, expand **Windows Logs** and then click **Application**.

3. To make it easier to locate events that apply to Dynamics CRM for Outlook, use **Create Custom View** or **Filter Current Log** and then select the following **Event sources**:

   - Event sources that begin with MSCRM (such as MSCRMAddin and MSCRMAddressBook)
   - MSSQL$CRM

Disable the CRM for Outlook notification bar on the Web application

By default, if a user does not have Dynamics CRM for Outlook installed and configured, the Microsoft Dynamics CRM web application displays a **Get CRM for Outlook** button on the notification bar. This button provides a link for users to download and install software features that configure a local Microsoft SQL Server Express data store. If you do not want users to have this capability, you can remove the button.

Remove the Get CRM for Outlook button from the Microsoft Dynamics CRM web application

1. With a security role that has read and write permissions (for example, the System Administrator role), start the Microsoft Dynamics CRM web application.

2. Go to **Settings** > **Administration**.

3. Click **System Settings**.

4. Click the **Outlook** tab.

5. Set the value for **Users see "Get CRM for Outlook" option displayed in the message bar** to **No**.

6. Click **OK** to close System Settings.

See Also

Planning and installing CRM for Outlook for Microsoft Dynamics CRM 2016 and Dynamics CRM Online
CRM Blog: Microsoft Dynamics CRM for Outlook Configuration Diagnostic
Troubleshooting and monitoring server-side synchronization

Set incoming and outgoing email synchronization

Applies To: CRM 2016 on-prem, CRM Online

You have several options for synchronizing email messages with Microsoft Dynamics CRM. Use the following information to deploy the best option for your company.

Set the synchronization method

You can set the default synchronization method applied to all newly created user mailboxes:

1. Go to **Settings** > **Email Configuration**

2. Click the **Email Configuration Settings** > **Email tab**.

You can set the synchronization method for individual mailboxes:

1. Go to **Settings** > **Email Configuration**
2. Click **Mailboxes** > select a mailbox.

For information on picking a synchronization method, see [Integrate your email system with Microsoft Dynamics CRM](#).

Incoming email messaging options

The available incoming email configurations that you can use when a user or a queue receives Microsoft Dynamics CRM email messages are as follows:

- **None**. Use this option for users or queues that do not use Microsoft Dynamics CRM to track received email messages.

- **Microsoft Dynamics CRM for Outlook**. This option is available for users and requires that Microsoft Office Outlook be installed on the user's computer. This option does not require the Email Router component and is not available for queues.

- **Server-Side Synchronization or Email Router**. When you select this option, the server-side synchronization or Email Router will process Microsoft Dynamics CRM email messages directly from the user's or queue's inbox, without using a forward or a sink mailbox. Although this option does not require a sink mailbox, it does make troubleshooting server-side synchronization or Email Router issues more complex for larger user bases (10 or more users) because each incoming email message is processed by the server-side synchronization or Email Router in every user's mailbox instead of in a single dedicated mailbox.

- **Forward Mailbox**. To use this option, you must install the Email Router. This option requires a *sink* mailbox, which is a dedicated mailbox that collects email messages transferred from each Microsoft Dynamics CRM user's mailbox by a server-side rule. Although this option does not require users to run Outlook, it does require that the rule be deployed for each user. You use the Rule Deployment Wizard to deploy rules to each Microsoft Dynamics CRM user mailbox.

Outgoing email messaging options

The available outgoing email configurations that you can use when users or queues send Microsoft Dynamics CRM email messages are as follows:

- **None**. Use this option for users or queues that do not use Microsoft Dynamics CRM to send email messages.

- **Microsoft Dynamics CRM for Outlook**. This option is available for users and requires that Microsoft Office Outlook be installed on the user's computer. This option does not require the Email Router component and is not available for queues.

- **Server-Side Synchronization or Email Router**. This option delivers Microsoft Dynamics CRM email messages by using the server-side synchronization or Email Router component. The email system must be SMTP-compliant. The server-side synchronization or Email Router can be installed on the SMTP server or on a different computer that has a connection to the SMTP server.

See Also

Monitor email processing errors

Applies To: CRM 2016 on-prem, CRM Online

Microsoft Dynamics CRM generates alerts if errors occur while email is being processed. An error can be classified based on the nature of the error and on whether the error is for an email, a mailbox, or an email server profile.

The following table lists the distinction between permanent and transient errors.

Permanent Errors	Transient Errors
These are of permanent nature and can occur when the transient errors aren't fixed after a few attempts.	These are of temporary nature and may get fixed automatically after a few attempts.
When these errors occur, email processing for the affected mailboxes is stopped. These require a corrective action by the mailbox owner or a CRM administrator.	These errors don't necessarily require a corrective action by a CRM user, but we recommend that you look at these.
The administrators and users are alerted on their alert walls to take action and start email processing.	The administrators and users are notified on the alerts wall about these errors but no action is required for these errors.

The following table will help you distinguish between email-level, mailbox-level, and email server profile-level errors and whether a corrective action is needed.

Email-level errors	Mailbox-level errors	Email server profile-level errors
These are errors specific to an email message.	These are error specific to a mailbox.	These errors may occur for one or more mailboxes.
These don't have impact on the processing of other email.	The owner of the mailbox is notified on the alerts wall and the owner is required to take a corrective action.	The owner of the associated email server profile is notified on the alerts wall and the owner is required to take a corrective action.
The alerts for these are displayed in the alerts section of the email form.	The alert is also displayed in the respective mailbox form.	The owners of the mailbox that are affected are also notified on the alerts wall but no action is required by them.

View alerts

The alerts are shown on the Alerts wall or the Alerts section in the mailbox or email server profile records. The following table shows how to view the alerts and the actions you can take on these alerts.

To	Do this
View all alerts	Go to **Sales** > **Alerts**. • To delete all alerts at once, click or tap the Delete all alerts icon on the alerts wall. • To view just errors, warnings, or information, click or tap **Errors**, **Warnings**, or **Information** respectively. If you are also synchronizing appointments, contacts, and tasks through server-side synchronization, you'll see alerts for the following: • When one or more duplicate records are found in Microsoft Dynamics CRM when saving a record from Exchange to Microsoft Dynamics CRM. • When a scheduling conflict is found when saving an appointment from Exchange to Microsoft Dynamics CRM because a mailbox is unavailable at the time. • When previously linked items are found for a specific mailbox. You'll be prompted to take actions on the errors about the appointment, contacts, and tasks synchronization.
View alerts specific to mailbox	1. Go to **Settings** > **Email Configuration**. 2. Click **Mailboxes**. 3. Open a mailbox record, and on the left navigation bar, under **Common**, click or tap **Alerts**.
View alerts specific to an email server profile	1. Go to **Settings** > **Email Configuration**. 2. Click **Email Server Profiles**. 3. Open an email server profile record, and on the left navigation bar, under **Common**, click or tap **Alerts**.

 Note

If you don't wish to get alerts, you can disable them from the Help & Training: System Settings dialog box – Email tab by clearing the check boxes for alerts.

See Also

Integrate your email system with Microsoft Dynamics CRM
Set up server-side synchronization of email, appointments, contacts, and tasks

Email message filtering and correlation

Applies To: CRM 2016 on-prem, CRM Online

Server-side synchronization, Microsoft Dynamics CRM for Outlook, or the Email Router can automatically create email activities in Microsoft Dynamics CRM, which are based on received email messages. This type of automation is known as email message tracking. Users can select a filtering option that determines what email messages will be tracked in Microsoft Dynamics CRM. Filtering is set on the **Email** tab of the **Set Personal Options** dialog box in the Microsoft Dynamics CRM client applications. Users can set the following options:

- **All email messages**. All email messages received by the user are tracked (will have activities created).

- **Email messages in response to CRM email**. Only replies to email messages that have already been tracked will be saved as email activities. This option uses What is smart matching?, a correlation method that uses the existing properties contained in the email to relate email messages to activities.

- **Email messages from CRM Leads, Contacts, and Accounts**. Only email messages sent from leads, contacts, and accounts in the Microsoft Dynamics CRM database are saved as activities.

- **Email messages from Microsoft Dynamics CRM records that are email enabled**. Email messages are tracked from any record type that contains an email address, including customized record types (entities).

By default, the **Email messages in response to CRM email** option is enabled. Correlation occurs after an email message is filtered. System administrators can turn off all message tracking for a particular user by setting the **Email Access Type - Incoming** value to **None** on the **General** tab on the **User** form.

Email correlation is set on the **Email** tab of the System Settings page and can be enabled or disabled for the entire Microsoft Dynamics CRM organization. Microsoft Dynamics CRM uses two kinds of correlation, tracking tokens and smart matching. By default, both correlation types are enabled.

◆ Important

Tracking tokens are the only supported correlation method that can be used when you use Dynamics CRM for Outlook connected to an SMTP server and send email to a non-Exchange recipient. In this situation, if tracking tokens are not enabled, then correlation events, such as the automatically creating

records based on the regarding object, may not work.

How Microsoft Dynamics CRM uses tracking tokens

Tracking tokens increase the probability for email identification and matching. You can use the tracking token feature to improve email message tracking. A tracking token is an alphanumeric string generated by Microsoft Dynamics CRM and appended to the end of an email subject line. It matches email activities with email messages.

Tracking tokens add an additional correlation component to smart matching. When Microsoft Dynamics CRM generates an outgoing email activity, a resulting email response arriving in the Microsoft Dynamics CRM system is then correlated to the originating activity.

By default, the tracking token feature is turned on.

Tracking token structure

By default, Microsoft Dynamics CRM uses the following token structure, that consists of a 4 character prefix and a 7 digit identifier.
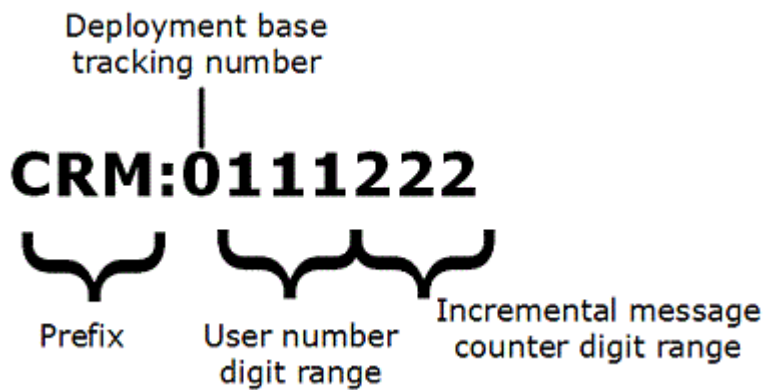
The following table lists tracking token parts and descriptions.

Part	Description
Prefix	Configurable from 1-20 characters. The default value is CRM:. The prefix can be unique for each organization or Microsoft Dynamics CRM Online instance. For example, in a multi-tenant deployment of Microsoft Dynamics CRM, we recommend that each organization configure and use a unique prefix.
Deployment base tracking number	Configurable from 0-2,147,483,647. Default value is 0. Can be used as an identifier for a specific instance, organization, or deployment of Microsoft Dynamics CRM.
User number digit range	Configurable from 1-9. The default range is three (3) digits. This value determines how many digits

Part	Description
	to use when Microsoft Dynamics CRM generates the numeric identifier for the Microsoft Dynamics CRM user who generated the email activity.
Incremental message counter digit range	Configurable from 1-9. Default range is three (3) digits. This value determines how many digits to use when Microsoft Dynamics CRM generates the numeric identifier for the email activity (not the individual messages that the activity contains). If you use the default value to generate a token with a three-digit number, it will increment the number through 999, and then restart the number at 000. You can use a larger order of digits to reduce the possibility of assigning duplicate tokens to active email threads.

Although we don't recommend it because it can significantly reduce the probability for accurate email activity to email message correlation, you can turn tacking tokens off. To enable, disable, or configure tracking tokens, do the following:

1. On the nav bar, choose **Microsoft Dynamics CRM** > **Settings**. Then click or tap **Administration** > **System Settings**.

2. Click or tap the **Email** tab.

3. In the **Configure email correlation** area you can disable, enable, or change the default tracking token structure.

What is smart matching?

When an incoming email message is processed by the Email Router, the system extracts information associated with the email message subject, sender address, and recipients' addresses that link the email activity to other Microsoft Dynamics CRM records. This correlation process, also known as smart matching, uses the following criteria to match received email message information to email activities:

- Subject matching. Prefixes, such as RE: or Re:, and letter case are ignored. For example, email message subjects with *Re: hello* and *Hello* would be considered a match.

- Sender and recipient matching. The system calculates the number of exact sender and recipient email addresses in common.

When the matching process is complete, the system selects the owner and the object of the incoming email message.

By default, smart matching is turned on.

 Note

You can disable, enable, and tune smart-matching settings in the Help & Training: System Settings dialog box – Email tab.

See Also

Forward mailbox vs. individual mailboxes

Applies To: CRM 2016 on-prem, CRM Online

You can use mailbox monitoring to poll one or more mailboxes for incoming email messages, and then determine what actions Microsoft Dynamics CRM will take based on the email message, such as create or update records in the system. You can configure server-side synchronization or the Email Router to monitor either of the following:

- A forward mailbox. This is a single, central mailbox.

- The mailbox for each user or queue.

If you administer an organization that has to monitor a large number of mailboxes, you should consider using a forward mailbox to reduce the administrative effort. Monitoring many mailboxes can sometimes require maintaining access credentials in many incoming configuration profiles.

By using a forward mailbox, you shift the administrative effort to the task of deploying a server-side forwarding rule to each user mailbox. The forwarding rule forwards all incoming email messages as attachments to the centralized forward mailbox. For Microsoft Exchange Server only, you can use the Rule Deployment Wizard (installed with the Microsoft Dynamics CRM Email Router) to deploy forwarding rules. This can significantly reduce administration and maintenance requirements because the Rule Deployment Wizard can deploy forwarding rules to multiple Microsoft Dynamics CRM users at the same time.

◆ Important

- To use a forward mailbox with a Microsoft Dynamics CRM deployment that interfaces with a POP3-compliant email system, the email system must be able to forward email messages as attachments.

- For POP3 e-mail servers and Exchange Online, you cannot use the Rule Deployment Wizard. Instead, you must create the rules manually. For instructions, see Deploy inbox rules.

You can configure users and queues in different ways within the same Microsoft Dynamics CRM deployment. For example, you may want to configure some user or queue mailboxes to be monitored directly on one email server, and configure others to use a forward mailbox on a different email server.

Monitor a forward mailbox

When you use forward mailbox monitoring, incoming email messages are processed by Microsoft Exchange Server or the POP3 server and Microsoft Dynamics CRM in the following sequence:

1. An email message is received by a Microsoft Dynamics CRM user or queue mailbox, on either the Exchange Server or the POP3 server.

2. A rule in the user's mailbox sends a copy of the message, as an attachment, to the forward mailbox.

3. Microsoft Dynamics CRM (by using server-side synchronization or Email Router) retrieves the message from the forward mailbox and creates the appropriate records.

See Also

Integrate your email system with Microsoft Dynamics CRM

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Recover from Exchange Server failure

Applies To: CRM 2016 on-prem, CRM Online

The process to restore a Microsoft Exchange Server computer that is used by Microsoft Dynamics CRM depends on how that instance of Exchange Server is being used. The only time Microsoft Dynamics CRM-related data exists on Exchange Server occurs when you use a forward mailbox with the Microsoft Dynamics CRM Email Router or server-side synchronization. Microsoft Dynamics CRM doesn't directly use Exchange Server mailboxes.

Restore Exchange Server in a Microsoft Dynamics CRM environment

1. Restore Exchange Server.

2. If the Email Router was installed on the computer that is running Exchange Server (not recommended), reinstall the Email Router.

3. Restore the Microsoft.Crm.Tools.EmailAgent.xml file. By default, this file is located in the C:\Program Files\Microsoft CRM Email\Service folder on the computer where the Email Router is installed. If this file isn't available, you must reconfigure the profiles, settings, users, queue, and forward-mailbox information by running the Email Router Configuration Manager.

For more information about Microsoft Exchange Server 2013 backup and recovery, see Backup, restore, and disaster recovery.

For more information about Microsoft Exchange Server 2010 backup and recovery, see Understanding Backup, Restore and Disaster Recovery.

See Also

Integrate your email system with Microsoft Dynamics CRM

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Extend CRM with integration and solutions

Applies To: CRM 2016 on-prem, CRM Online

Extend Microsoft Dynamics CRM with a rich set of interoperability and connectivity features.

In This Section

Manage your documents using SharePoint

Skype for Business and Skype integration with Microsoft Dynamics CRM

Set up knowledge management in Microsoft Dynamics CRM

Connect to Microsoft Social Engagement

Connect Microsoft Dynamics CRM to Yammer

Control social data

Manage Bing Maps for your organization

Deploy packages using CRM Package Deployer and Windows PowerShell

Use Power BI with Microsoft Dynamics CRM

Install or remove a preferred solution

See Also

Administering CRM 2016

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Manage your documents using SharePoint

Applies To: CRM 2016 on-prem, CRM Online

With Microsoft Dynamics CRM, you can set up folders to save and manage your documents, specify permissions for managing tasks, and ensure that the SharePoint site URLs are correct.

In This Section

SharePoint Document Management software requirements for Microsoft Dynamics CRM

Important considerations for server-based SharePoint integration

Set up SharePoint integration with Microsoft Dynamics CRM

Permissions required for document management tasks

Validate and fix SharePoint site URLs

Connect to OneDrive for Business

See Also

SharePoint Document Management software requirements for Microsoft Dynamics CRM

Applies To: CRM 2016 on-prem, CRM Online

If you want to use Microsoft SharePoint document management functionality with Microsoft Dynamics CRM Online or Microsoft Dynamics CRM (on-premises), you must meet the requirements listed in this topic.

In This Topic

Use document management in Microsoft Dynamics CRM Online

Use document management in Microsoft Dynamics CRM on-premises

Server-based SharePoint integration

Microsoft Dynamics CRM List Component for Microsoft SharePoint

Use document management in Microsoft Dynamics CRM Online

If you are using server-based integration with SharePoint, you can use Microsoft SharePoint Online or Microsoft SharePoint 2013 SP1 on-premises (or a later version).

If you are using the Microsoft Dynamics CRM 2016 List Component for Microsoft SharePoint, one of the following versions of Microsoft SharePoint must be available:

- Microsoft SharePoint 2013 or Microsoft SharePoint 2013 SP1

- Microsoft SharePoint 2010 SP1 or SP2

- Microsoft SharePoint Online

A SharePoint site collection. You also need to have at least one site collection configured and available for Microsoft Dynamics CRM.

Either **Server-based SharePoint integration** (recommended) or **Microsoft Dynamics CRM List Component** must be enabled.

The list component, which is a SharePoint solution, is not required if you use server-based SharePoint integration. Although the Microsoft Dynamics CRM List Component is the default document management configuration option, we recommend you enable server-based SharePoint integration. More information: Server-based SharePoint integration

❖ **Important**

The document management feature requires that Microsoft Dynamics CRM Online and SharePoint Online subscriptions be under the same tenant.

SharePoint Foundation versions aren't compatible with Microsoft Dynamics CRM document management.

Users who access SharePoint from CRM must have appropriate permissions on the SharePoint site collection where the document management components are installed. For more information about how to grant membership on a site collection, see the SharePoint Help.

Use document management in Microsoft Dynamics CRM on-premises

If you are using server-based integration with SharePoint, you can use Microsoft SharePoint Online or Microsoft SharePoint 2013 SP1 on-premises (or a later version).

If you are using the Microsoft Dynamics CRM 2016 List Component for Microsoft SharePoint, one of the following versions of Microsoft SharePoint must be available:

• Microsoft SharePoint 2013 or Microsoft SharePoint 2013 SP1

• Microsoft SharePoint 2010 SP1 or SP2

• Microsoft SharePoint Online

A SharePoint site collection. You also need at least one site collection configured and available for Microsoft Dynamics CRM.

Either **Server-based SharePoint integration** (recommended) or   **Microsoft Dynamics CRM List Component**, must be enabled.

The Microsoft Dynamics CRM List Component is a SharePoint solution. you must download and install. More information: Microsoft Dynamics CRM List Component for Microsoft SharePoint

 Important

SharePoint Foundation versions aren't supported for use with Microsoft Dynamics CRM document management.

Users who access SharePoint from CRM must have appropriate permissions on the SharePoint site collection where the document management components are installed. For more information about how to grant membership on a site collection, see the SharePoint Help.

Server-based SharePoint integration

Earlier versions of CRM document management use a client-to-server strategy to authenticate and transmit data from Microsoft Dynamics CRM to SharePoint. Server-based (using server-to-server authentication) SharePoint integration provides the following benefits:

• User interface that is consistent with the newly-updated Microsoft Dynamics CRM user interface.

• To configure and use document management, you do not need to be signed in to both Microsoft Dynamics CRM and SharePoint.

- You no longer need to install or continue to use the Microsoft Dynamics CRM List Component solution. Note that client-to-server authentication strategies that require SharePoint Online server sandboxing may be deprecated soon. This functionality is required by the Microsoft Dynamics CRM List Component.

SharePoint authentication method support

SharePoint version	List component support	Server-based SharePoint integration support
Microsoft SharePoint 2013 or Microsoft SharePoint 2013 SP1	Yes	Yes with Microsoft SharePoint 2013 SP1 when used with Microsoft Dynamics CRM Online or Microsoft Dynamics CRM 2016 (on-premises)
Microsoft SharePoint 2010 SP1 or SP2	Yes	No
Microsoft SharePoint Online	Yes	Yes

 Note

You can create and view folders when using the Microsoft Dynamics CRM List Component. This is not available in server-based SharePoint integration.

For information about how to enable server-based SharePoint integration, see Set up SharePoint integration with Microsoft Dynamics CRM.

For more information about the Microsoft Dynamics CRM List Component, see Microsoft Dynamics CRM List Component for Microsoft SharePoint.

Microsoft Dynamics CRM List Component for Microsoft SharePoint

The Microsoft Dynamics CRM List Component makes Microsoft Dynamics CRM documents that are stored on SharePoint available to you in a format that has the look and feel of Microsoft Dynamics CRM. This feature also lets Microsoft Dynamics CRM automatically create folders that will be used to store documents related to CRM records on SharePoint.

The Microsoft Dynamics CRM List Component has the following benefits:

- Users can create and view folders when using document management within Microsoft Dynamics CRM.

- Users can create custom content types such as a Sales Contract content type.

 Important

- Notice that the Microsoft Dynamics CRM List Component isn't required when you use server-based integration with SharePoint. More information: Server-based SharePoint integration

- Cient-to-server authentication strategies that require SharePoint server sandboxing, like those used with the Microsoft Dynamics CRM List Component, may be deprecated soon.
- There are two versions of the Microsoft Dynamics CRM List Component:
  - **Microsoft Dynamics CRM 2016 List Component for Microsoft SharePoint Server 2010**. This version doesn't work with SharePoint 2013.
  - **Microsoft Dynamics CRM 2016 List Component for Microsoft SharePoint Server 2013**. This version doesn't work with SharePoint 2010.

See Also

Download: Microsoft Dynamics CRM 2016 List Component for Microsoft SharePoint Server 2013 or Microsoft SharePoint Server 2010
Manage your documents using SharePoint
Set up and manage phones and tablets
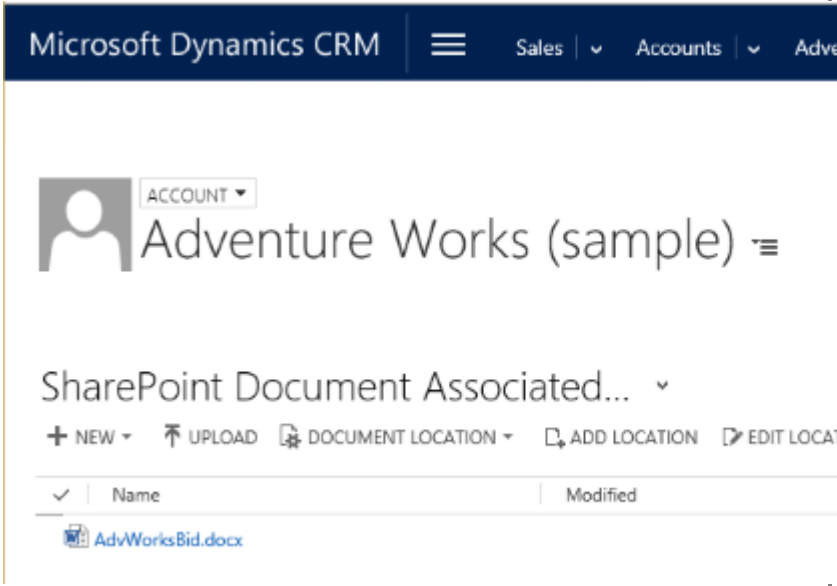
Important considerations for server-based SharePoint integration

Applies To: CRM Online

Before you move to server-based SharePoint integration, review the following table to see some of the differences you'll experience between client-based versus server-based SharePoint integration.

Area	Client-based SharePoint integration	Server-based SharePoint integration	For those moving to Server-based SharePointintegration
Sign in	Must sign in to both Microsoft Dynamics CRM and SharePoint to be able to view the	Only need to sign in to CRM.	

Area	Client-based SharePoint integration	Server-based SharePoint integration	For those moving to Server-based SharePointintegration
	document grid.		
List component	Must download list component and upload directly to SharePoint site before connecting site to CRM.	No list component required.	
Support lifecycle	This approach relies on the sandboxed solutions functionality on SharePoint. SharePoint plans to deprecate this functionality. If the sandboxed functionality isn't available for a SharePoint site, this integration won't	This approach relies on server-to-server authentication and won't be affected by the deprecation of the sandboxed solutions functionality in SharePoint.	More information: Deprecation of Custom Code in Sandboxed Solutions

Area	Client-based SharePoint integration	Server-based SharePoint integration	For those moving to Server-based SharePointintegration
	work.		
SharePoint commands	Includes: • Alert Me • Download a Copy • Copy Shortcut • Send Shortcut • View Properties • Version History	Does not include the SharePoint commands listed in the client-based integration column.	The client-based actions can be accessed directly in SharePoint with server-based integration. Select **Open SharePoint** to view the document location directly in SharePoint and access the actions.
Custom content types	Can create new custom content types.	Can't create new custom content types.	Previously created custom content types can still be viewed and edited but to create a new custom content type you'll need to create it directly in SharePoint using **Open SharePoint**.
Absolute URLs	Supported	Unsupported	Users moving from the client-based approach to the server-based approach need to convert their absolute URLs to relative URLs. This will only work if the absolute URL provided is in a SharePoint site valid for server-based SharePoint integration.
Folder navigation	Users can create SharePoint folders while in	Users can't create folders in CRM and the	All documents under subfolders are displayed in the CRM grid. Relative URLs are displayed to show users where the document is located relative to the parent folder. SharePoint document views can be customized so users see only documents in a specific folder or subfolder.

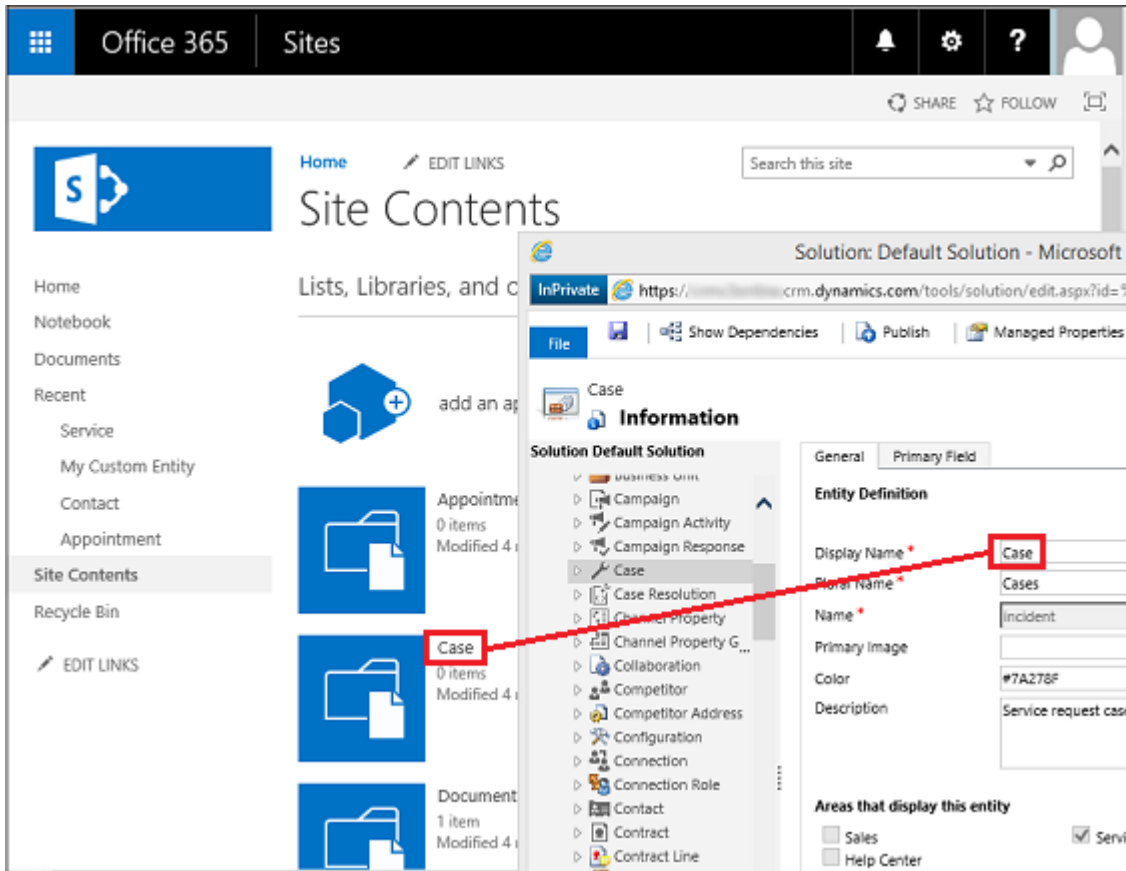| Area	Client-based SharePoint integration	Server-based SharePoint integration	For those moving to Server-based SharePointintegration
	CRM. Folders are displayed in a grid that users can navigate through.	folders aren't displayed in CRM.	More information: "Validation Error" when you try to configure server-based SharePoint integration for Microsoft Dynamics CRM Online and SharePoint Online
Online vs. on-premises support	Can connect: • CRM Online with SharePoint Online • CRM Online with SharePoint Server (on-premises) • CRM on-premises with	Can connect: • CRM Online with SharePoint Online if the SharePoint site is under the same Office 365 tenant as CRM Online. • CRM Online	

Area	Client-based SharePoint integration	Server-based SharePoint integration	For those moving to Server-based SharePointintegration
	SharePoint Online • CRM on-premises with SharePoint Server (on premises)	with SharePoint on-premises. • CRM on-premises with SharePoint Online • CRM on-premises with SharePoint Server (on premises)	
Resource Throttling	Doesn't apply.	A document library with 5000 or more documents might experienc	If you have more than 5000 documents in your document library, you can view the documents in the default grid view. However, if you sort on columns other than the default sorted column, you might see an error indicating that the throttling limit has been exceeded.

Area	Client-based SharePoint integration	Server-based SharePoint integration	For those moving to Server-based SharePointintegration
		e resource throttling. More information: [Resource throttles and limits](#)	

Known issues with server-based SharePoint integration

The Microsoft Dynamics CRM List Component builds the SharePoint library using the internal name of the document-enabled entity in CRM. Server-based SharePoint integration uses the entity display name. When you upgrade to server-based SharePoint integration, be sure to check that the display names in your document library on SharePoint match the entity display names in CRM.

These names should match.

More information: [Error message when using the new server-based SharePoint integration for Microsoft Dynamics CRM Online and SharePoint Online: "List Does Not Support This Operation"](#)

See Also

[Referenced topic '9f201f30-245a-458e-b15f-961a9d049ea7' is not in the TOC.](#)
[Set up SharePoint integration with Microsoft Dynamics CRM](#)
[Permissions required for document management tasks](#)

Set up SharePoint integration with Microsoft Dynamics CRM

Applies To: CRM 2016 on-prem, CRM Online

With Microsoft Dynamics CRM, you can use the document management capabilities of Microsoft SharePoint from within Dynamics CRM. You can store and manage documents in the context of a Dynamics CRM record on a SharePoint Server, and leverage the SharePoint infrastructure to share, manage, and collaborate efficiently. Because the documents are stored on a SharePoint Server, non-Microsoft Dynamics CRM users can directly access the documents on the SharePoint Server, provided they have the appropriate permissions.

For document management functionality, you either enable server-based SharePoint integration (recommended) or install the Microsoft Dynamics CRM List Component, a SharePoint solution, on a site collection in SharePoint. Server-based SharePoint integration is recommended instead of the Microsoft Dynamics CRM List Component for the following reasons.

- Users sign-in once and do not have to sign-in to both Microsoft Dynamics CRM and SharePoint. With the list component, users must sign in to both.

- The list component is a SharePoint sandboxed solution. Sandboxed solutions are being deprecated and will no longer be available for both Microsoft SharePoint Online and later versions of SharePoint on-premises. More information:Sandboxed solutions overview

- No additional software is required to install on SharePoint.

- SharePoint documents will display in Microsoft Dynamics CRM lists.

- Users can perform SharePoint actions from the CRM command bar.

In This Section

Switching from the list component or changing the deployment

Configure server-based authentication with Dynamics CRM Online and SharePoint Online

Configure server-based authentication with Dynamics CRM Online and SharePoint on-premises

Configure server-based authentication with Microsoft Dynamics CRM on-premises and SharePoint Online

Configure server-based authentication with Microsoft Dynamics CRM on-premises and SharePoint on-premises

Troubleshooting server-based authentication

Configure SharePoint integration using the list component

See Also

Manage your documents using SharePoint
Permissions required for document management tasks
Validate and fix SharePoint site URLs
Enable Document Management on Entities

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Switching from the list component or changing the deployment

Applies To: CRM 2016 on-prem, CRM Online

Follow the steps described here to switch from the list component to server-based authentication or if you change the Microsoft SharePoint deployment type, such as moving from SharePoint on-premises to SharePoint Online.

In This Topic

[Switch from list component to server-based authentication](#)
[Changing the SharePoint deployment type](#)

Switch from list component to server-based authentication

If your organization is already using the list component with Microsoft SharePoint for document management with Microsoft Dynamics CRM, you can switch to server-based authentication by following these steps.

1. Follow the steps to set up server-based SharePoint integration that best fits your deployment type. For more information, see the See Also topics below.

 Note

If you've made changes to SharePoint, such as new SharePoint servers, new site collections, or migrated from SharePoint on-premises to Microsoft SharePoint Online, consider deactivating outdated SharePoint site records. When you run the Enable Server-Based SharePoint Integration wizard, the wizard will attempt to validate all active SharePoint sites. More information: [Deactivate a site](#)

2. Although it is not required for server-based authentication, we recommend that you deactivate and then delete the list component SharePoint solution from the SharePoint site collection. To do this, after you have confirmed that server-based authentication is enabled, in a web browser sign-in to the site collection, click the **Settings** button in the top-right corner, then **Site Settings**, and then under **Web Designer Galleries**, click **Solutions**. Choose **crmlistcomponent**, and then on the tool bar click **Deactivate**. Choose the **crmlistcomponent** again, and then on the tool bar click **Delete**.

Changing the SharePoint deployment type

1. After the migration of Microsoft SharePoint to either online or on-premises is completed, deactivate the outdated SharePoint site records. You must do this because, when you run the Enable Server-Based SharePoint Integration wizard, the wizard will attempt to validate all active SharePoint sites. More information: [Deactivate a site](#)

2. Follow the steps to set up server-based SharePoint integration that best fits your deployment type. For more information, see the See Also topics below.

Deactivate a site

1. Go to **Settings** > **Document Management**.

2. Click **SharePoint Sites**.

3. Select the SharePoint site you want to remove, and then on the tool bar select **Deactivate**.

4. Repeat step three for all sites that you want to deactivate.

See Also
Configure server-based authentication with Dynamics CRM Online and SharePoint Online
Configure server-based authentication with Dynamics CRM Online and SharePoint on-premises
Configure server-based authentication with Microsoft Dynamics CRM on-premises and SharePoint Online
Configure server-based authentication with Microsoft Dynamics CRM on-premises and SharePoint on-premises
Set up SharePoint integration with Microsoft Dynamics CRM

Configure server-based authentication with Dynamics CRM Online and SharePoint Online

Applies To: CRM Online

Microsoft Office 365 administrators can enable document management functionality by using server-based SharePoint integration. Server-based SharePoint integration allows Microsoft Dynamics CRM Online and Microsoft SharePoint Online to perform a server-to-server connection. Additionally, server-based SharePoint integration doesn't require additional software.

◆ **Important**

After you enable server-based SharePoint integration, you can't revert to the previous client-based authentication method. Therefore, you can't use the Microsoft Dynamics CRM List Component after you have configured your CRM organization for server-based SharePoint integration.

Before you implement server-based SharePoint integration, see Important considerations for server-based SharePoint integration.

To enable server-based SharePoint integration with Microsoft Dynamics CRM Online and SharePoint Online, follow these steps.

1. Go to **Settings** > **Document Management**.

2. Click **Enable Server-based SharePoint Integration**.

3. The Enable Server-Based SharePoint Integration page appears. Click **Next**.

4. Under **Select where your SharePoint sites are located** make sure **Online** is selected, and then click **Next**.

5. Enter the URL for the SharePoint   site. The URL should appear similar to https://sharepoint.microsoft.com/contoso. Click **Next**.

6. The site is validated. If the site cannot be validated, see Troubleshooting server-based authentication.

After you complete the **Enable Server-based SharePoint Integration** wizard, add or remove the entities that will be used for document management with SharePoint.

1. Go to **Settings** > **Document Management**.

2. Then go to **Document Management Settings**. More information: Help & Training: Enable document management on entities

Tip

- For an overview and step-by-step configuration details, check out this video YouTube: Connect CRM Online to SharePoint Online.

- After you enable server-based SharePoint integration with Microsoft Dynamics CRM Online and SharePoint Online, you can now enable Microsoft OneNote integration. More information: CRM Help & Training: Set up and use OneNote in CRM

Information transmitted between CRM Online and SharePoint when you use server-based SharePoint integration

When you use the document management feature in Microsoft Dynamics CRM by using server-based SharePoint integration, the following information is transmitted between Microsoft Dynamics CRM Online and SharePoint.
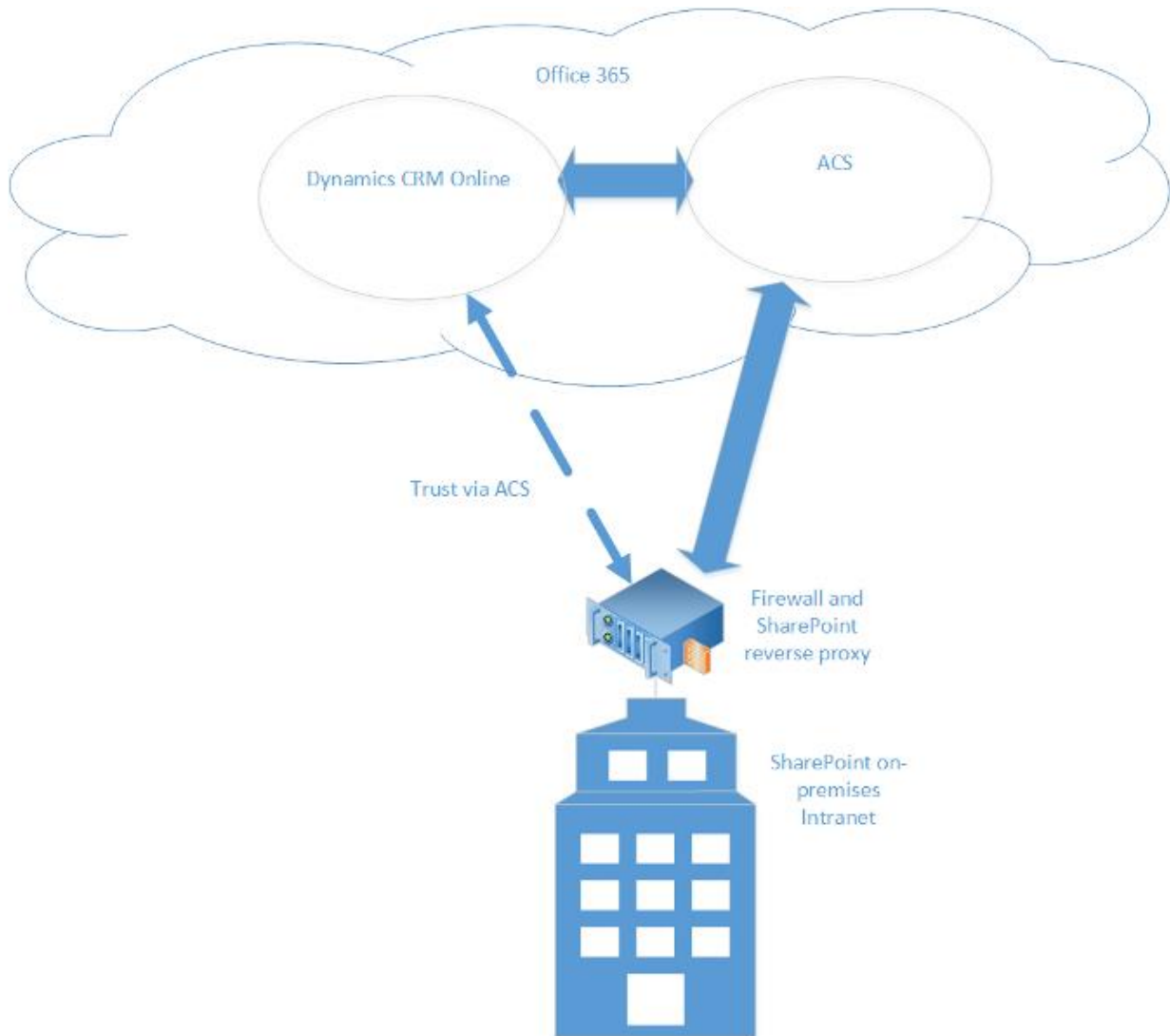
- Entity name for the entity that is used to create folders in SharePoint, such as Account, Article, or Lead. To configure the entities that are integrated, go to **Settings** > **Document Managemen**t > **Document Management Settings**.

Configure server-based authentication with Dynamics CRM Online and SharePoint on-premises

Applies To: CRM Online

Introduced with Microsoft Dynamics CRM Online 2015 Update 1, server-based Microsoft SharePoint integration for document management can now be used to connect Microsoft Dynamics CRM Online with SharePoint on-premises. When you use server-based authentication, Azure Active Directory Access Control Services (ACS) is used as the trust broker and users do not need to sign-in to SharePoint. Additionally, the list control, which requires the deprecated SharePoint sandboxing feature, is not required to display SharePoint documents in Microsoft Dynamics CRM views.

In this topic

Permissions required

Office 365

- Office 365 Global Administrators membership. This is required for administrative-level access to the Microsoft Office 365 subscription and to run the Microsoft Azure PowerShell cmdlets.

Microsoft Dynamics CRM Online

- **Run SharePoint Integration Wizard** privilege. This is required to run the Enable Server-based Authentication wizard in Microsoft Dynamics CRM.

  By default, the System Administrator security role has this permission.

SharePoint on-premises

- Farm Administrators group membership. This is required to run most of the PowerShell commands on the SharePoint server.

Set up server-to-server authentication with CRM Online and SharePoint on-premises

Follow the steps in the order provided to set up CRM Online with SharePoint 2013 on-premises.

◆ Important

- The steps described here must be completed in the order provided. If a task is not completed, such as a PowerShell command that returns an error message, the issue must be resolved before you continue to the next command, task, or step.

- After you enable server-based SharePoint integration, you can't revert to the previous client-based authentication method. Therefore, you can't use the Microsoft Dynamics CRM List Component after you have configured your CRM organization for server-based SharePoint integration.

Verify prerequisites

Before you configure Microsoft Dynamics CRM Online and SharePoint on-premises for server-based authentication, the following prerequisites must be met.

SharePoint prerequisites

- Microsoft SharePoint 2013 (on-premises) with Service Pack 1 (SP1) or later version

♦ Important

Microsoft SharePoint Foundation 2013 versions aren't supported for use with Microsoft Dynamics CRM document management.

- Hotfix KB2883081 for SharePoint Foundation 2013 August 12, 2014 (Sts-x-none.msp)

♦ Important

The following updates are prerequisites to KB2883081 and may also be required.

- http://support2.microsoft.com/kb/2768000
- http://support.microsoft.com/kb/2767999
- http://support.microsoft.com/kb/2880963

- SharePoint configuration
  - SharePoint must be configured for a single farm deployment only.
  - SharePoint website must be accessible via the Internet. A reverse proxy may also be required for SharePoint authentication. More information: Configure a reverse proxy device for SharePoint Server 2013 hybrid
  - SharePoint website must be configured to use SSL (HTTPS) and the certificate must be issued by a public root Certificate Authority. More information: SharePoint: About Secure Channel SSL certificates
  - A reliable user property to use for claims-based authentication mapping between SharePoint and Microsoft Dynamics CRM. More information: Selecting a claims-based authentication mapping type
  - For document sharing, the SharePoint search service must be enabled. More information: Create and configure a Search service application in SharePoint Server
  - For document management functionality when using the Microsoft Dynamics CRM mobile apps, the on-premises SharePoint server must be available through the Internet.

Other prerequisites

- SharePoint Online license. Microsoft Dynamics CRM Online to SharePoint on-premises server-based authentication must have the SharePoint service principal name (SPN) registered in Azure Active Directory. To achieve this, at least one SharePoint Online user license is required. The SharePoint Online license can derive from a single user license and typically comes from one of the following:
  - A SharePoint Online subscription. Any SharePoint Online plan is sufficient even if the license isn't assigned to a user.
  - An Office 365 subscription that includes SharePoint Online. For example, if you have Office 365 E3, you have the appropriate licensing even if the license isn't assigned to a user.

For more information about these plans, see [Office 365: Select a plan](#) and [Compare SharePoint options](#)

- The following software features are required to run the PowerShell cmdlets described in this topic.
  - [Microsoft Online Services Sign-In Assistant for IT Professionals Beta](#)
  - [Azure Active Directory Module for Windows PowerShell (64-bit version)](#)

◆ **Important**

At the time of this writing, there is an issue with the RTW version of Microsoft Online Services Sign-In Assistant for IT Professionals. Until the issue is resolved, we recommend that you use the Beta version. More information: [Microsoft Azure Forums: Cannot install Azure Active Directory Module for Windows PowerShell. MOSSIA is not installed](#).

- A suitable claims-based authentication mapping type to use for mapping identities between Microsoft Dynamics CRM Online and SharePoint on-premises. By default, email address is used. More information: [Grant Microsoft Dynamics CRM permission to access SharePoint and configure the claims-based authentication mapping](#)

Update the SharePoint Server SPN in ACS

On the SharePoint on-premises server, in the SharePoint 2013 Management Shell, run these PowerShell commands in the order given.

1. Prepare the PowerShell session.

   The following cmdlets enable the computer to receive remote commands and add Office 365 modules to the PowerShell session. For more information about these cmdlets see [Windows PowerShell Core Cmdlets](#).

   ```
   Enable-PSRemoting -force

   New-PSSession

   Import-Module MSOnline -force

   Import-Module MSOnlineExtended -force
   ```

2. Connect to Office 365.

   When you run the Connect-MsolService command, you must provide a valid Microsoft account that has Office 365 Global Administrator membership for the SharePoint Online license that is required.

   For detailed information about each of the Azure Active Directory PowerShell commands listed here, see [MSDN: Manage Azure AD using Windows PowerShell](#).

   ```
   $msolcred = get-credential

   connect-msolservice -credential $msolcred
   ```

3. Set the SharePoint host name.

   The value that you set for the variable *HostName* must be the complete host name of the SharePoint site collection. The hostname must be derived from the site collection url and is case sensitive. In this example, the site collection url is *https://SharePoint.constoso.com/sites/salesteam*, so the hostname is *SharePoint.contoso.com*.

   ```
   $HostName = "SharePoint.contoso.com"
   ```

4. Get the Office 365 object (tenant) id and SharePoint Server Service Principal Name (SPN).

   ```
   $SPOAppId = "00000003-0000-0ff1-ce00-000000000000"

   $SPOContextId = (Get-MsolCompanyInformation).ObjectID

   $SharePoint = Get-MsolServicePrincipal -AppPrincipalId $SPOAppId

   $ServicePrincipalName = $SharePoint.ServicePrincipalNames
   ```

5. Set the SharePoint Server Service Principal Name (SPN) in ACS.

   ```
   $ServicePrincipalName.Add("$SPOAppId/$HostName")

   Set-MsolServicePrincipal -AppPrincipalId $SPOAppId -ServicePrincipalNames

   $ServicePrincipalName
   ```

After these commands complete do not close the SharePoint 2013 Management Shell, and continue to the next step.

Update the SharePoint realm to match that of SharePoint Online

On the SharePoint on-premises server, in the SharePoint 2013 Management Shell, run this Windows PowerShell command.

The following command requires SharePoint farm administrator membership and sets the authentication realm of the SharePoint on-premises farm.

⚠ Caution

Running this command changes the authentication realm of the SharePoint on-premises farm. For applications that use an existing security token service (STS), this may cause unexpected behavior with other applications that use access tokens. More information: Set-SPAuthenticationRealm.

```
Set-SPAuthenticationRealm -Realm $SPOContextId
```

Create a trusted security token issuer for ACS on SharePoint

On the SharePoint on-premises server, in the SharePoint 2013 Management Shell, run these PowerShell commands in the order given.

The following commands require SharePoint farm administrator membership.

For detailed information about these PowerShell commands, see [Use Windows PowerShell cmdlets to administer security in SharePoint 2013](#).

1. Enable the PowerShell session to make changes to the security token service for the SharePoint farm.

    ```
    $c = Get-SPSecurityTokenServiceConfig

    $c.AllowMetadataOverHttp = $true

    $c.AllowOAuthOverHttp= $true

    $c.Update()
    ```

2. Set the metadata endpoint.

    ```
    $metadataEndpoint = "https://accounts.accesscontrol.windows.net/" + $SPOContextId +

    "/metadata/json/1"

    $acsissuer = "00000001-0000-0000-c000-000000000000@" + $SPOContextId

    $issuer = "00000007-0000-0000-c000-000000000000@" + $SPOContextId
    ```

3. Create the new token control service application proxy in ACS.

    ```
    New-SPAzureAccessControlServiceApplicationProxy -Name "ACSInternal" -

    MetadataServiceEndpointUri $metadataEndpoint -DefaultProxyGroup
    ```

🗹 Note

The **New- SPAzureAccessControlServiceApplicationProxy** command may return an error message indicating that an ACS application proxy with the same name already exists. If the named ACS application proxy already exists, you can ignore the error.

4. Create the new token control service issuer in SharePoint on-premises for ACS

    ```
    $acs = New-SPTrustedSecurityTokenIssuer -Name "ACSInternal" -IsTrustBroker:$true -

    MetadataEndpoint $metadataEndpoint -RegisteredIssuerName $acsissuer
    ```

Grant Microsoft Dynamics CRM permission to access SharePoint and configure the claims-based authentication mapping

On the SharePoint on-premises server, in the SharePoint 2013 Management Shell, run these PowerShell commands in the order given.

The following commands require SharePoint site collection administration membership.

1. Register Microsoft Dynamics CRM with the SharePoint site collection.

    Enter the SharePoint on-premises site collection URL. In this example, *https://sharepoint.contoso.com/sites/crm/* is used.

♦ Important

To complete this command, the SharePoint App Management Service Application Proxy must exist and be running. For more information about how to start and configure the service, see the Configure the Subscription Settings and App Management service applications subtopic in Configure an environment for apps for SharePoint (SharePoint 2013).

```
$site = Get-SPSite "https://sharepoint.contoso.com/sites/crm/"

Register-SPAppPrincipal -site $site.RootWeb -NameIdentifier $issuer -DisplayName
"crm"
```

2. Grant Microsoft Dynamics CRM application access to the SharePoint site. Replace *https://sharepoint.contoso.com/sites/crm/* with your SharePoint site URL.

📝 Note

In the following example, the CRM application is granted permission to the specified SharePoint site collection by using the –Scope site collection parameter. The Scope parameter accepts the following options. Choose the scope that is most appropriate for your SharePoint configuration.

- site. Grants the CRM application permission to the specified SharePoint website only. It doesn't grant permission to any subsites under the named site.
- sitecollection. Grants the CRM application permission to all websites and subsites within the specified SharePoint site collection.
- sitesubscription. Grants the CRM application permission to all websites in the SharePoint farm, including all site collections, websites, and subsites.

```
$app = Get-SPAppPrincipal -NameIdentifier $issuer -Site
"https://sharepoint.contoso.com/sites/crm/"
```

```
Set-SPAppPrincipalPermission -AppPrincipal $app -Site $site.Rootweb -Scope

"sitecollection" -Right "FullControl"
```

3. Set the claims-based authentication mapping type.

◆ **Important**

By default, the claims-based authentication mapping will use the user's Microsoft account email address and the user's SharePoint on-premises **Work email** address for mapping. When you use this, the user's email addresses must match between the two systems. For more information, see Selecting a claims-based authentication mapping type.

```
$map1 = New-SPClaimTypeMapping -IncomingClaimType

"http://schemas.xmlsoap.org/ws/2005/05/identity/claims/emailaddress" -

IncomingClaimTypeDisplayName "EmailAddress" -SameAsIncoming
```

Run the Enable server-based SharePoint Integration wizard

In the Microsoft Dynamics CRM app, follow these steps.

1. Go to **Settings** > **Document Management**.
2. In the **Document Management** area, choose **Enable server-based SharePoint integration**.
3. Review the information and then choose **Next**.
4. For the SharePoint sites, choose **On-Premises**, and then choose **Next**.
5. Enter the SharePoint on-premises site collection URL, such as *https://sharepoint.contoso.com/sites/crm*. The site must be configured for SSL.
6. Choose **Next**.
7. The validate sites section appears. If all sites are determined valid, choose **Enable**. If one or more sites are determined invalid, see Troubleshooting server-based authentication.

Select the entities that you want to include in document management

By default, Account, Article, Lead, Product, Quote, and Sales Literature entities are included. You can add or remove the entities that will be used for document management with SharePoint in **Document Management Settings** in Microsoft Dynamics CRM. Go to **Settings** > **Document Management**. More information: Customer Center: Enable document management on entities

Add OneDrive for Business integration

After you complete Microsoft Dynamics CRM and SharePoint on-premises server-based authentication configuration, you can also integrate OneDrive for Business. With Microsoft Dynamics CRM and OneDrive for Business integration, CRM users can create and manage private documents using

OneDrive for Business. Those documents can be accessed in CRM once the system administrator has enabled OneDrive for Business.

Enable OneDrive for Business

On the Windows Server where SharePoint Server on-premises is running, open the SharePoint Management Shell and run the following commands.

```
Add-Pssnapin *

# Access WellKnown App principal

[Microsoft.SharePoint.Administration.SPWebService]::ContentService.WellKnownAppPrincipals


# Create WellKnown App principal

$ClientId = "00000007-0000-0000-c000-000000000000"

$PermissionXml = "<AppPermissionRequests AllowAppOnlyPolicy=""true""><AppPermissionRequest

Scope=""http://sharepoint/content/tenant"" Right=""FullControl"" /><AppPermissionRequest

Scope=""http://sharepoint/social/tenant"" Right=""Read"" /><AppPermissionRequest

Scope=""http://sharepoint/search"" Right=""QueryAsUserIgnoreAppPrincipal""

/></AppPermissionRequests>"


$wellKnownApp= New-Object -TypeName

"Microsoft.SharePoint.Administration.SPWellKnownAppPrincipal" -ArgumentList ($ClientId,

$PermissionXml)


$wellKnownApp.Update()
```

Selecting a claims-based authentication mapping type

By default, the claims-based authentication mapping will use the user's Microsoft account email address and the user's SharePoint on-premises work email address for mapping. Notice that, whatever claims-based authentication type you use, the values, such as email addresses, **must match** between the Microsoft Dynamics CRM Online and SharePoint. Office 365 directory synchronization can help with this. More information: Deploy Office 365 Directory Synchronization (DirSync) in Microsoft Azure To use a different type of claims-based authentication mapping, see Define custom claim mapping for SharePoint server-based integration.

🔷 **Important**

To enable the Work email property, SharePoint on-premises must have a User Profile Service Application configured and started. To enable a User Profile Service Application in SharePoint, see

[Create, edit, or delete User Profile service applications in SharePoint Server 2013](). To make changes to a user property, such as Work email, see [Edit a user profile property](). For more information about the User Profile Service Application, see [Overview of the User Profile service application in SharePoint Server 2013]().
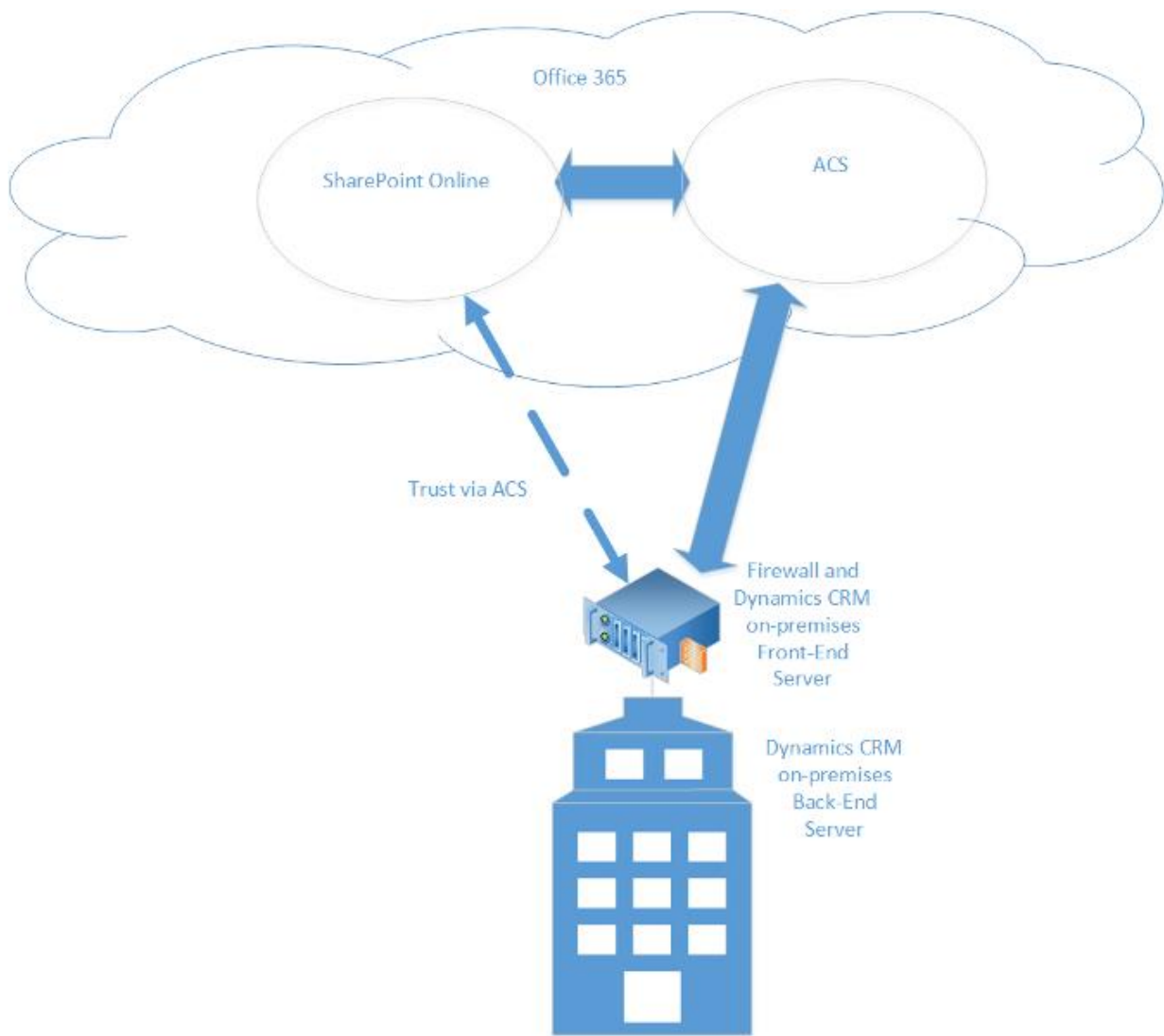
See Also

[Troubleshooting server-based authentication]()
[Set up SharePoint integration with Microsoft Dynamics CRM]()

Configure server-based authentication with Microsoft Dynamics CRM on-premises and SharePoint Online

Applies To: CRM 2016 on-prem

This topic describes how to configure server-based authentication between Microsoft Dynamics CRM (on-premises) and Microsoft SharePoint Online. The diagram below illustrates the communication between Microsoft Dynamics CRM (on-premises), [Azure Active Directory Access Control Services (ACS)](), and SharePoint Online.

In This Topic

Permissions required

Microsoft Dynamics CRM

- System Administrator security role. This is required to run the Enable Server-based SharePoint Integration wizard in Microsoft Dynamics CRM.

- If you are using a self-signed certificate for evaluation purposes, you must have local Administrators group membership on the computer where Microsoft Dynamics CRM Server is running.

SharePoint Online

- Office 365 Global Administrators membership. This is required for administrative-level access to the Office 365 subscription and to run the Microsoft Azure PowerShell cmdlets

Set up server-based authentication with Microsoft Dynamics CRM and SharePoint Online

Follow the steps in the order provided to set up Microsoft Dynamics CRM (on-premises) with SharePoint Online.

◆ Important

- The steps described here must be completed in the order provided. If a task is not completed, such as a Windows PowerShell command that returns an error message, the issue must be resolved before you continue to the next command, task, or step.

- After you enable server-based SharePoint integration, you can't revert to the previous client-based authentication method. Therefore, you can't use the Microsoft Dynamics CRM List Component after you have configured your CRM organization for server-based SharePoint integration.

Verify prerequisites

Before you configure Microsoft Dynamics CRM (on-premises) and SharePoint Online for server-based authentication, the following prerequisites must be met.

- The Microsoft Dynamics CRM (on-premises) deployment must already be configured and available through the Internet. More information: Referenced topic 'eee528fb-ef2f-4a77-ad0f-3d29bcb42351' is not in the TOC.

- Microsoft Dynamics CRM Hybrid Connector. The Microsoft Dynamics CRM Hybrid Connector is a free connector that lets you use server-based authentication with Microsoft Dynamics CRM on-premises and SharePoint Online. More information:Microsoft Dynamics CRM Hybrid Connector

- An x509 digital certificate issued by a trusted certificate authority that will be used to authenticate between Microsoft Dynamics CRM (on-premises) and SharePoint Online. If you are evaluating server-based authentication, you can use a self-signed certificate.

The following software features are required to run the Windows PowerShell cmdlets described in this topic.

- Microsoft Online Services Sign-In Assistant for IT Professionals Beta

- Azure Active Directory Module for Windows PowerShell (64-bit version)

◆ Important

At the time of this writing, there is an issue with the RTW version of Microsoft Online Services Sign-In Assistant for IT Professionals. Until the issue is resolved, we recommend that you use the Beta version. More information: [Microsoft Azure Forums: Cannot install Azure Active Directory Module for Windows PowerShell. MOSSIA is not installed](.).

Set up server-based authentication

1. On the Microsoft Dynamics CRM Server where the deployment tools server role is running, start the Azure Active Directory Module for Windows PowerShell.

◆ Important

The computer where you run the following PowerShell commands must have the prerequisite software features described earlier in [Verify prerequisites](.).

2. Prepare the certificate.

```
$CertificateScriptWithCommand = ".\CertificateReconfiguration.ps1 -certificateFile

c:\Personalcertfile.pfx -password personal_certfile_password -updateCrm -

certificateType S2STokenIssuer -serviceAccount contoso\CRMAsyncService -storeFindType

FindBySubjectDistinguishedName"


Invoke-Expression -command $CertificateScriptWithCommand
```

3. Prepare the PowerShell session.

The following cmdlets enable the computer to receive remote commands and add Office 365 modules to the PowerShell session. For more information about these cmdlets see [Windows PowerShell Core Cmdlets](.).

```
Enable-PSRemoting -force

New-PSSession

Import-Module MSOnline -force

Import-Module MSOnlineExtended -force
```

4. Connect to Office 365.

When you run the Connect-MsolService command, you must provide a valid Microsoft account that has Office 365 Global Administrator membership for the SharePoint Online license that is required.

For detailed information about each of the Azure Active Directory PowerShell commands listed here, see [MSDN: Manage Azure AD using Windows PowerShell](.).

```
$msolcred = get-credential

connect-msolservice -credential $msolcred
```

5. Set the certificate.

```
$STSCertificate = New-Object
System.Security.Cryptography.X509Certificates.X509Certificate2 -ArgumentList
c:\Personalcertfile.pfx, personal_certfile_password

$PFXCertificateBin = $STSCertificate.GetRawCertData()

$Certificate = New-Object
System.Security.Cryptography.X509Certificates.X509Certificate2

$Certificate.Import("c:\Personalcertfile.cer")

$CERCertificateBin = $Certificate.GetRawCertData()

$CredentialValue = [System.Convert]::ToBase64String($CERCertificateBin)
```

6. Set the ACS Service Principal Name (SPN) in SharePoint.
   Replace *.contoso.com with the domain name where Microsoft Dynamics CRM Server is located.

```
$RootDomain = "*.contoso.com"

$CRMAppId = "00000007-0000-0000-c000-000000000000"

New-MsolServicePrincipalCredential -AppPrincipalId $CRMAppId -Type asymmetric -Usage
Verify -Value $CredentialValue

$CRM = Get-MsolServicePrincipal -AppPrincipalId $CRMAppId

$ServicePrincipalName = $CRM.ServicePrincipalNames

$ServicePrincipalName.Remove("$CRMAppId/$RootDomain")

$ServicePrincipalName.Add("$CRMAppId/$RootDomain")

Set-MsolServicePrincipal -AppPrincipalId $CRMAppId -ServicePrincipalNames
$ServicePrincipalName
```

7. Configure the Microsoft Dynamics CRM Server for server-based authentication with SharePoint.

```
Add-PSSnapin Microsoft.Crm.PowerShell

$setting = New-Object "Microsoft.Xrm.Sdk.Deployment.ConfigurationEntity"

$setting.LogicalName = "ServerSettings"

$setting.Attributes = New-Object "Microsoft.Xrm.Sdk.Deployment.AttributeCollection"

$attribute1 = New-Object "System.Collections.Generic.KeyValuePair[String, Object]"
("S2SDefaultAuthorizationServerPrincipalId", "00000001-0000-0000-c000-000000000000")

$setting.Attributes.Add($attribute1)
```

```
$attribute2 = New-Object "System.Collections.Generic.KeyValuePair[String, Object]"

("S2SDefaultAuthorizationServerMetadataUrl",

"https://accounts.accesscontrol.windows.net/metadata/json/1")

$setting.Attributes.Add($attribute2)

Set-CrmAdvancedSetting -Entity $setting
```

Run the Enable server-based SharePoint Integration Wizard

1. In the Microsoft Dynamics CRM app, go to **Document Management**.

2. In the Document Management area, choose **Enable server-based SharePoint integration**.

3. Review the information and then click **Next**.

4. For the SharePoint sites, click **Online**, and then click **Next**.

5. On the Prepare Sites stage, enter the following information.

    - Enter the SharePoint Online site collection **URL**, such as *https://constoso.sharepoint.com/sites/salesteam*.

    - Enter the **tenant ID**. More information: Get the SharePoint online tenant ID

6. Click **Next**.

7. The validate sites section appears. If all sites are determined valid, click **Enable**. If one or more sites are determined invalid, see Bookmark link 'BKMK_tshootOP' is broken in topic '{"project_id":"d1ee8af7-0e8f-4e94-9793-0d06bbfa9b16","entity_id":"26cad581-33b0-4025-9964-d289363c4245","entity_type":"Article","locale":"en-US"}'. Rebuilding the topic '{"project_id":"d1ee8af7-0e8f-4e94-9793-0d06bbfa9b16","entity_id":"26cad581-33b0-4025-9964-d289363c4245","entity_type":"Article","locale":"en-US"}' may solve the problem..

Get the SharePoint online tenant ID

Use PowerShell

1. In the Azure Active Directory Module for Windows PowerShell shell, run the following commands.

    ```
    $CRMContextId = (Get-MsolCompanyInformation).ObjectID

    $CRMContextId
    ```

2. Copy the GUID that is displayed to the clipboard.

Use site settings

1. Sign in to the SharePoint site collection that you will use for document management with Microsoft Dynamics CRM.

2. Go to **Site settings** > **Site app permissions**.

The tenant ID is displayed under **App Identifier**, to the right of the @ sign. Copy and Paste in only the GUID. Do not paste in any part of the identifier to the left of @.

Troubleshooting enable server-based authentication wizard validation issues

Failed Authentication. This error can be returned when the certificate used for server-to-server authentication is missing or invalid.

See Also

Set up SharePoint integration with Microsoft Dynamics CRM
Troubleshooting server-based authentication

Configure server-based authentication with Microsoft Dynamics CRM on-premises and SharePoint on-premises

Applies To: Dynamics CRM 2016

This topic describes how to configure server-based authentication between Microsoft Dynamics CRM 2016 on-premises and Microsoft SharePoint on-premises.

In This Topic

Permissions required

Set up server-based authentication with Dynamics CRM and SharePoint

Add OneDrive for Business integration

Troubleshooting CRM Server on-premises to SharePoint Server on-premises server-based authentication

About claims-based authentication mapping

Working with digital certificates

Set up server-based authentication with Dynamics CRM and SharePoint

Follow the steps, in the order provided, to set up Microsoft Dynamics CRM (on-premises) with Microsoft SharePoint Server (on-premises).

⬥ **Important**

- If a task isn't completed, for example, if a PowerShell command returns an error message, the issue must be resolved before you continue to the next command, task, or step.

- After you enable server-based SharePoint integration, you can't revert to the previous client-based authentication method. Therefore, you can't use the Microsoft Dynamics CRM List Component after you have configured your CRM organization for server-based SharePoint integration.

Verify prerequisites

Before you configure Microsoft Dynamics CRM (on-premises) and SharePoint (on-premises) for server-based authentication, the following permissions are required and prerequisites must be met.

Permissions required

Microsoft Dynamics CRM

- System Administrator security role. This is required to run the Server-based Authentication wizard in Microsoft Dynamics CRM.

- If you are using a self-signed certificate for evaluation purposes, you must have local Administrators group membership on the computer where Microsoft Dynamics CRM Server is running.

SharePoint on-premises

- Farm Administrators group membership. This is required to run most of the Windows PowerShell commands on the SharePoint server.

SharePoint prerequisites

- One of the following SharePoint versions.
  - SharePoint 2016
  - Microsoft SharePoint 2013 (on-premises) with Service Pack 1 (SP1) or later version with the following updates.
    - [Hotfix KB2883081 for SharePoint Foundation 2013 August 12, 2014 (Sts-x-none.msp)](#)
    - The following updates are prerequisites to KB2883081 and may also be required.
      - http://support2.microsoft.com/kb/2768000
      - http://support.microsoft.com/kb/2767999

- http://support.microsoft.com/kb/2880963
- SharePoint configuration
  - SharePoint must be configured for a single farm deployment only.
  - In order to use the default claims-based authentication mapping, the Active Directory domain where the SharePoint server and Microsoft Dynamics CRM server are located must either be the same or the domain where SharePoint server is located must trust the domain where Microsoft Dynamics CRM Server is located. For more information about changing the claims-based authentication mapping, see About claims-based authentication mapping.
  - The SharePoint website must be configured to use TLS/SSL (HTTPS) and the certificate must be issued by a public root Certificate Authority. More information: SharePoint: About Secure Channel SSL certificates
  - The App Management Service Application Proxy must be created and started. More information: Configure an environment for apps for SharePoint
  - A User Profile Service Application must be configured and started. More information:Create, edit, or delete User Profile service applications in SharePoint Server 2013
  - For document sharing, the SharePoint search service must be enabled. More information: Create and configure a Search service application in SharePoint Server
  - For document management functionality when using the Microsoft Dynamics CRM mobile apps, the on-premises SharePoint server must be available through the Internet.

Other prerequisites and limitations

- X509 digital certificate to be used for server-based authentication between Microsoft Dynamics CRM Server and the SharePoint server. In most cases this certificate must be issued by a trusted certificate authority, but for evaluation purposes you can use a self-signed certificate.
- If you use Microsoft SharePoint 2013, for each SharePoint farm, only one Microsoft Dynamics CRM organization can be configured for server-based authentication. Notice that, with SharePoint 2016, you can have multiple Microsoft Dynamics CRM organizations.

Prepare Microsoft Dynamics CRM Server for server-based authentication

The CertificateReconfiguration.ps1 is a Windows PowerShell script that installs a certificate to the local certificate store, grants the specified Microsoft Dynamics CRM Asynchronous Processing Service identity access to the certificate, and, updates Microsoft Dynamics CRM Server to use the certificate.

Add the server-to-server certificate to the local certificate store and Microsoft Dynamics CRM configuration database

1. Open a PowerShell command prompt on the server where Microsoft Dynamics CRM Server is installed. For server role deployments, this is the server where the Deployment Tools server role is running.

2. Change your location to the *<drive>*:\Program Files\Microsoft Dynamics CRM\Tools folder.

3. Run the CertificateReconfiguration.ps1 Windows PowerShell script where:

- *certificateFile path\Personalcertfile.pfx*. Required parameter that specifies the full path to the personal information exchange file (.pfx). For more information: Create a personal information exchange file (.pfx)

- *password personal_certfile_password*. Required parameter that specifies the private certificate password.

- *certificateType S2STokenIssuer*. Required parameter that specifies the type of certificate. For Microsoft Dynamics CRM and SharePoint server-based authentication, only **S2STokenIssuer** is supported.

- *serviceAccount 'contoso\CRMAsyncService'* or **'Network Service'**. Required parameter that specifies the identity for the Microsoft Dynamics CRM Asynchronous Processing Service. The identity is either a domain user account or Network Service. The identity will be granted permission to the certificate.

- *updateCrm*. Adds the certificate information to the Microsoft Dynamics CRM configuration database.

- *storeFindType FindBySubjectDistinguishedName*. Specifies the type of certificate store. By default, this value is FindBySubjectDistinguishedName and is recommended when you run the script.

◆ **Important**

Although the updateCrm and StoreFindType parameters are optional, these parameters are required so that certificate information is added to the configuration database.

Example

```
.\CertificateReconfiguration.ps1 -certificateFile c:\Personalcertfile.pfx -password

personal_certfile_password -updateCrm -certificateType S2STokenIssuer -serviceAccount

contoso\CRMAsyncService -storeFindType FindBySubjectDistinguishedName
```

Prepare the SharePoint farm for server-based authentication

Get the CRM Realm Id

1. Start the Enable Server-based Authentication wizard in **Document Management Settings** in Microsoft Dynamics CRM. Go to **Settings** > **Document Management**.

2. Click **Next**, click **On-Premises**, and then click **Next**.

3. The Id is displayed next to **CRM Realm Id** on the page.

Tip

Although you can't copy the CRM Realm Id to the clipboard using Internet Explorer, you can copy it when you use the Google Chrome browser.

Save the CRM Realm Id in a text file on a secure network share or cloud-based storage. Then, you can easily retrieve it from the location where you run the Enable Server-based Authentication wizard.

On the SharePoint on-premises server, in the SharePoint Management Shell, run these PowerShell commands in the order given.

Prepare the SharePoint server for CRM Server authentication

1. If you are using a PowerShell management shell that is not the SharePoint Management Shell, you must register the SharePoint module using the following command.

   ```
   Add-PSSnapin Microsoft.SharePoint.PowerShell
   ```

   Enable the PowerShell session to make changes to the security token service for the SharePoint farm.

   ```
   $c = Get-SPSecurityTokenServiceConfig

   $c.AllowMetadataOverHttp = $true

   $c.AllowOAuthOverHttp= $true

   $c.Update()
   ```

2. Create the trusted security token service object, where *OrganizationName* is the unique name of the Microsoft Dynamics CRM organization and *CrmServer* is the name of the IIS web server where the Microsoft Dynamics CRM web application server role is installed, and -Name "crm" is used to name the security token server (STS).

   ♦ Important

   - When you connect more than one Microsoft Dynamics CRM organization to a single SharePoint server, the name you give the STS must be unique for each Microsoft Dynamics CRM organization.

   - Connecting to more than one Microsoft Dynamics CRM organization to a single SharePoint server is only supported with SharePoint 2016.

   ```
   $i = New-SPTrustedSecurityTokenIssuer –Name "crm" –IsTrustBroker:$false –

   MetadataEndpoint

   http://CrmServer/XrmServices/2015/metadataendpoint.svc/json?orgName=OrganizationName
   ```

3. Register Microsoft Dynamics CRM with the SharePoint site collection.

   To run the following commands, you must specify the following two parameters.

- The SharePoint on-premises site collection URL. In the example here, *https://sharepoint.contoso.com/sites/crm/* is used for the site collection URL.
- The *CrmRealmId* is the Id of the Microsoft Dynamics CRM organization you want to use for document management with SharePoint.

◆ Important

To complete these commands, the SharePoint App Management Service Application Proxy must exist and be running. For more information about how to start and configure the service, see the Configure the Subscription Settings and App Management service applications subtopic in [Configure an environment for apps for SharePoint (SharePoint 2013)](#).

```
$CrmRealmId = ""

$Identifier  = "00000007-0000-0000-c000-000000000000@" + $CrmRealmId

Register-SPAppPrincipal -site $site.RootWeb -NameIdentifier $Identifier -DisplayName
"crm"
```

4. Grant the Microsoft Dynamics CRM application access to the SharePoint site.

📝 Note

In the example below, the CRM application is granted permission to the specified SharePoint site collection by using the –Scope sitecollection parameter. The Scope parameter accepts the following options. Use the scope that is most appropriate for your SharePoint configuration.

- site. Grants the CRM application permission to the specified SharePoint website only. It doesn't grant permission to any subsites under the named site.
- sitecollection. Grants the CRM application permission to all websites and subsites within the specified SharePoint site collection.
- sitesubscription. Grants the CRM application permission to all websites in the SharePoint farm, including all site collections, websites, and subsites.

```
$app = Get-SPAppPrincipal -NameIdentifier $Identifier -Site

Set-SPAppPrincipalPermission -AppPrincipal $app -Site $site.Rootweb -Scope
"sitecollection" -Right "FullControl" -EnableAppOnlyPolicy

#"Set up claims-based authentication mapping"

New-SPClaimTypeMapping -IncomingClaimType
"http://schemas.xmlsoap.org/ws/2005/05/identity/claims/emailaddress" -
IncomingClaimTypeDisplayName "EmailAddress" -SameAsIncoming
```

Run the Enable server-based SharePoint Integration Wizard

1. In the Microsoft Dynamics CRM app, go to **Document Management**.

2. In the Document Management area, click **Enable server-based SharePoint integration**.

3. Review the information and then click **Next**.

4. For the SharePoint sites, click **On-Premises**, and then click **Next**.

5. On the **Prepare Sites** stage, enter the following information.

    -   Enter the SharePoint on-premises site collection **URL**, such as
        https://sharepoint.contoso.com/sites/crm. The site must be configured for TLS/SSL.

    -   Enter the **SharePoint Realm Id**. Get the SharePoint realm ID

6. Click **Next**.

7. The validate sites section appears. If all sites are determined valid, click **Enable**. If one or more
    sites are determined invalid, see Troubleshooting CRM Server on-premises to SharePoint Server
    on-premises server-based authentication.

Select the entities that you want to include in document management

By default, Account, Article, Lead, Product, Quote, and Sales Literature entities are included. You can
add or remove the entities that will be used for document management with SharePoint in **Document
Management Settings** in Microsoft Dynamics CRM. Go to **Settings** > **Document Management**. More
information: Customer Center: Enable document management on entities

Add OneDrive for Business integration

After you complete Microsoft Dynamics CRM and SharePoint on-premises server-based authentication
configuration, you can also integrate OneDrive for Business. With Microsoft Dynamics CRM OneDrive
for Business integration, Microsoft Dynamics CRM users can create and manage private documents
using OneDrive for Business. Those documents can be accessed within CRM once the system
administrator has enabled OneDrive for Business.

Enable OneDrive for Business

On the Windows Server where SharePoint Server on-premises is running, open the SharePoint
Management Shell and run the following commands.

```
Add-Pssnapin *

# Access WellKnown App principal

[Microsoft.SharePoint.Administration.SPWebService]::ContentService.WellKnownAppPrincipals


# Create WellKnown App principal

$ClientId = "00000007-0000-0000-c000-000000000000"
```

```
$PermissionXml = "<AppPermissionRequests AllowAppOnlyPolicy=""true""><AppPermissionRequest

Scope=""http://sharepoint/content/tenant"" Right=""FullControl"" /><AppPermissionRequest

Scope=""http://sharepoint/social/tenant"" Right=""Read"" /><AppPermissionRequest

Scope=""http://sharepoint/search"" Right=""QueryAsUserIgnoreAppPrincipal""

/></AppPermissionRequests>"


$wellKnownApp= New-Object -TypeName

"Microsoft.SharePoint.Administration.SPWellKnownAppPrincipal" -ArgumentList ($ClientId,

$PermissionXml)


$wellKnownApp.Update()
```

Troubleshooting CRM Server on-premises to SharePoint Server on-premises server-based authentication

For information about how to troubleshoot the Enable server-based SharePoint Integration and view SharePoint monitoring logs, see Troubleshooting server-based authentication.

Known issues

For documentation management with SharePoint troubleshooting and known issues, see Troubleshooting server-based authentication.

About claims-based authentication mapping

By default, server-based authentication between Microsoft Dynamics CRM (on-premises) and SharePoint on-premises uses the user's security identifier (SID) to authenticate each user. If Microsoft Dynamics CRM Server and SharePoint are located in different Active Directory domains that do not have a trust, you must use a custom claims-based authentication mapping, such as the user's email address. More information:Define custom claim mapping for SharePoint server-based integration

Working with digital certificates

Create a personal information exchange file (.pfx)

1.

   On a computer that has access to the certificate you want to use for server-to-server authentication, Click **Start**, click **Run**, type **MMC**, and then press ENTER.

2. Click **File**, then click **Add/Remove Snap-in**.

3. In the Available snap-ins list click **Certificates**, click **Add**, click **Computer account**, click **Next**, click **Finish** to select the local computer, and then click **OK**.

4. Expand **Certificates**, expand **Personal**, and then click **Certificates**.

5. Right-click the certificate that you want to create a personal certificate file, point to **All Tasks**, and then click **Export**.

6. Click **Next**, click **Yes**, export the private key, make sure the following options are checked and then click **Next**.

   - Include all certificates in the certification path if possible

   - Export all extended properties

7. Click **Browse** and enter a location and file name for the .pfx file, and then click **Save**.

8. Click **Next** and then click **Finish**.

Get the SharePoint realm ID

1. Sign in to the SharePoint site collection that you will use for document management with Microsoft Dynamics CRM.

2. Go to **Site settings**> **Site app permissions**.

3. The tenant ID is displayed under **App Identifier**, to the right of the @ sign. Copy and paste in only the GUID. Do not paste in any part of the identifier to the left of @.

Troubleshooting server-based authentication

Applies To: CRM 2016 on-prem, CRM Online

In This Topic

Troubleshooting the Enable server-based SharePoint Integration wizard
Troubleshooting SharePoint
Known issues with server-based authentication

Troubleshooting the Enable server-based SharePoint Integration wizard

Review the error log for information about why the site doesn't validate. To do this, click **Error Log** in the Enable Server-Based SharePoint Integration wizard after the validate sites stage is completed.

The enable server-based SharePoint integration validation check can return one of the following four types of failures.

Failed Connection

This failure indicates that the SharePoint server could not be accessed from where the validation check was run. Verify that the SharePoint URL that you entered is correct and that you can access the SharePoint site and site collection by using a web browser from the computer where the Enable Server-Based SharePoint Integration wizard is running. More information: TechNet: Troubleshooting hybrid environments (SharePoint)

Failed Authentication

This failure can occur when one or more of the server-based authentication configuration steps were not completed or did not complete successfully. More information: Set up SharePoint integration with Microsoft Dynamics CRM

This failure can also occur if an incorrect URL is entered in the Enable Server-Based SharePoint Integration wizard or if there is a problem with the digital certificate used for server authentication.

Failed Authorization

This failure can occur when the claims-based authentication types do not match. For example, in a hybrid deployment such as Microsoft Dynamics CRM Online to SharePoint on-premises, when you use the default claims-based authentication mapping, the Microsoft account email address used by the Microsoft Dynamics CRM Online user must match the SharePoint user's **Work email**. More information: Selecting a claims-based authentication mapping type

SharePoint Version Not Supported

This failure indicates that the SharePoint edition, version, required service pack, or required hotfix are missing. For more information, see SharePoint Version Not Supported

Troubleshooting SharePoint

Issues that affect server-based authentication can also be recorded in SharePoint logs and reports. For more information about how to view and troubleshoot SharePoint monitoring, see the following topics. View reports and logs in SharePoint 2013 and Configure diagnostic logging in SharePoint 2013

Known issues with server-based authentication

This section describes the known issues that may occur when you set up or use Microsoft Dynamics CRM and SharePoint server-based authentication.

Failed authentication is returned when validating a SharePoint site even though you have appropriate permission

Applies to: Microsoft Dynamics CRM Online with Microsoft SharePoint Online, Microsoft Dynamics CRM Online with Microsoft SharePoint on-premises

This issue can occur when the claims-based authentication mapping that is used provides a situation where the claims type values don't match between Microsoft Dynamics CRM and SharePoint. For example, this issue can occur when the following items are true:

- You use the default claims-based authentication mapping type, which for Microsoft Dynamics CRM Online to SharePoint Online server-based authentication uses the Microsoft account unique identifier.

- The identities used for Microsoft Office 365, Microsoft Dynamics CRM Online administrator, or SharePoint Online administrator don't use the same Microsoft account, therefore the Microsoft account unique identifiers don't match.

"Exchange Online Security Certificate Expiration" error message displayed in CRM On-premises or CRM for Outlook.

Applies to Microsoft Dynamics CRM Server 2016 configured with a connection to Exchange Online or SharePoint Online. The message states "Please update your certificate or Exchange Online integration will stop functioning in <number> days."

To resolve this issue, update the x509 digital certificate issued by a trusted certificate authority   used to authenticate between Microsoft Dynamics CRM (on-premises) and Exchange Online or SharePoint Online.

"Private key not found" error message returned when you run the CertificateReconfiguration.ps1 Windows PowerShell script

Applies to: Microsoft Dynamics CRM Online with Microsoft SharePoint on-premises, Microsoft Dynamics CRM on-premises with SharePoint Online, Microsoft Dynamics CRM on-premises with SharePoint on-premises

This issue can occur when there are two self-signed certificates located in the local certificate store that have the same subject name.

Notice that this issue should only occur when you use a self-signed certificate. Self-signed certificates should not be used in production environments.

To resolve this issue, remove the certificates with the same subject name that you don't need using the Certificate Manager MMC snap-in and note the following.

◆ **Important**

It can take up to 24 hours before the SharePoint cache will begin using the new certificate. To use the certificate now, follow the steps here to replace the certificate information in Microsoft Dynamics CRM. To resolve this issue by following the steps in this article, the existing certificate cannot be expired.

Replace a certificate that has the same subject name

1. Use an existing or create a new and self-signed certificate. The subject name must be unique to any certificate subject names that are registered in the local certificate store.

2. Run the following PowerShell script against the existing certificate, or the certificate that you created in the previous step. This script will add a new certificate in Microsoft Dynamics CRM, which will then be replaced in a later step. For more information about the CertificateReconfiguration.ps1 PowerShell script see, [Prepare Microsoft Dynamics CRM Server for server-based authentication](#).

    ```
    CertificateReconfiguration.ps1 -certificateFile <Private certificate file (.pfx)> -
    password <private-certificate-password> -updateCrm -certificateType
    AlternativeS2STokenIssuer -serviceAccount <serviceAccount> -storeFindType
    FindBySubjectDistinguishedName
    ```

3. Remove the AlternativeS2STokenIssuer type certificate from the CRM configuration database. To do this, run these PowerShell commands.

    ```
    Add-PSSnapin Microsoft.Crm.PowerShell

    $Certificates = Get-CrmCertificate;

    $alternativecertificate = "";

    foreach($cert in $Certificates)

    {    if($cert.CertificateType -eq "AlternativeS2STokenIssuer") {
    $alternativecertificate = $cert;}


    Remove-CrmCertificate -Certificate $alternativecertificate
    ```

You receive "The remote server returned an error: (400) Bad Request" and "Register-SPAppPrincipal: The requested service, 'http://wgwitsp:32843/46fbdd1305a643379b47d761334f6134/AppMng.svc' could not be activated" error messages

Applies to: SharePoint on-premises versions used with Microsoft Dynamics CRM.

The remote server returned an error: (400) Bad Request error message can occur after the certificate installation, such as when you run the CertificateReconfiguration.Ps1 script.

The Register-SPAppPrincipal: The requested service, 'http://wgwitsp:32843/46fbdd1305a643379b47d761334f6134/AppMng.svc' could not be activated error

message can occur when you grant Microsoft Dynamics CRM permission to access SharePoint by running the Register-SPAppPrincipal command.

To resolve both of these errors after they occur, restart the web server where the Microsoft Dynamics CRM web application is installed. More information: [Start or Stop the Web Server (IIS 8)](#)

"Something went wrong while interaction with SharePoint" error message received

Applies to: All Microsoft Dynamics CRM versions when used with Microsoft SharePoint Online

This error can be returned to the user who doesn't have site permissions or the user has had permissions removed from the SharePoint site where Microsoft Dynamics CRM document management is enabled. Currently, this is a known issue with SharePoint Online where the error message that is displayed to the user doesn't indicate that the user's permissions are not sufficient to access the site.

See Also

[Set up SharePoint integration with Microsoft Dynamics CRM](#)
[Permissions required for document management tasks](#)

Configure SharePoint integration using the list component

Applies To: CRM 2016 on-prem, CRM Online

If you can't use server-based SharePoint integration, you must install the Microsoft Dynamics CRM List Component to get document management functionality. The Microsoft Dynamics CRM List Component is a SharePoint solution that you upload and activate on a SharePoint site collection. This feature uses a client-to-SharePoint Server strategy to authenticate and transmit data.

1. Make sure that you meet the requirements to use the Microsoft Dynamics CRM documentation management feature with SharePoint. For more information, see [SharePoint Document Management software requirements for Microsoft Dynamics CRM](#).

Make sure you have the System Administrator security role or equivalent permissions in Microsoft Dynamics CRM.

Check your security role

- Follow the steps in [View your user profile](#).
- Don't have the correct permissions? Contact your system administrator.

2. Install the Microsoft Dynamics CRM List Component on the SharePoint server.

◆ **Important**

The Microsoft Dynamics CRM List Component is not required when you use server-based SharePoint integration. For more information, see [Set up SharePoint integration with Microsoft Dynamics CRM](#).

Go to **Settings** > **Document Management**. On the command bar, click **Install List Component** and follow the instructions here.

    a. Locate the folder where you downloaded `CRM2016-SharePointList2013-ENU-amd64.exe` or `CRM2016-SharePointList2010-ENU-amd64.exe`, and open it.

    b. Select **Click here** to accept the license agreement.

    c. Select a folder to store the extracted files, and then click **OK**.

    d. If you downloaded CRM2016-SharePointList2013-ENU-amd64.exe, the AllowHtcExtn.ps1 and crmlistcomponent.wsp files are extracted.

    If you downloaded CRM2016-SharePointList2010-ENU-amd64.exe, the crmlistcomponent.wsp file is extracted.

    e. Open your browser, and then in the address bar, type the URL of the site collection where you want to install the Microsoft Dynamics CRM List Component, and press **Enter**.

    f. Locate **Solution Gallery** in SharePoint:

- If you're using Microsoft SharePoint 2010: Click **Site Actions**, then **Site Settings**, and then under **Galleries**, click **Solutions**.
- If you're using Microsoft SharePoint 2013 or SharePoint Online: Click the **Settings** button in the top-right corner, then **Site Settings**, and then under **Web Designer Galleries**, click **Solutions**.

    📝 **Note**

If you don't see the **Solutions** link, check the custom script setting. In the Office 365 admin center, click **Admin** > **Settings**. Under **Custom Script**, click **Allow users to run custom script on self-service created sites**. Click **OK**. Changes may take up to 24 hours to take effect.

    g. On the **Solutions** tab, in the **New** group, click **Upload Solution**.

    h. Click **Browse**, locate the crmlistcomponent.wsp file, click **Open**, and then click **OK**.

    i. After the solution is added, click **Activate** and then click **Close**.

    📝 **Note**

If you can't activate this solution, see [Allow HTC files in SharePoint 2013](#).

3. For detailed document management configuration steps, see [Integration Guide: Microsoft Dynamics CRM Online and Office 365](#).

Allow HTC files in SharePoint 2013

By default, HTML component (.htc) files aren't enabled on SharePoint 2013. To enable HTC, follow these steps.

1. Open PowerShell and navigate to the location where you downloaded and extracted the Microsoft Dynamics CRM List Component to.
2. Type the following command, where *https://mysharepointserver/CRM* is the URL where the list component solution is installed, and then press **ENTER**.

    ```
    ./AllowHtcExtn.ps1 https://mysharepointserver/CRM
    ```

See Also

Download: Microsoft Dynamics CRM 2016 List Component for Microsoft SharePoint
Set up SharePoint integration with Microsoft Dynamics CRM
Permissions required for document management tasks

Permissions required for document management tasks

Applies To: CRM 2016 on-prem, CRM Online

The following table shows the default security roles or other permissions that are needed to perform each document management with Microsoft SharePoint task.

 Important

If you're using Microsoft Dynamics CRM for Outlook, you can't do any of these tasks while you're offline.

Tasks related to document management	Minimum security role or other permission required
Enable or disable document management	Security roles: System Administrator or System Customizer Privileges: Read, Write on all record types that are customizable. SharePoint site permissions: Create, Read, Write, Append,

Tasks related to document management	Minimum security role or other permission required
	Append To
Create or edit site records	Security roles: System Administrator or System Customizer SharePoint site permissions: Site Create, Read, Write, Append, Append To
Create or edit document location records	Security roles: Salesperson SharePoint site permissions: Read, Append To SharePoint Document Location permissions: Create, Read, Write, Append, Append To
Install Microsoft Dynamics CRM List Component	Security roles: No Microsoft Dynamics CRM security role needed. SharePoint site permissions: Site collection administrator
Run the Enable Server-based SharePoint Integration Wizard	Security roles: System Administrator Privileges: All other security roles will require the Run SharePoint Integration Wizard permission to run the Enable Server-based SharePoint Integration Wizard in Microsoft Dynamics CRM.
Make a site your default site	Security roles: System Administrator or System Customizer SharePoint site permissions: Read, Write
Validate sites	Security roles: System Administrator or System Customizer SharePoint site permissions: Read, Write
Add or edit a document location from a record	Security roles: Any SharePoint site permissions: Read, Append To SharePoint Document Location permissions: Create, Read, Write, Append, Append To

Tasks related to document management	Minimum security role or other permission required
Fix a broken location	Security roles: Any SharePoint Document Location permissions: Read, Write
Manage documents	Security roles: Any SharePoint Document Location permissions: Read, Write

See Also

Manage your documents using SharePoint
Validate and fix SharePoint site URLs

Validate and fix SharePoint site URLs

Applies To: CRM 2016 on-prem, CRM Online

In Microsoft Dynamics CRM, SharePoint site and document location records contain links to site collections, site, document libraries, and folders in SharePoint. These site and document location records are associated with CRM records so that the documents for CRM records can be stored in SharePoint.

When the links between Microsoft Dynamics CRM and SharePoint break, you must validate and fix the links so that the CRM records continue to point to the correct document libraries and folders for managing the documents.

Make sure you have the System Administrator security role or equivalent permissions in Microsoft Dynamics CRM.

Check your security role

- Follow the steps in View your user profile.

- Don't have the correct permissions? Contact your system administrator.

Find and fix the URLs. To do this, follow these steps.

a. Go to **Settings** > **Document Management**.

b. Click **SharePoint Sites**.

c. Select the site URLs that you want to validate, and then click or tap **Validate**.

1. Microsoft Dynamics CRM validates all the selected site URLs and their immediate subordinate site and document library URLs. It then displays the results in **Validating Sites**.

2. To fix a URL, open the site record, and enter the correct URL. More information: Help & Training: Create or edit site records.

3. Click **Save & Close**.

See Also

Help & Training: Create or edit site records
Manage your documents using SharePoint
Set up SharePoint integration with Microsoft Dynamics CRM
Help & Training: Set up SharePoint document management

Connect to OneDrive for Business

Applies To: CRM 2016 on-prem, CRM Online

Users can create and manage private documents with OneDrive for Business. Those documents can be accessed within CRM after the system administrator has enabled OneDrive for Business.

Requirements

The following are required to use OneDrive for Business with Microsoft Dynamics CRM 2016 Server.

 Note

This topic applies to organizations deploying on-premises versions of OneDrive for Business and CRM or an online/on-premises mix of these products. For information on integrating OneDrive for Business online with CRM Online, see: Referenced topic 'c3742b70-863a-488e-beb3-fb9d63c2e6e5' is not in the TOC..

•

• Set up SharePoint integration with Microsoft Dynamics CRM and have at least one team site.

• Set up permission on the root SharePoint team site for all users who will use OneDrive for Business in CRM. More information: Plan sites and manage users

- For SharePoint on-premises, enable the Search service to access shared documents from other users. It is enabled by default on SharePoint Online but not on SharePoint on-premises. More information: Create and configure a Search service application in SharePoint Server 2013

Enable OneDrive for Business

You enable OneDrive for Business as follows:

1. Click **Settings** > **Document Management** > **Enable OneDrive for Business**
2. Click **Enable OneDrive for Business** to enable it, and then click **OK**.

If you're running SharePoint Server on-premises, on the Windows Server where SharePoint Server is running, open the SharePoint Management Shell and run the following commands to set up permissions between SharePoint and Microsoft Dynamics CRM 2016 Server.

☑ Note

You might have already set up permissions and can skip the following if you completed the steps in Configure server-based authentication with Dynamics CRM Online and SharePoint on-premises or Configure server-based authentication with Microsoft Dynamics CRM on-premises and SharePoint on-premises.

```
Add-Pssnapin *

# Access WellKnown App principal

[Microsoft.SharePoint.Administration.SPWebService]::ContentService.WellKnownAppPrincipals


# Create WellKnown App principal

$ClientId = "00000007-0000-0000-c000-000000000000"

$PermissionXml = "<AppPermissionRequests AllowAppOnlyPolicy=""true""><AppPermissionRequest

Scope=""http://sharepoint/content/tenant"" Right=""FullControl"" /><AppPermissionRequest

Scope=""http://sharepoint/social/tenant"" Right=""Read"" /><AppPermissionRequest

Scope=""http://sharepoint/search"" Right=""QueryAsUserIgnoreAppPrincipal""

/></AppPermissionRequests>"


$wellKnownApp= New-Object -TypeName

"Microsoft.SharePoint.Administration.SPWellKnownAppPrincipal" -ArgumentList ($ClientId,

$PermissionXml)


$wellKnownApp.Update()
```

Controlling access to OneDrive for Business in CRM

You can toggle availability of OneDrive in CRM for end users through the **OneDrive for Business** privilege.

1. Click **Settings** > **Security** > **Security Roles**

2. Choose a security role, and then click the **Core Records** tab.

3. Under **Miscellaneous Privileges**, toggle the **OneDrive for Business** privilege to the desired availability.

📝 **Note**

This privilege is visible in the Security Roles dialog only after OneDrive for Business is enabled.
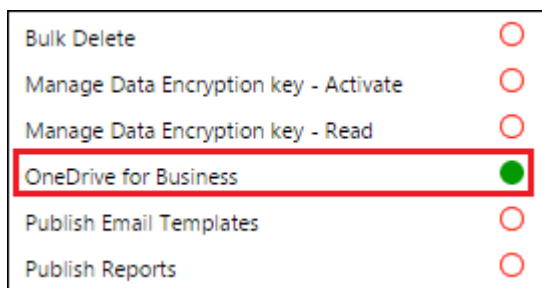
See Also

Set up SharePoint integration with Microsoft Dynamics CRM
Use OneDrive for Business to manage your private documents
What is OneDrive for Business?
SharePoint Online and OneDrive for Business: software boundaries and limits
Manage OneDrive for Business

Skype for Business and Skype integration with Microsoft Dynamics CRM

Applies To: CRM 2016 on-prem, CRM Online

If your organization uses Skype for Business (formerly known as Microsoft Lync) or Skype, you can take advantage of connectivity features like click-to-call or checking user availability from within Microsoft Dynamics CRM or Microsoft Dynamics CRM for Outlook.

In This Topic

Using Skype for Business with Microsoft Dynamics CRM

When you use Skype for Business and Microsoft Dynamics CRM together, you can use Skype for Business) presence and click-to-call from within Microsoft Dynamics CRM.

Your organization must have one of the following products or subscriptions:

- Skype for Business

- Skype for Business Server 2015

- Microsoft Lync Server 2013

- Microsoft Lync Server 2010

Client requirements and Microsoft Dynamics CRM configuration

- To use click-to-call, Skype for Business must be selected as the telephony provider in Microsoft Dynamics CRM. You can set this on the General tab at Settings > Administration > System Settings.

- By default, Skype for Business presence is enabled in Microsoft Dynamics CRM. System administrators can enable or disable presence in Microsoft Dynamics CRM. To do this, click **Settings** > **Administration** > **System Settings** and on the **General** tab, **Set the IM presence option** to **Yes** or **No**.

- Each user must have the Skype for Business client installed and running on their PC.

- For Skype for Business presence, Microsoft Dynamics CRM Online users must have `https://*.dynamics.com` added to their web browsers trusted sites list in Internet options in Internet Explorer.

Supported devices and web browsers when you use Skype for Business with Microsoft Dynamics CRM

Mobile app or web browser	Skype for Business click-to-call	Skype for Business presence
Microsoft Dynamics CRM for iPad	Yes	Yes
CRM for Android	Yes	Yes
Windows-based tablets	Yes	Yes
Internet Explorer	Yes	Yes
Google Chrome	Yes	No
Mozilla Firefox	Yes	No

Mobile app or web browser	Skype for Business click-to-call	Skype for Business presence
Apple Safari	Yes	No

Using Skype with Microsoft Dynamics CRM

When you use Skype and Microsoft Dynamics CRM together, you can use Skype click-to-call from within Microsoft Dynamics CRM.

Client requirements and Microsoft Dynamics CRM configuration

- Each user must have the Skype for Windows desktop client or the Skype for Windows 8 app installed and running on their PC or Windows 8 device.

- **Skype** must be selected as the telephony provider in Microsoft Dynamics CRM. You can set this on the **General** tab at **Settings** > **Administration** > **System Settings**.

Supported devices and web browsers when you use Skype with Microsoft Dynamics CRM

Mobile app or web browser	Skype click-to-call
Microsoft Dynamics CRM for iPad	Yes
CRM for Android on Android tablets	Yes
Windows-based tablets	Yes
Internet Explorer	Yes
Google Chrome	Yes*
Mozilla Firefox	Yes**
Apple Safari	Yes

* The Skype Click-to-call plugin must be installed on the Chrome browser and enabled. More information: How do I enable Skype Click to Call in Chrome?

**Prompt occurs.

Additionally, Skype click-to-call is supported with Microsoft Dynamics CRM for Windows 8, CRM for Windows 8.1, and Windows 10.

See Also

Referenced topic 'e2c85d76-2b14-4d80-b6a7-5ea53fafcc8d' is not in the TOC.
Extend CRM with integration and solutions
Connect to Microsoft Social Engagement

Set up knowledge management in Microsoft Dynamics CRM

Applies To: CRM Online

A comprehensive knowledge base is a key to increased customer satisfaction and improved productivity of users. Give users quick access to the knowledge base by setting up knowledge management in Microsoft Dynamics CRM.

Microsoft Dynamics CRM supports two knowledge management solutions that you can choose from:

- Native CRM knowledge management. This option is available for both CRM Online and CRM on-premises users. For Microsoft Dynamics CRM Online organizations, the native CRM knowledge solution is only available if you've updated to CRM Online 2016 Update. For on-premises organizations, this feature is only available if you've upgraded to CRM 2016.

- Parature knowledgebase. This option is available only for CRM Online users. This feature was introduced in CRM Online 2015 Update 1.

  Interested in getting this feature? <u>Find your CRM administrator or support person</u>.

After knowledge management is set up, users will be able to:

- Search for relevant KB articles in Parature right from Microsoft Dynamics CRM as they're working on a record.

- See the content of the KB article inline, including images and videos.

- Give timely and consistent information to customers when working on their cases by using actions like opening the article and sharing the information or emailing the article link to customers.

In This Topic

<u>Prerequisites</u>
<u>Set up knowledge management</u>

Prerequisites

If you want to use Parature knowledgebase, before setting up knowledge management in Microsoft Dynamics CRM, do this:

- Set up a Parature account in the same Microsoft Office 365 tenant as your CRM Online organization.

- Add your CRM organization to the list of allowed URLs in the CORS settings in Parature. To do this, in Parature Service Desk, go to **Setup** > **Department Management** > **CORS Settings** and add your CRM organization URL.

 Note

Any Microsoft Dynamics CRM Online user with a Professional user subscription license can use the knowledge base integration capability without any additional set up in Parature. If a Microsoft Dynamics

CRM Online user with an Enterprise user subscription license wants to use knowledge base integration capability, you'll need to assign the user a Parature license and then create a CSR with a Knowledgebase View Only role in Parature. More information: [Assign Parature licenses to Microsoft Dynamics CRM users](#)

Set up knowledge management

1. Make sure that you have the System Administrator or System Customizer security role or equivalent permissions. You must also be the tenant administrator of Microsoft Office 365.
2. Go to **Settings** > **Service Management**.
3. Under **Knowledge Base Management**, click **Embedded Knowledge Search**.
4. In the **Knowledge Base Management Settings** wizard, in **Record Types**, select the record types you want to turn on knowledge management for. The list will include all entities that are available for an N:N relationship. Knowledge management is enabled for case entity by default.
5. Under **Knowledge Source**, in the **Knowledge Solution** field, select between the CRM native knowledge solution and Parature knowledgebase.

◆ **Important**

The **Knowledge Solution** field is available only if your organization has installed CRM Online 2015 Update 1 or later. For on-premises organizations, Parature knowledgebase isn't supported so the **Knowledge Solution** field isn't available.

6. If you're using **Native CRM** knowledge solution, in the **Support Portal Connection** section, enter the following:
   - **Use an external portal**. You can integrate an external portal for publishing knowledge articles. If your organization uses one, select this check box.
   - **URL Format**. Type the portal URL that will be used to create external (public-facing) portal links for knowledge articles, which the service agents can share with the customers. The external URL is created in the following format: http://<support portal URL>/kb/{kbnum}
     The placeholder "{kbnum}" is replaced by an actual knowledge article number.
7. If you want to use the Parature knowledgebase, in **Parature Connection Details**, enter the following:
   a. **Parature Instance**. Select the Parature instance to connect to. The drop-down list by default shows the instance present in your Microsoft Office 365 subscription.
   b. **Parature URL**. This is automatically filled and shows the URL of the selected Parature instance in the tenant.

c. **Account ID**. This is automatically filled and shows the ID of the account as it is set up in Parature for the selected Parature instance.

d. **Parature Department ID**. Specify the department ID for the selected Parature instance. Every department in an organization can have their own knowledge base. So you must specify the ID of the department you want to connect to. You can connect to only one department at a time. To find the department ID, sign in to Parature, and on the **Setup** tab, click **System Overview**.
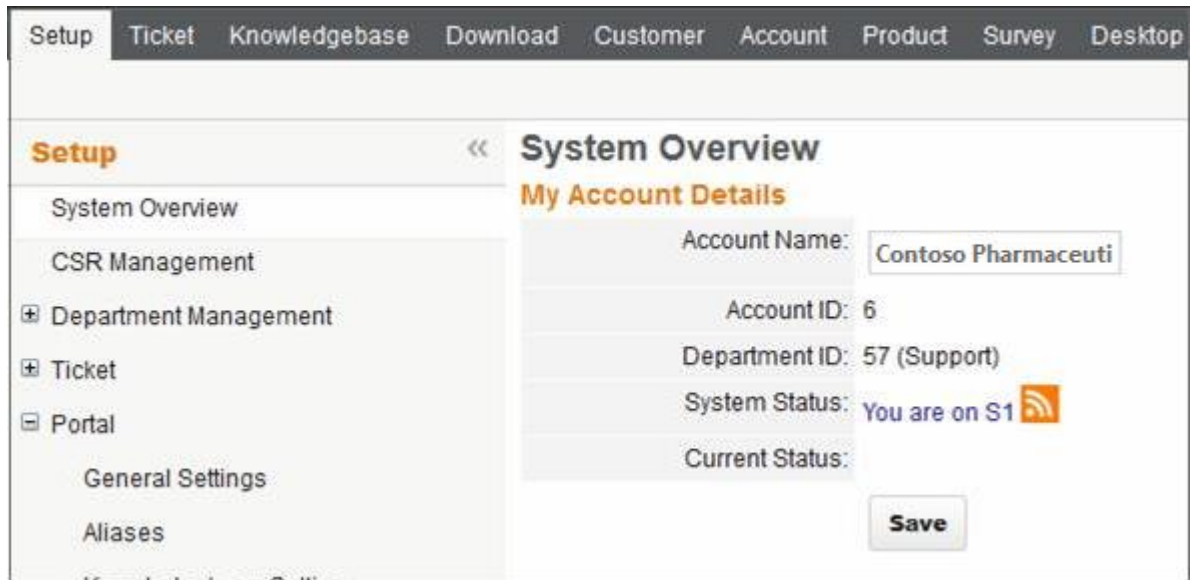
e. **Support Portal URL**. Type the support portal URL that will be used to create external (public-facing) portal links for KB articles, which the service agents can share with the customers. Parature offers a customer-facing support portal that your customers can use to access your knowledge base articles or download content. To find the support portal URL, sign in to the Parature Service Desk, and on the **Setup** tab, click **Portal** > **Aliases**.

The external URL is created in the following format:

<Support Portal URL>/link/portal/<account id>/<department id>/Article/<Article id>

☑ **Note**

If you've connected to Parature before, and want to remove details of the existing Parature instance that you connected with, choose **Reset**.

8. Click **Next**.

9. If you've specified the details correctly, the page shows the connection details for CRM or Parature. Click **Finish** to complete the setup.

See Also

Add the Knowledge Base Search control to Microsoft Dynamics CRM forms

Applies To: CRM Online

Add a **Knowledge Base Search** control to Microsoft Dynamics CRM forms to make it easy for users in your organization to find knowledge articles so they can answer common customer questions and resolve their issues right from Microsoft Dynamics CRM records, without having to switch to a different application.

You can configure the Knowledge Base Search control to:

- Show automatic suggestions in search results based on certain fields, or based on text analytics. The text analytics feature in only available for Microsoft Dynamics CRM Online.

- Define filters that users can use on search results.

- Choose from a set of predefined contextual actions the users can take on an article

- Add the control on any section of any entity that is enabled for knowledge management, including the activity wall, and also in custom entities. The control can be added to both the Main and Main - Interactive experience forms. The control is added by default to the Case form of type Main - Interactive experience.

 Note

The Knowledge Base Search control can be used on Microsoft Dynamics CRM for tablets and Microsoft Dynamics CRM for phones. However, some actions like Pop Out, Email Link, and Email Content aren't supported.

Microsoft Dynamics CRM supports two knowledge management solutions:

- Native CRM knowledge management: This option is available for both CRM Online and on-premises users. For Microsoft Dynamics CRM Online organizations, the native CRM knowledge solution is introduced in CRM Online 2016 Update. For on-premises CRM organizations, this feature is introduced in CRM 2016.

- Parature knowledge base: This option is available only for CRM Online users. This feature was introduced in CRM Online 2015 Update 1.

Interested in getting this feature? [Find your CRM administrator or support person](#).

Depending on the knowledge solution you choose while setting up knowledge management, some of the settings for the Knowledge Base Search control will change.

In This Topic

[Prerequisites](#)
[Add the Knowledge Base Search control to the Main forms for use in the CRM web application](#)
[Add the search control to the activity wall of the Main form in the CRM web application](#)
[Add the search control to a reference panel in an interactive form](#)

Prerequisites

Before you add the Knowledge Base Search control, make sure to:

- Set up knowledge management in Microsoft Dynamics CRM. More information: [Set up knowledge management in Microsoft Dynamics CRM](#)

- Select the entity you want to enable knowledge management on while setting up knowledge management.

Add the Knowledge Base Search control to the Main forms for use in the CRM web application

1. Make sure that you have the System Administrator or System Customizer security role or equivalent permissions.

2. Go to **Settings** > **Customizations**.

3. Choose **Customize the System**.

4. In the solution explorer, choose the entity you want to add the search control to, and under **Communication & Collaboration**, make sure the **Knowledge Management** check box is selected.
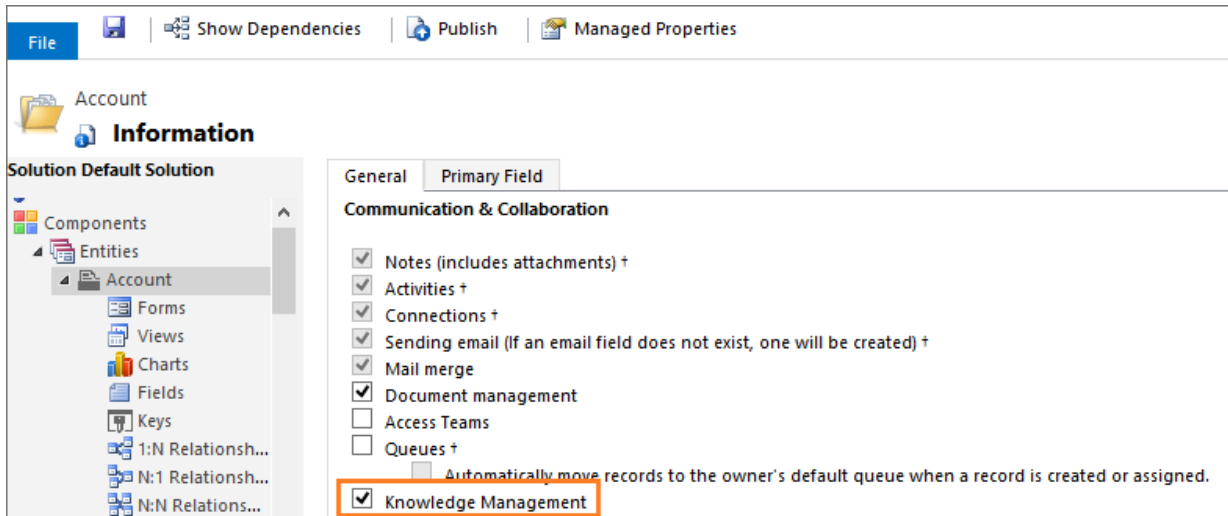
5. Expand the entity you're adding the search control to, and click **Forms**.

6. Choose the entity form of type **Main**.
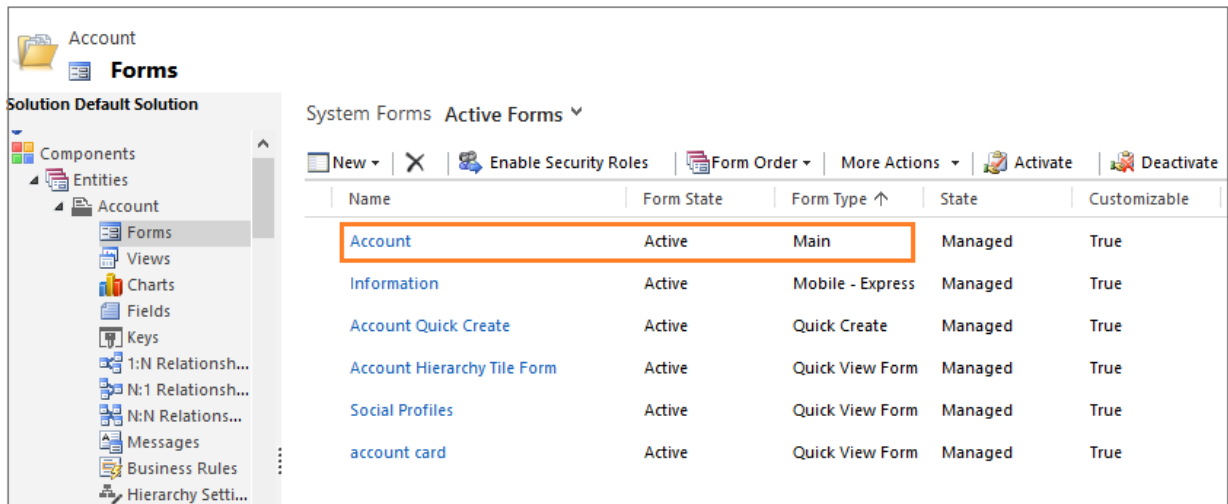
7. Select the area where you want to place the search control, and on the **Insert** tab, click **Knowledge Base Search**.

   If the option to add Knowledge Base Search is disabled, it could be because knowledge management isn't set up or isn't enabled for the entity you're adding the search control to.

8. In the **Set Properties** dialog box, on the **Display** tab, specify the following.

Set Properties

Set the KM Control properties

?

Display | **Formatting**

Tab Details

Choose an icon for the tab.

Tab Icon * | /_imgs/searchwidget/SearchWidgetKBArticle

Name

Specify a unique name.

Name * | case_kbsearchcontrol

Label * | Knowledge Base Search

☐ Display label on the Form

Filter Data

Filter search results by | All published KB articles ▼

☑ Users can change filters

Set Default Language | User's Default Language ▼

☑ User can change Language Filter

Additional Options

☑ Turn on automatic suggestions

Give knowledge base (KB) suggestions using | Field value ▼

| Case Title ▼

☑ Enable ratings on KB article search results based on the specified field. | Rating ▼

Select primary customer | Customer ▼

Number of results | 10

Actions | Show all ▼

Link the KB article
Unlink
Copy link
Link KB article and email link

Set | Cancel

a. In the **Name** section, enter a name and label for the control.

b. In the **Filter Data** section:

 i. In the **Filter search results by** drop-down list, select the set of article states that you want CRM to search in.

- If you're using the native CRM knowledge solution, you can choose from all draft articles, all approved articles, or all published articles.

- If you're using the Parature knowledge base, you can choose from all articles, all draft articles, or all published articles.

 ii. To let users select a different filter on search results so they can see other types of articles, select the **Users can change filters** check box. Only when you enable this option will users see an option to change the filter in the Search pane in a record.

 iii. If you want users to see search results only for articles in a specific language, in the **Set Default Language** drop-down list, select a default language.

 📝 **Note**

This option is available only when you're using the native Microsoft Dynamics CRM knowledge management solution.

- If you select **User's Default Language**, search results will be filtered based on the signed-in user's default language.

- If the language you select isn't an active language, the search results will be filtered using the signed in user's default language.

- If you select **User's Default Language**, and if the user's default language isn't an active language, the first active language available alphabetically is used as the default filter.

 iv. To let users select a different language filter on search results so they can see other articles in other languages, select the **Users can change Language Filter** check box. Only when you enable this option will users see an option to change the filter in the Search pane in a record.

c. In the **Additional Options** section:

 i. If you want CRM to suggest articles automatically based on the value in certain fields of the entity, click **Turn on automatic suggestions**.

 ii. If you've enabled automatic suggestion, select the field for the entity that CRM will use to suggest article results in the **Give knowledge base (KB) suggestions using** drop-down list.

 For example, if you're adding the search control to the **Account** entity, and want CRM to automatically show search results that contain the account name, select **Account Name** in the drop-down list.

This drop-down list can include all fields that are text, multi-line text, or lookup type fields.

If you are a CRM Online user and your organization is using native CRM knowledge management as the knowledge solution, you can also use text analytics to show suggested articles. To do this, select **Text Analytics** from the **Give knowledge base (KB) suggestions using** drop-down list.

iii. If you want the article rating to appear for each article in the search results, select the **Enable ratings on KB article search results based on the specified field** check box, and then select the field from the drop-down list.

iv. In **Select primary customer**, select who the email will be sent to when a customer service rep sends the article link in email. This drop-down list includes all fields for the entity that are enabled for email, for example account or contact. When the customer service rep chooses to send a link to the article to the customer, the **To** field is automatically populated with the value of the field that you select here.

v. In **Number of results**, select how many articles to show in the search results at first.

vi. In the **Actions** drop-down list, select whether you want to make all the default actions available to CSRs or only selected ones. If you choose **Show Selected Actions**, select the actions you want to show.

The following actions are available:

- Link the KB article. Lets users link the knowledge article to the record they're viewing the knowledge article search results in.

- Unlink. Lets users unlink the knowledge article from the primary record .

- Copy link. Lets users copy the external URL of the article so they can share it   over channels like chat or email. If you're using the native CRM knowledge management solution, the **Copy Link** option is available only for published articles.

- Link KB article and email link. Lets users associate an article with the primary record and share the article link with the customer through email.

- Link article and email content. Lets users associate an article with a case and share the article content through email.

- Pop out. Lets users open the article in a new window.

9. Choose **Set**.

Add the search control to the activity wall of the Main form in the CRM web application

By default, the Knowledge Base Search control is added to the social pane of the case form.

1. Open the entity form you want to add the search control to.

2. In the form, in the **Social Pane** section, double-click the **Notes Properties** box.
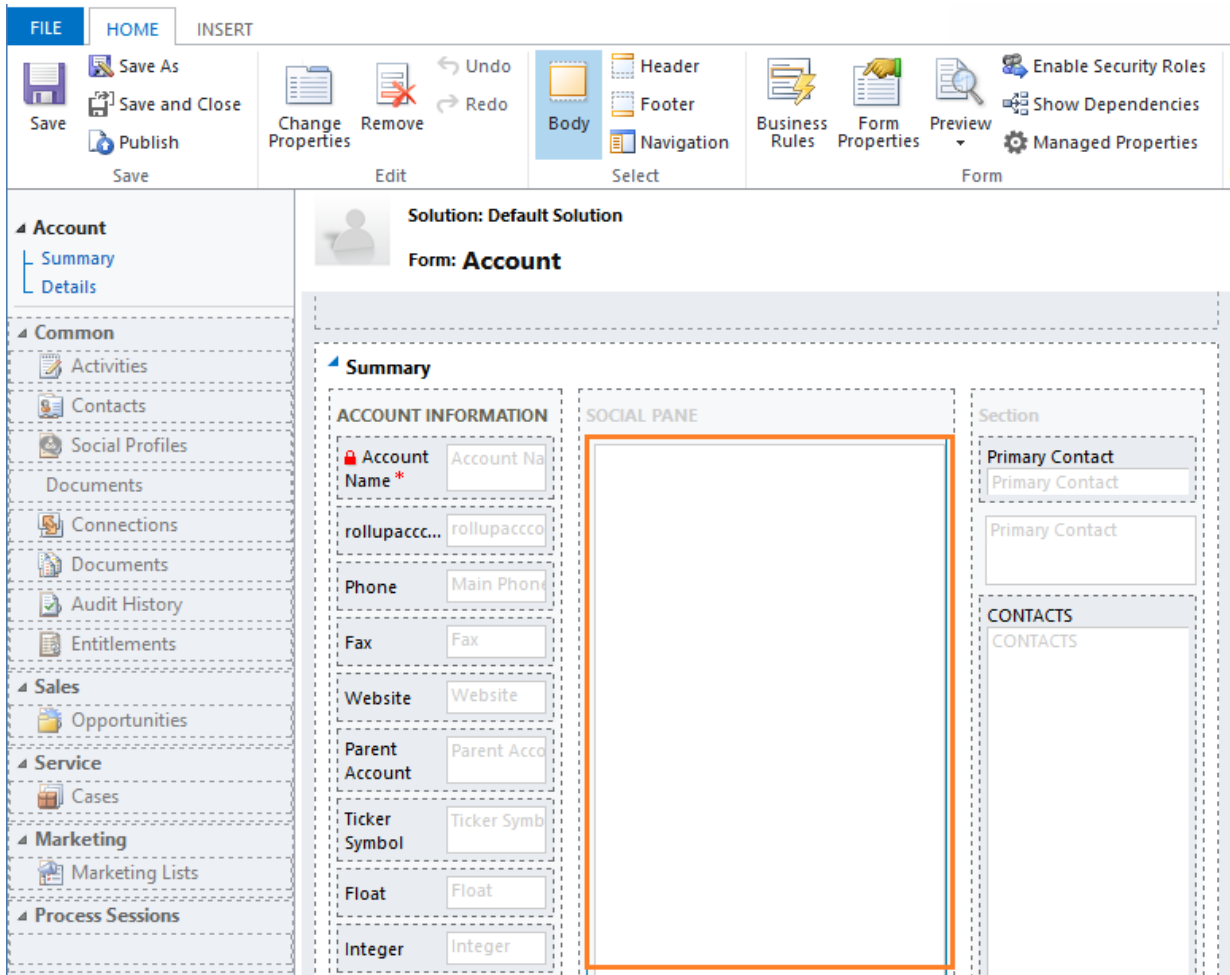
3. In the **Activities Tab Properties** dialog box, select the **Show Knowledge Base Search Control** check box.

As soon as you select the check box, a new tab "Knowledge Base Search" is added to the **Activity Tab Properties** dialog box.

Activities Tab Properties

Modify the properties for the Activities tab.

? ✕

Display | **Knowledge Base Search** | Formatting

Label

Specify the label for this field in forms.

Label *   Notes Properties

☐ Display label on the form

Locking

Specify whether to lock this field on the form.

☐ Lock the field on the form

Availability

Specify the default availability of this tab on phone.

☑ Available on phone

Knowledge Base Search Control

Enable Knowledge Base Search Control

☑ Show Knowledge Base Search Control

Default tab

Select the tab you want to be visible when the form opens.

Tab   Activities

OK   Cancel

4. Choose the **Knowledge Base Search** tab.

5. Follow steps 8 and 9 as described previously.

💡 **Tip**

You can set up the Knowledge Base Search tab as the default tab so whenever users open the form, the Knowledge Base tab is open on the activity wall. To do this, in the **Activity Tab Properties** dialog box, in the **Default tab** section, select **Knowledge Base Search**.

Add the search control to a reference panel in an interactive form

You can add the Knowledge Base search control to any section of the Main - Interactive experience form. Main - Interactive experience forms are used in the interactive service hub. The Knowledge Base Search control is already added by default to the reference panel of the Case form of type Main - Interactive experience. When you add the Knowledge Base Search control to a reference panel, it appears as a vertical tab at runtime.

🔷 **Important**

Because the interactive service hub does not support Parature knowledge base,. make sure you choose native CRM knowledge solution so users can search for records in the interactive service hub. If you choose Parature while setting up knowledge management, users will see an error in the Knowledge Base Search pane at runtime.

1. Make sure that you have the System Administrator or System Customizer security role or equivalent permissions.
2. Go to **Settings** > **Customizations**.
3. Choose **Customize the System**.
4. In the solution explorer, choose the entity you want to add the search control to, and under **Communication & Collaboration**, make sure the **Knowledge Management** check box is selected.

5. Expand the entity you're adding the search control to, and then click **Forms**.
6. Choose the entity form of type **Main - Interactive experience**.

7. In the form, select the section you want to add the control to, and on the **Insert** tab, click **Knowledge Base Search**.

8. In the **Set Properties** dialog box, on the **Display** tab, specify the following.

Set Properties

Set the KM Control properties

?

Display | **Formatting**

Tab Details

Choose an icon for the tab.

Tab Icon *   /_imgs/searchwidget/SearchWidgetKBArticle

Name

Specify a unique name.

Name *   case_kbsearchcontrol

Label *   Knowledge Base Search

☐ Display label on the Form

Filter Data

Filter search results by   All published KB articles ▾

     ☑ Users can change filters

Set Default Language   User's Default Language ▾

     ☑ User can change Language Filter

Additional Options

☑ Turn on automatic suggestions

     Give knowledge base (KB)   Field value ▾
     suggestions using

         Case Title ▾

     Enable ratings on KB article
☑ search results based on the   Rating ▾
     specified field.

Select primary customer   Customer ▾

Number of results   10

Actions   Show all ▾

Link the KB article
Unlink
Copy link
Link KB article and email link

Set   **Cancel**

a. In the **Name** section, enter a name and label for the control.

b. In the **Filter Data** section:

   i. In the **Filter search results by** drop-down list, select the set of article states that want CRM to search in.

   If you choose native CRM knowledge management as your solution, you can choose to show all draft articles, all approved articles, or all published articles.

   This will be used as the default filter for the search results shown to the users.

   ii. To let users select a different filter on search results so they can see other types of articles, select the **Users can change filters** check box. Only when you enable this option will users see an option to change the filter in the Search pane in a record.

   iii. If you want users to see search results only for articles in a specific language, in the **Set Default Language** drop-down list, select a default language.

   ☑ **Note**

   This option is available only when you're using the native Microsoft Dynamics CRM knowledge management solution.

   - If you select **User's Default Language**, search results will be filtered based on the signed-in user's default language.

   - If the language that you select isn't an active language, the search results will be filtered using the signed in user's default language.

   - If you select **User's Default Language**, and if the user's default language isn't an active language, the first active language available alphabetically is used as a default filter.

   iv. To let users select a different language filter on search results so they can see other articles in other languages, select the **Users can change Language Filter** check box. Only when you enable this option will users see an option to change the filter in the Search pane in a record.

c. In the **Additional Options** section:

   i. If you want CRM to suggest articles automatically based on the value in certain fields of the entity, select **Turn on automatic suggestions**.

   ii. If you've enabled automatic suggestions, select the field of the entity that CRM will use to suggest article results in the **Give knowledge base (KB) suggestions using** drop-down list.

   For example, if you're adding the search control to the **Account** entity, and want CRM to automatically show search results that contain the account name, select **Account Name** in the drop-down list.

   ☑ **Note**

   This drop-down list can include all the fields that are text, multi-line text, or lookup type fields.

Although you'll see an option to choose **Text Analytics** in the **Give knowledge base (KB) suggestions using** drop-down list, it is not supported, and will not work at runtime.

iii. If you want the article rating to appear for each article in in the search results, select the **Enable ratings on KB article search results based on the specified field**, check box, and then select the field from the drop-down list.

iv. In **Select primary customer**, select who the email will be sent to when a customer service rep chooses to send the article link in an email. This drop-down list includes all fields for the entity that are enabled for email, for example account or contact. When the customer service rep chooses to send an article link to the customer, the **To** field is automatically populated with the value of the field you select here.

v. In **Number of results**, select how many articles to show in the search results at first.

vi. In the **Actions** drop-down list, select whether you want to make all default actions available to CSRs or only selected ones. If you choose **Show Selected Actions**, select the actions you would like to show.

The following actions are available:

- Link the KB article. Lets users link the knowledge article to the record they're viewing the knowledge article search results in.

- Unlink. Lets users unlink the knowledge article from the primary record .

- Copy link. Lets users copy the external URL of the article so they can share it over channels like chat or email. If you're using the native CRM knowledge management solution, the **Copy Link** option is available only for published articles.

- Link KB article and email link. Lets users associate an article with the primary record and share the article link through email.

- Link article and email content. Lets users associate an article with a case and share the article content through email.

- Pop out. Lets users open the article in a new window.

 Note

Although, the Pop out option is available for selection in the drop-down list, it isn't supported at runtime in the interactive service hub.

See Also

[Set up knowledge management in Microsoft Dynamics CRM](#)

Assign Parature licenses to Microsoft Dynamics CRM users

Applies To: CRM Online

Any Microsoft Dynamics CRM Online user with a Professional user subscription license can use the knowledge management capability in CRM without any additional setup in Parature, from Microsoft.
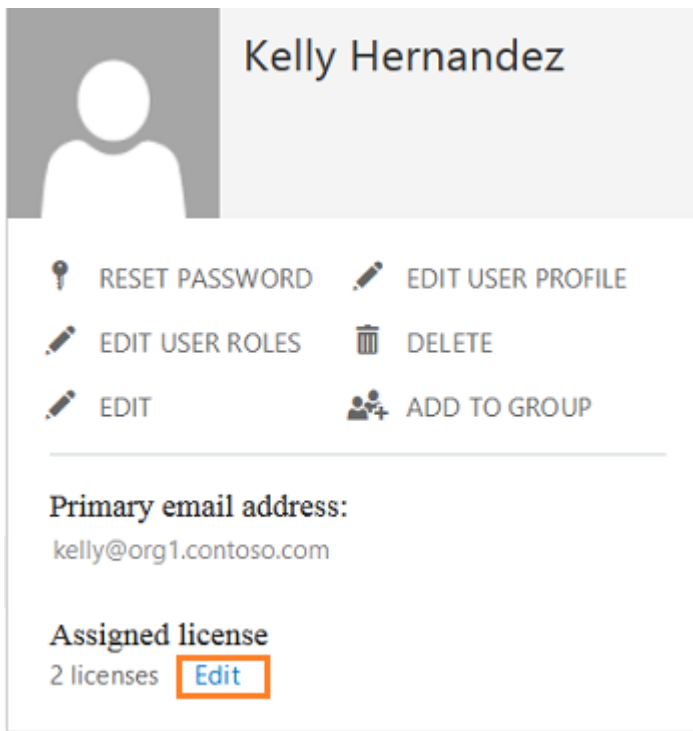
If a Microsoft Dynamics CRM Online user with an Enterprise user subscription license wants to use knowledge management capability, you'll need to assign a Parature license to the user, and then assign this user a "Knowledgebase View Only" role in Parature.

Note

The instructions in this topic are applicable to you only if your organization is using the Parature knowledgebase.

To assign and verify Parature licenses, use the Office 365 admin portal.

1. Browse to the Office 365 admin portal (https://portal.office.com) and sign in using Global administrator credentials.
2. Click **Users** > **Active Users** and select a user to assign a license.
3. On the right side of the page, under **Assigned license**, click **Edit**.

4. Click the **Microsoft Dynamics CRM Online Enterprise** drop-down arrow, and then select the check box for **Parature Enterprise**.

5. Click **Save**.

To learn about managing CSR roles in Parature or to create new CSRs, see [Manage CSR roles](#) and [Create, manage, and deactivate CSRs](#).

To learn more about Microsoft Dynamics CRM Online licensing, see [Dynamics CRM Online Pricing and Licensing Guide](#).

See Also

[Set up knowledge management in Microsoft Dynamics CRM](#)

Connect to Microsoft Social Engagement

Applies To: CRM 2016 on-prem, CRM Online

Your customers and stakeholders are talking about you on Facebook, Twitter, or blogs. How do you learn about it? In Microsoft Dynamics CRM, you can get powerful social insights by connecting Microsoft Dynamics CRM to Microsoft Social Engagement. Microsoft Social Engagement collects data from social media websites and presents it to you in charts and graphs that you can use to spot emerging trends in people's comments, whether they're positive, negative, or neutral. You can drill down into the data and see who is mentioning you, where they posted the comment, and exactly what they said. Armed with these insights, you can pinpoint what you're doing right, and address potential issues before bigger problems arise.

With social insights, you bring social media data directly into CRM dashboards and entity forms. As an administrator, you configure the connection to Microsoft Social Engagement and add the Social Insights controls to the entity forms and system dashboards. You use the Social Insights controls to specify what social data you want to see and in what form you want this data to be presented to you. When you set up the Social Insights controls, you choose a search topic or search topic category and visuals. For the search topic you may choose your company name to listen to what is said in social media about your company or your product. Or, you may want to know what is being said about your accounts; if so, choose the Accounts search topic category. After you choose the search topic or search category, you pick the visuals. It can be a graph or chart, or some other visual representation of data. You can find a lot of interesting, useful, and easy to follow information about social listening and social insights in CRM in this book: eBook: Microsoft Social Engagment for CRM.

📝 Note

Before you can set up the Social Insights controls in CRM, you have to add search topic categories and visuals for your CRM organization in Microsoft Social Engagement. You can add search topics in Microsoft Social Engagement directly from within CRM. Download the complete users guide: Microsoft Social Engagment User's Guide

In This Topic

Connect CRM Online to Microsoft Social Engagment for Social Insights

Connect CRM on-premises to Microsoft Social Engagment for Social Insights

Reset Social Insights

Add the Social Insights control to a CRM entity form

Add and set up Social Insights controls on the system dashboards

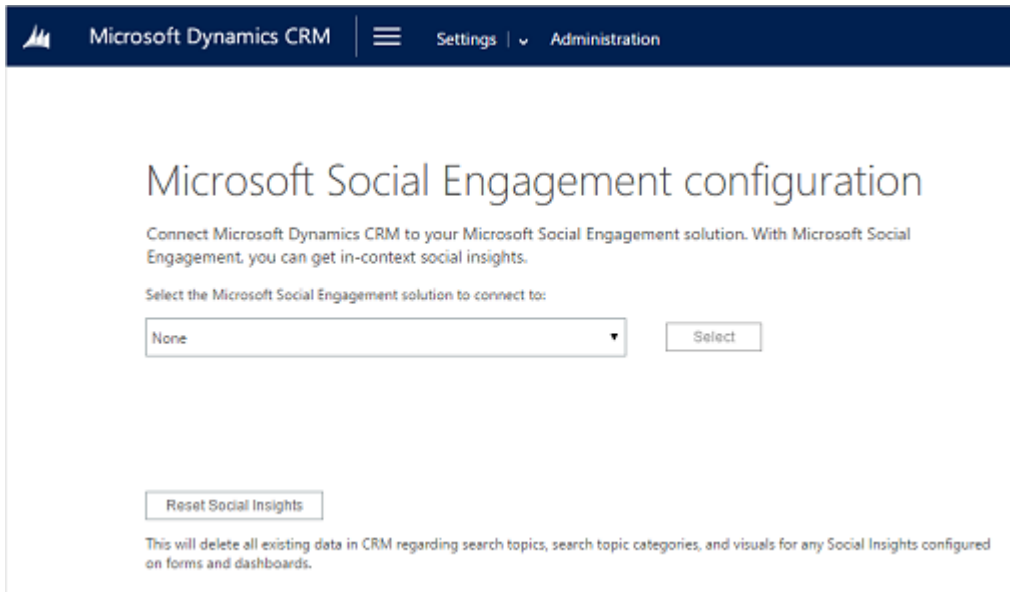## Connect CRM Online to Microsoft Social Engagment for Social Insights

To configure the connection, you need to have a subscription to Microsoft Social Engagement, be an authorized Microsoft Social Engagement user and have a Microsoft Social Engagement instance provisioned for this CRM instance.

1. Make sure you have the System Administrator security role or equivalent permissions in Microsoft Dynamics CRM.

2. Go to **Settings** > **System**.

3. Choose **Administration** > **Microsoft Social Engagement Configuration**.

4. You're presented with the legal disclaimer. To accept the disclaimer, choose **Continue**. You'll then proceed to the configuration page.

🖉 **Note**

You're asked to accept this disclaimer when you connect for the first time.

5. On the **Microsoft Social Engagement Configuration** page, in the **Select the Microsoft Social Engagement solution to connect to** dropdown box, choose the Microsoft Social Engagement instance to which you want to connect. Choose the **Select** button next to the dropdown box. The **Select** button becomes grayed out to indicate that the selection is confirmed.

⚠ **Warning**

If you want to switch to a different Microsoft Social Engagement instance, you are asked to confirm it by clicking or tapping the **Confirm** button. Changing the Microsoft Social Engagement instance, may cause any existing Social Insights controls on forms and dashboards to display error messages, because the new instance may not have matching data. All existing Social Insights controls may need to be reconfigured. Also, the existing Social Insights data in CRM may need to be reset to remove references to the old instance data.

In Microsoft Dynamics CRM Online Spring '14, only one Microsoft Social Engagement instance is provided for connection to the CRM instance.

Connect CRM on-premises to Microsoft Social Engagment for Social Insights

To configure the connection, you need to have a subscription to Microsoft Social Engagement and be an authorized Microsoft Social Engagement user.

1. Make sure you have the System Administrator security role or equivalent permissions in Microsoft Dynamics CRM.
2. Go to **Settings** > **System**.
3. Choose **Administration** > **Microsoft Social Engagement Configuration**.
4. You're presented with the legal disclaimer. To accept the disclaimer, choose **Continue**. You'll then proceed to the configuration page.

✎ **Note**

You're asked to accept this disclaimer once, when you connect for the first time.

5. Follow the directions on the **Microsoft Social Engagement Configuration** page.

⚠ Warning

If you want to switch to a different Microsoft Social Engagement instance, you are asked to confirm it by choosing the **Confirm** button. Changing the Microsoft Social Engagement instance, may cause any existing Social Insights controls on forms and dashboards to display error messages, because the new instance may not have matching data. All existing Social Insights controls may need to be reconfigured. Also, the existing Social Insights data in CRM may need to be reset to remove references to the old instance data.
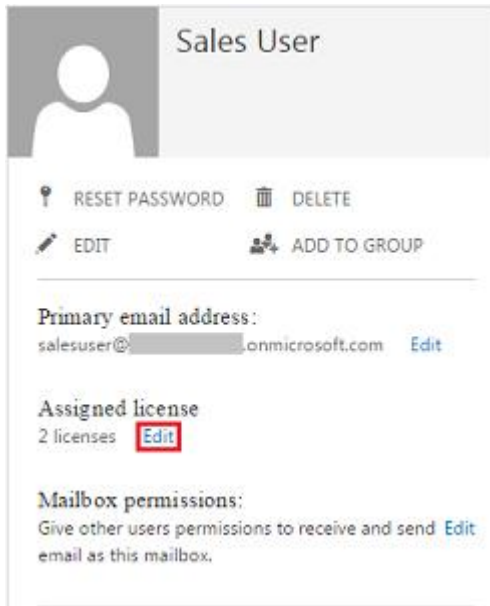
✎ Note

In Microsoft Dynamics CRM Online Spring '14, only one Microsoft Social Engagement instance is provided for connection to the CRM instance.

Assign Microsoft Social Engagement licenses to CRM users

Microsoft Dynamics CRM Online customers with a minimum of 10 Professional users automatically have access to Microsoft Social Engagement as part of their subscription at no additional charge. Customers who have an Enterprise subscription also have access to Microsoft Social Engagement but with no minimum user requirement.

Use the Office 365 admin portal to assign and verify Microsoft Social Engagement licenses.

1. Browse to the Office 365 admin portal (https://portal.office.com) and sign in using Global administrator credentials.

2. Choose **Users** > **Active Users** and select a user to assign a license.

3. On the right side of the page, under Assigned license, choose **Edit**.

4. Expand Microsoft Dynamics CRM Online. Select the check box for Microsoft Social Engagement and choose **Save**.


📝 **Note**

If your subscription is not eligible for Microsoft Social Engagement, see Microsoft Dynamics Social Solutions.

Reset Social Insights

⚠ **Warning**

This action deletes all existing data in CRM for the search topics, search topic categories and visuals for Social Insights.

1. Make sure you have the System Administrator security role or equivalent permissions in Microsoft Dynamics CRM.

2. Go to **Settings** > **System**.

3. Choose **Administration** > **Microsoft Social Engagement Configuration**.

4. On the **Microsoft Social Engagement Configuration** page, choose **Reset Social Insights**. The **Reset Social Insights Confirmation** message box appears, choose **Confirm**, if you want to proceed, otherwise choose **Cancel**.
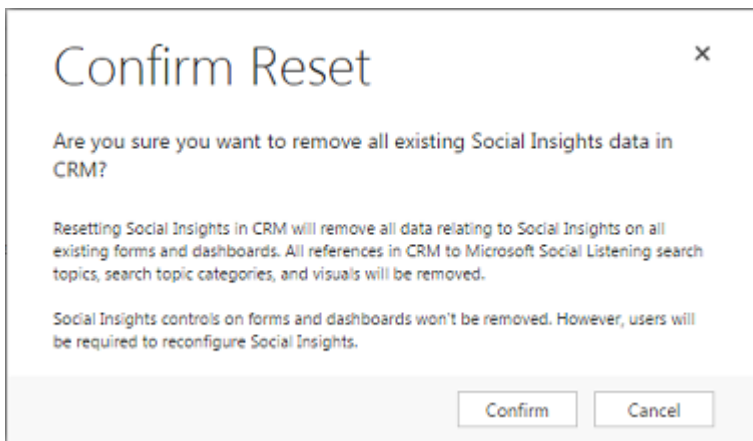

Add the Social Insights control to a CRM entity form

To add Social Insights controls to an entity (record type) form, you have to use the form editor provided in the CRM **Customization** area. You can position the Social Insights control anywhere on the form and resize it, just like you would do with the **iFrame** controls. You can make the control bigger by increasing the number of rows and spanning the control over several columns. This is important if you want to make a graph or a chart in the control appear larger and be more readable. More information: Use the form editor.

1. Make sure you have the System Administrator security role or equivalent permissions in Microsoft Dynamics CRM.

2. Go to **Settings** > **Customizations**.

3. Choose **Customizations** > **Customize the System**.

4. In the Navigation Pane, under **Components**, expand **Entities**.

5. Expand the entity that you want to add the **Social Insights** control to. Choose **Forms**.

6. In the grid view, choose the entity's Main form. The entity form opens.

7. Select the **Insert** tab. At the top of the form, on the ribbon, click the **Social Insights** icon. In the setup dialog box, fill out the required fields, such as the unique name of the control and the label name. Choose **OK**. The Social Insights control is now added to the entity form. You can resize the control or move the control to another location on the form.
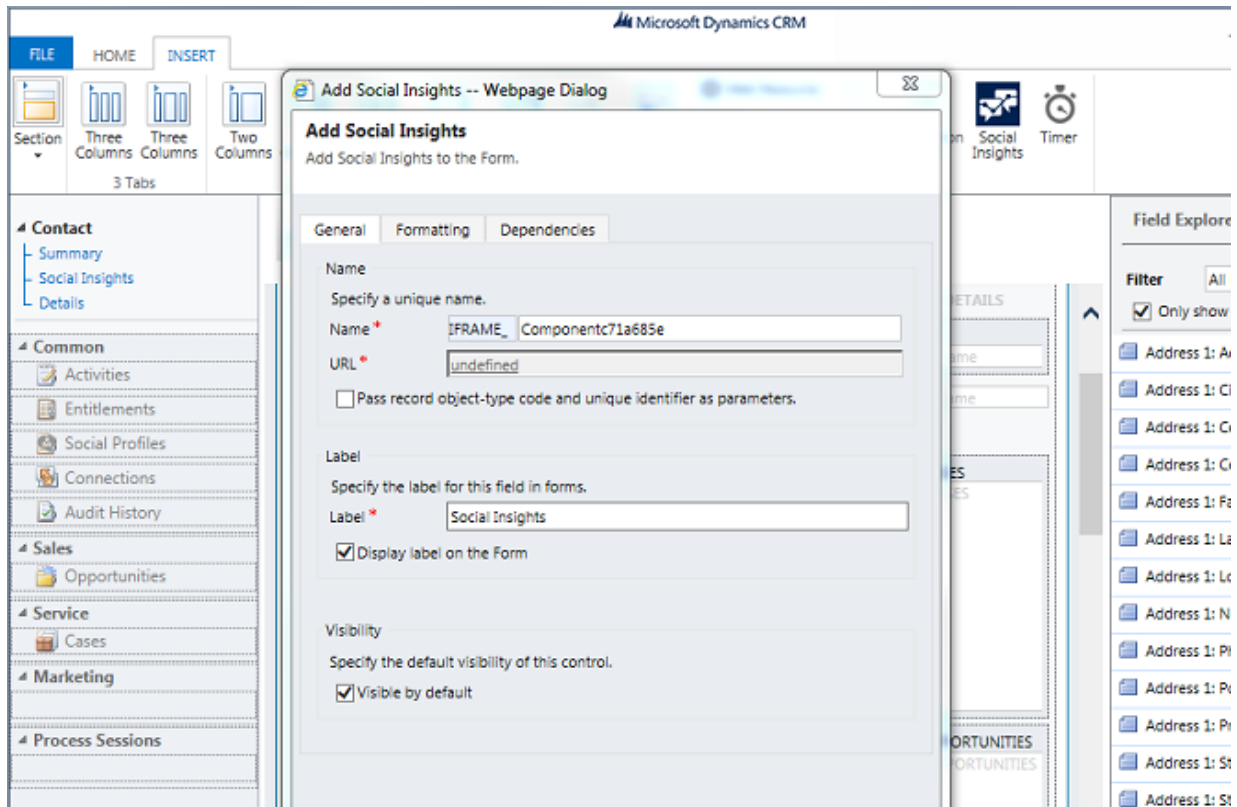
8. Switch back to the **Home** tab. Choose **Save** and then choose **Publish** to publish the added customizations. The control called **Configure Social Insights** appears on all records based on this form. The search topics, search categories and visuals can be added to the control.

📝 **Note**

You don't need administrator permissions to set up Social Insights on the entity record.

Add and set up Social Insights controls on the system dashboards

📝 Note

You don't need administrator permissions to add and set up Social Insights controls on the personal dashboard.

You can add the Social Insights controls to the existing system dashboards or to a new dashboard. Let's create a new dashboard and add the Social Insights control to it. We'll use the **Set Up Social Insights** wizard to lead us through the setup. Shortly after the setup is finished and customizations are published, the charts and graphs with social data will appear on your dashboard.

1. Make sure you have the System Administrator security role or equivalent permissions in Microsoft Dynamics CRM.
2. Go to **Settings** > **Customizations**.
3. Choose **Customizations** > **Customize the System**.
4. In the Navigation Pane, under **Components**, choose **Dashboards**.
5. Choose **New** on the command bar. Choose a layout and choose **Create**.
6. On the dashboard form, enter the name of the dashboard in the **Name** text box and choose **Save**.
7. To add the control, choose **Insert Social Insights** icon in the center of the section on the dashboard form, or choose **More Commands** (•••) on the command bar and then choose **Social Insights** in the dropdown list. **Set Up Social Insights** wizard appears.
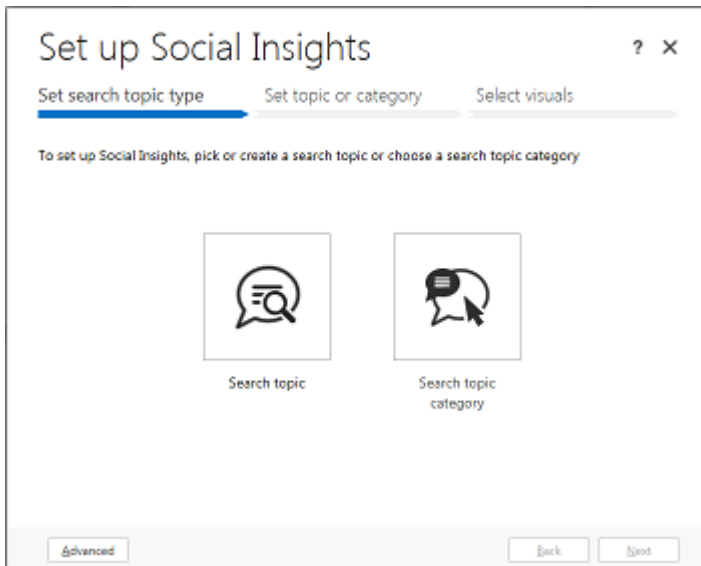
8. In the **Set Up Social Insights** wizard, choose **Advanced**. The **Add Social Insights** dialog appears. Fill in the required fields and choose **OK**. You can also use the default values and choose **OK** or **Cancel** to close the dialog box.
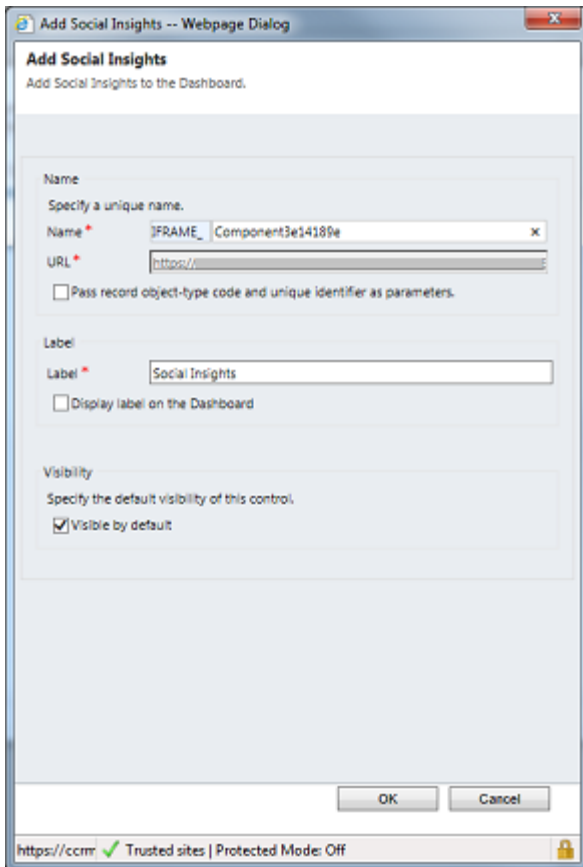
9. In the **Set Up Social Insights** wizard main window, choose **Search topic** or **Search topic category**, and then choose **Next**.

10. To pick the search topic or the search topic category, in the dropdown list, choose the topic or the category, depending on what you chose in the previous step and then choose **Next**.

📝 Note

You can create a new search topic, instead of choosing a search topic in the dropdown list. Choose **Create a new search topic**, fill in the required fields and choose **Next**.
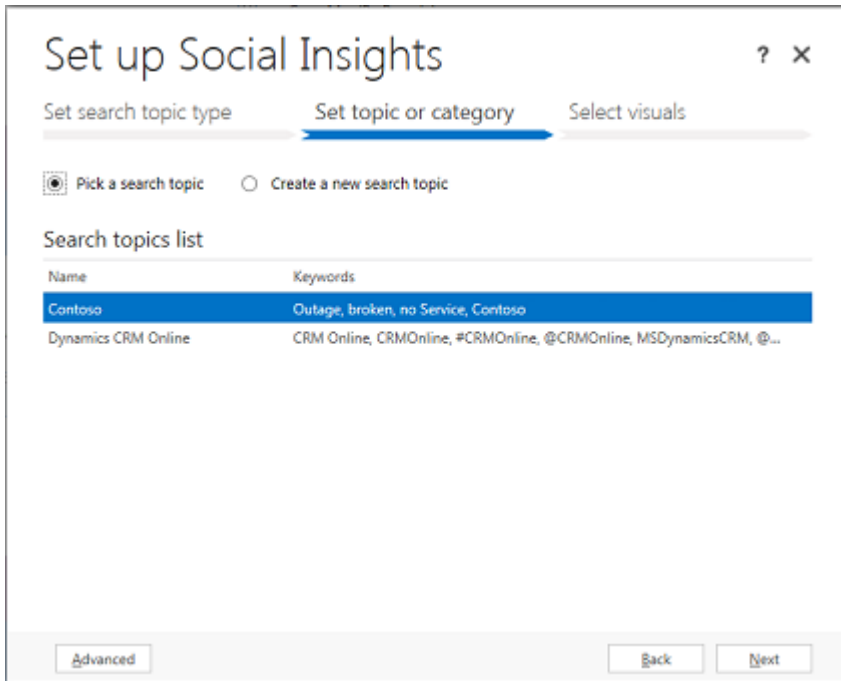
11. In the visuals drop-down list, choose a graph or a chart you want, such as **Analytics summary**, **Recent posts** or **Trends**. You can add as many visuals as you want and move them up and down the list using the **MOVE UP** and **MOVE DOWN** arrows. You can also delete a visual by clicking or tapping the delete icon displayed to the right of the visual. Choose **Finish**.
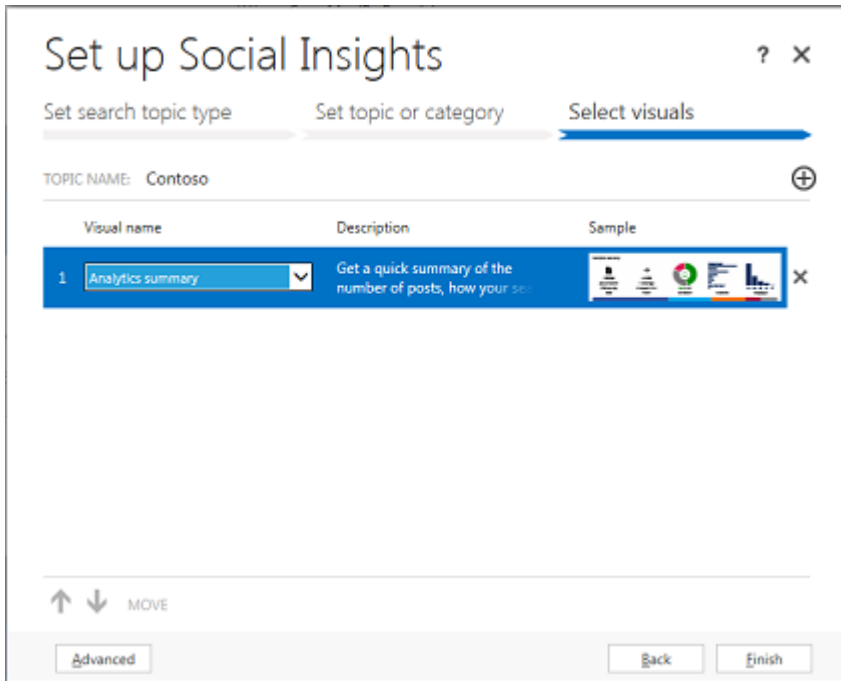
12. On the command bar, choose **Save** and then choose **Close**.

13. To publish the customizations, choose **Publish All Customizations** on the command bar. After the customizations are published, you can see the social insights on your dashboard.
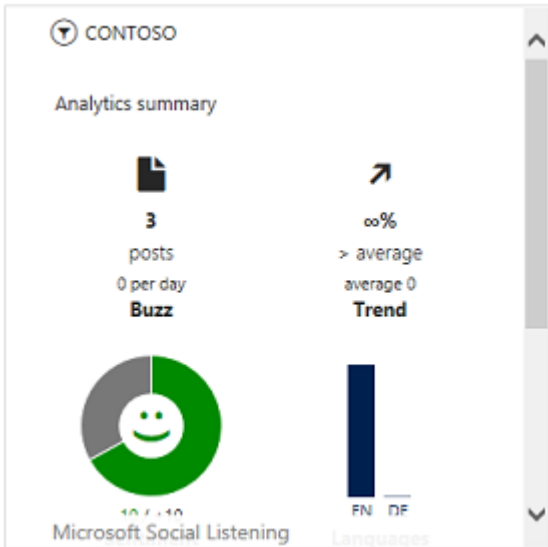
Privacy notice

By enabling Social Engagement, you consent to share your data with an external system. Data that is imported from external systems into Microsoft Dynamics CRM Online is subject to our privacy statement, which you can access here.

See Also

Administering CRM 2016
Microsoft Social Engagement Help and Training
Control social data
eBook: Microsoft Social Engagement for CRM
Microsoft Social Engagment User's Guide

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Connect Microsoft Dynamics CRM to Yammer

Applies To: CRM 2016 on-prem, CRM Online

Yammer gives colleagues at your organization a central place to have conversations, create and edit documents, and share information without sending a single email or attending any meetings.

After you set up your organization to work with Yammer, employees will see posts in a newsfeed on their Microsoft Dynamics CRM dashboard whenever people update customer info, and they'll be able to join in the conversation with their own posts.

 Check out the following videos:

- CRM + Yammer - Light a Fire Under Your Business (4:05)

- Yammer Integration – Introduction (11:03)

- Yammer Integration - Activity Feeds Replacement (5:18)

- Yammer Integration – Configuration (8:07)

- Yammer Integration – Features (6:25)

- Yammer Integration – Architecture (3:03)

- Yammer Integration – Troubleshooting (2:00)

Though the videos describe Yammer and CRM Online, the content applies to Microsoft Dynamics CRM (on-premises), as well.

Connect your organization to Yammer

Prepare a CRM on-premises edition

◆ **Important**

If you are connecting a Microsoft Dynamics CRM (on-premises) deployment to Yammer that is not using Internet-facing deployment (IFD), you need to run the following PowerShell commands to disable secure channel HTTPS.

You shouldn't run these commands if you are deploying Microsoft Dynamics CRM (on-premises) with IFD.

Allow for credentials via HTTP

1. Open a Windows PowerShell command window.

2. Add the Microsoft Dynamics CRM PowerShell snap-in:

   ```
   Add-PSSnapin Microsoft.Crm.PowerShell
   ```

3. Enter the following:

   ```
   $itemSetting = new-object
   'System.Collections.Generic.KeyValuePair[String,Object]'("AllowCredentialsEntryViaIns
   ecureChannels",1)

   $configEntity = New-Object "Microsoft.Xrm.Sdk.Deployment.ConfigurationEntity"

   $configEntity.LogicalName="Deployment"

   $configEntity.Attributes = New-Object
   "Microsoft.Xrm.Sdk.Deployment.AttributeCollection"

   $configEntity.Attributes.Add($itemSetting)

   Set-CrmAdvancedSetting -Entity $configEntity
   ```

Then, run the following command at a command prompt: iisreset

Prerequisites

- Before your organization can use Yammer in CRM, your organization needs to buy Yammer enterprise licenses.

- Make sure you have the System Administrator security role or equivalent permissions in Microsoft Dynamics CRM.

- You'll also need to have verified system administrator privileges for your organization's Yammer account, plus both the Write Organization and Configure Yammer privileges. If you're not an administrator, by default these privileges aren't available, and must be added.

- Install the most recent product updates for Microsoft Dynamics CRM.

- Meet [browser and system requirements](#).

Connect CRM to Yammer

1. Sign up for a Yammer Enterprise account, and note the name of the network you receive. More information: Visit the Yammer website

2. Go to **Settings** > **System**.

3. Choose **Administration** > **Yammer Configuration**

4. Read the disclaimer, and then choose **Continue**.

5. Choose **Authorize Microsoft Dynamics CRM Online (or CRM 2016) to connect to Yammer**.

6. Sign in to your enterprise Yammer account using your administrator credentials.

7. Follow the on-screen instructions to accept the Yammer terms of service, note which Yammer network has been set up for you, and connect your organization to it. After your organization is connected, you'll see a confirmation message at the bottom of the screen.

🖋 Note

CRM only supports connecting to the primary Yammer network. Connecting to External Networks in Yammer is not supported.

8. If desired, stay signed in to your Yammer account and set your organization's preferences for Yammer posts.

Set your organization's preferences for Yammer posts (optional)

1. Make sure you're signed in to your enterprise Yammer account using your administrator credentials.

2. If desired, select whether Yammer posts are **public** (everyone sees Microsoft Dynamics CRM posts in the newsfeed, or **private** (people must "follow" a record to see posts about that record in the newsfeed).

3. If desired, select the default group where you would like Microsoft Dynamics CRM posts to appear.

4. If desired, select which record types trigger automatic posts to the Yammer newsfeed.

Enable CRM entities for Yammer

Once you've connected CRM to Yammer, you need to specify which CRM entities are enabled for use with Yammer. Enabled entities can be followed by users

1. Go to **Settings** > **System**.
2. Choose **Activity Feeds Configuration** > **Post Configurations**
3. Choose the entity, and then choose **Activate**.
4. Confirm the activation, and then choose **More Commands (…)** > **Publish All Customizations**

What triggers automatic posts to the Yammer newsfeed?

The record types and rules in the following list can be enabled to trigger a Yammer post automatically. Record types that are enabled by default are marked "Yes." If you want to enable an entity or rule type, make sure that the entity or rule is activated and that the types of auto-posts you want are enabled.

Post Entity Id	Name	Enabled to Post Automatically
Case	New Case for an Account	Yes
Case	New Case for a Contact	Yes
Case	Case Closed for an Account	
Case	Case closed for a Contact	
Case	Case Assigned to User/Team	
Case	Case Routed to Queue	
Lead	New Lead created	
Lead	A Lead has been qualified	
Opportunity	New opportunity for an Account	Yes
Opportunity	New opportunity for a Contact	Yes
Opportunity	Probability for an Opportunity Updated for an account	
Opportunity	Probability for an Opportunity Updated for a contact	
Opportunity	Opportunity Won for an Account	Yes
Opportunity	Opportunity Won for a Contact	Yes
Opportunity	Opportunity Lost for an Account	
Opportunity	Opportunity Lost for a Contact	
Account	New Account Created	Yes
Contact	New Contact Created	
Competitor	New Competitor Created	Yes

When you have Yammer set up, keep these things in mind:

- All user posts (conversations) are stored in Yammer, not in Microsoft Dynamics CRM.
- All system posts are stored in Microsoft Dynamics CRM.
- If the Post to Yammer Activity Stream rule (or posttoyammer attribute) is set to True in Post Rules Configuration, that activity will post to Yammer.

Additional considerations

When connecting CRM with a federated Yammer

If you have configured Yammer to use single sign-on, you'll need to generate and use a temporary password to connect CRM to Yammer.

1. Sign in to Yammer with the single sign-on credentials.
2. Choose **More commands (…)** > **Apps**
3. Scroll to the bottom of the page to the **All Apps** section.
4. Choose the **Yammer** tab, and then choose an app like Windows Phone. The app must support generating a temporary password.
5. Complete the process to obtain a temporary user name and password.
6. Use the temporary user name and password to complete the CRM to Yammer connection configuration.

Add Yammer sites to the browser as trusted

Add your Yammer sites to your browser as trusted. For example, for CRM Online, add the following:

- https://*.crm.dynamics.com
- https://*.yammer.com
- https://*.assets-yammer.com

Privacy notice

By enabling Yammer, you consent to share your data with an external system. Data that is imported from external systems into Microsoft Dynamics CRM Online is subject to our privacy statement, which you can access here.

See Also

Control social data

Applies To: CRM 2016 on-prem, CRM Online

You can enable or disable your ability to receive social data in Microsoft Dynamics CRM.

Enable or disable social engagement

By default, social engagement is enabled and social data is received.

Note

If you disable social engagement, you can no longer create or update social data in CRM. If you try to convert a social activity to a case while social engagement is disabled, you'll get an error message. The error occurs because the **Convert To Case** action tries to update the social activity **Regarding** field. The same error occurs if you try to assign a social activity record or a social profile record to another user.

1. Go to **Settings** > **Administration**.

2. Choose **System Settings**.

3. Under **Disable Social Engagement**, select **Yes** to stop receiving social data in CRM. To receive data, select **No**.

4. Choose **OK**.

See Also

Manage Bing Maps for your organization

Applies To: CRM 2016 on-prem

Learn how you can manage Bing Maps for your entire Microsoft Dynamics CRM organization. When Bing Maps is turned on, people see a map of a customer's location when they view contacts, leads, or accounts.

◆ **Important**

Microsoft Dynamics CRM (on-premises) organizations may need to enter a Bing Maps Enterprise Key to use the maps feature. Go to the Bing Maps licensing page for details on how to get a key.

Enter a Bing Maps license key (on-premises only)

Go to the Bing Maps licensing page for details on how to get a key.

1. Go to **Settings** > **Administration**.
2. Choose **System Settings**.
3. On the **General** tab, scroll down to **Enable Bing Maps** > **Please enter Bing Maps key**, and enter the license key.
4. Choose **OK**.

Turn Bing Maps on or off for your organization

1. Go to **Settings** > **Administration**.
2. Choose **System Settings**.
3. On the **General** tab, scroll down to **Enable Bing Maps** > **Show Bing Maps on forms**, and then select **Yes** or **No**.
4. Choose **OK**.

Languages supported in Microsoft Dynamics CRM for viewing Bing Maps

The following table contains a list of all languages supported in CRM for viewing Bing maps. If the language is listed, the Bing map is shown on the form, such as account, contact or lead, in your language. If the language is not listed, the map is not shown on the form. Instead, the link **Click here to view the map** is provided on the form. When you choose this link, you are taken directly to Bing Maps.

Bing Maps are not available in all countries, regions, or languages. You may not be able to see the map in your language, if it is not supported by Bing Maps. For a list of supported languages, countries and regions, see Bing Maps documentation.

Language	Culture code
Czech	cs-CZ
Danish	da-DK
Dutch (Netherlands)	nl-BE
Dutch (Netherlands)	nl-NL
English (Australia)	en-AU
Canada (English)	en-CA
English (India)	en-IN
English (United Kingdom)	en-GB
English (United States)	en-US
Finnish	fi-FI
French (France)	fr-FR
French (Canada)	fr-CA
German (Germany)	de-DE
Italian (Italy)	it-IT
Japanese	ja-JP
Norwegian (Bokmål)	nb-NO
Portuguese (Brazil)	pt-BR
Portuguese (Portugal)	pt-PT
Spanish (Spain)	es-ES
Spanish (United States)	es-US
Spanish (Mexico)	es-MX
Swedish (Sweden)	sv-SE

Privacy notice

If you use Microsoft Dynamics CRM, the Bing Maps feature automatically sends the address over the Internet to the Bing Maps service to display an online map of the address within CRM. If you click on the Bing Maps within CRM, you will be redirected to www.bing.com/maps. Your use of Bing Maps is also governed by the Bing Maps End User Terms of Use.

 Your administrator can turn the Bing Maps feature on or off in the **Settings** > **Administration** > **System Settings** area. Turning the Bing Maps app off disables the feature within CRM.

Information sent to Bing Maps is subject to the [Bing Maps Privacy Statement](#).

See Also

[Administering CRM 2016](#)
[Help & Training: Use Bing Maps to view a location](#)

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Deploy packages using CRM Package Deployer and Windows PowerShell

Applies To: CRM 2016 on-prem, CRM Online

Microsoft Dynamics CRM Package Deployer enables administrators to deploy packages on a Microsoft Dynamics CRM (on-premises) or Microsoft Dynamics CRM Online instance. A "package" can consist of any or all of the following:

- One or more CRM solution files.

- Flat files or exported data files from the Configuration Migration tool. For information about the Configuration Migration tool, see [Manage configuration data](#).

- Custom code that can run during or after the package is deployed to Microsoft Dynamics CRM.

- HTML content specific to the package that can display at the beginning and end of the package deployment process. This can be useful to provide a description of the solutions and files that are deployed in the package.

Developers create packages by using the package deployment template in Microsoft Visual Studio. More information: [MSDN: Create packages for the CRM Package Deployer](#)

After a package is created, you can deploy it either by running CRM Package Deployer or by using Windows PowerShell cmdlets for the tool.

◆ Important

Before you import and run a package to a production organization, test the package on a non-production organization that is a mirror image of the production organization.

Back up the production organization before you deploy a package.

In This Topic

[Deploying packages using the Package Deployer tool](#)
[Use Windows PowerShell to deploy packages](#)
[Troubleshoot package deployment issues by using log files](#)

Best practices for deploying packages

Deploying packages using the Package Deployer tool

You can use the Package Deployer tool (packagedeployer.exe) to deploy packages in the following ways.

Use Package Deployer tool to deploy packages

Use Package Deployer tool at the command line

Use Package Deployer tool to deploy packages

The Package Deployer tool can only process one package at a time. However, it provides users with the ability to select a package to deploy from multiple packages available in the Package Deployer tool directory. Some of the screens and actions in the tool differ based on the package definition. You do not have to install the Package Deployer tool. Just download and run it.

1. Obtain the package to be deployed. A package is a collection of files and folders that is created in your Visual studio project folder *(<Project>*\Bin\Debug) when you build your package project in Visual Studio. Copy the following from your project debug folder:

   - **<PackageName> folder**: This folder contains the solutions, import configuration, and the contents for your package.

   - **<PackageName>.dll**: The assembly contains the code for your package. By default, the name of the assembly is the same as your Visual Studio project name.

   For detailed information about creating a package by using Visual Studio, see MSDN: Create a package for the Package Deployer tool.

   For this topic, let us assume that the package folder and assembly from the Visual Studio project debug folder (<Project>\Bin\Debug) are copied to the `c:\DeployPackage` folder.

2. Download the Microsoft Dynamics CRM SDK. Then run the downloaded executable file to extract the contents of the package.

3. Browse to the `SDK\Tools\PackageDeployer` folder, and copy the package folder and assembly from the `c:\DeployPackage` to the `SDK\Tools\PackageDeployer` folder.

4. After the files are copied, run the tool by double-clicking the `PackageDeployer.exe` file in the `SDK\Tools\PackageDeployer` folder.

5. Click **Continue** on the main screen of the tool.

6. In the **Connect to Microsoft Dynamics CRM** screen, provide authentication details to connect to your CRM server where you want to deploy the package. If you have multiple organizations, and want to select the organization where you want to deploy the package, select the **Always display list of available orgs** check box. Click **Login**.

7. If you have multiple organizations on your CRM server, select a CRM organization to connect to.

8. Select the package to be deployed, and click **Next**.
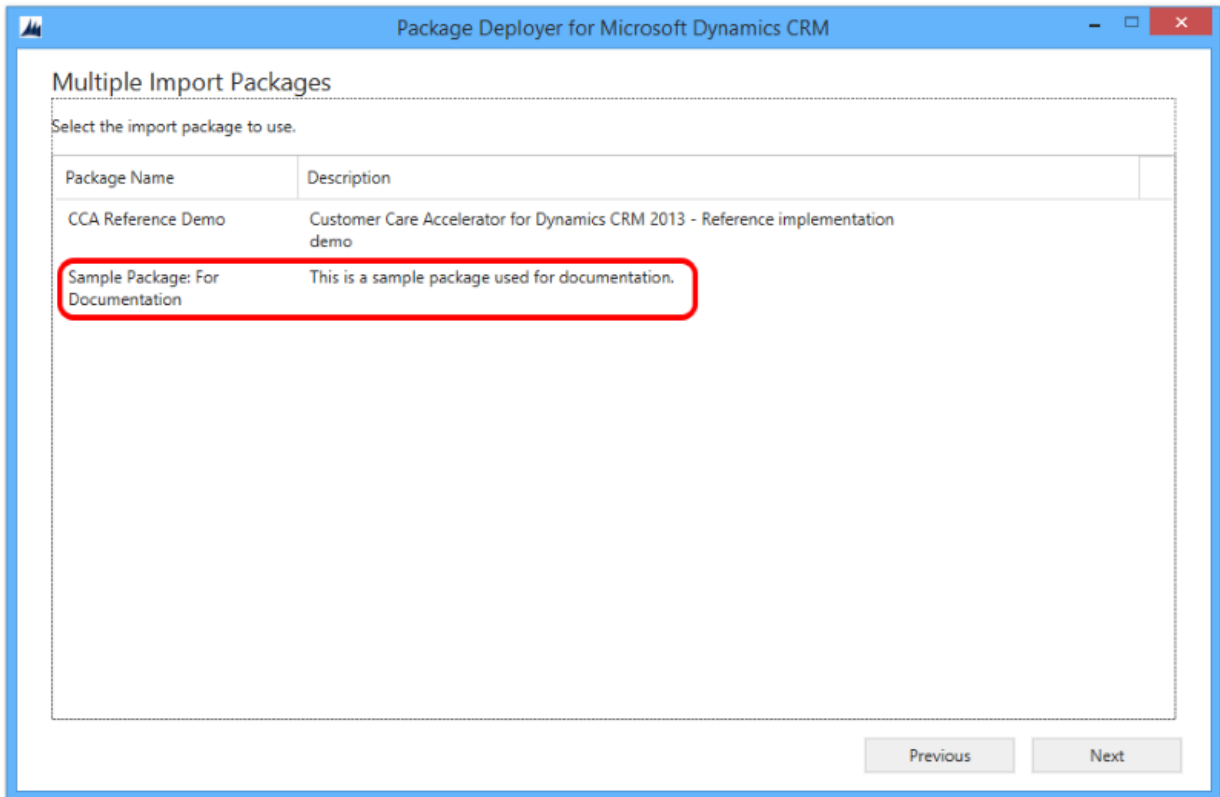
9. Follow the instructions on the subsequent screens to complete the deployment of your package.

The screens appear based on the definition of the package that you selected for deployment. For an end-to-end package deployment that uses the Package Deployer tool, see the topic for the deployment of Unified Service Desk packages: Deploy sample Unified Service Desk applications to CRM Server using Package Deployer

Use Package Deployer tool at the command line

System administrators and customizers can pass parameters, such as a regional language code to packagedeployer.exe from the command line. These parameters may only be configured by running Package Deployer tool at the command line.

📝 Note

This feature was first introduced in Microsoft Dynamics CRM Online 2016 Update 0.1.

Available parameters are in this table.

Parameter	Description	Default Value
RuntimePackageSettings	Instructs packagedeployer.exe to accept command line parameters such as LCID and SkipChecks.	Not applicable

Parameter	Description	Default Value
LCID=*localeID*	Specifies the locale ID, such as 1033 for English-United States or 1036 for French-France, from the available locale IDs in the package. If not specified, the default language will be used.	Use the default language
SkipChecks=true/false	This parameter should only be used when the target environment does not contain any other solutions or customizations. When set to true, solution import will bypass some safety checks, which can improve performance of the import.	False

The following example instructs CRM Package Deployer to bypass some safety checks and sets the language to import as Polish.

```
packagedeployer.exe RuntimePackageSettings SkipChecks=true | lcid=1045
```

Note

Use the pipe | character to separate parameters when you run packagedeployer.exe at the command line with multiple parameters.

For more information about the parameters and values that can be passed to packagedeployer.exe, see MSDN: Create packages for the CRM Package Deployer.

Use Windows PowerShell to deploy packages

The Package Deployer tool also provides Windows PowerShell support to deploy packages.

Perform the following steps to use the PowerShell cmdlets to deploy packages:

Prerequisites

Register the cmdlets

Use the cmdlet to retrieve packages

Use the cmdlet to connect to your CRM server

Use the cmdlet to deploy packages

Get detailed help on cmdlets

Prerequisites

Here are the prerequisites for using the PowerShell cmdlets:

- PowerShell 3.0 or later is required to deploy a package by using PowerShell. To check your PowerShell version, run a PowerShell window, and then run the following command: $Host

- Set the execution policy to run the signed PowerShell scripts. To do so, run a PowerShell window as an administrator, and then run the following command: `Set-ExecutionPolicy -ExecutionPolicy AllSigned`

Register the cmdlets

You must register the Windows PowerShell cmdlets for the Package Deployer tool before you can use it. To register the cmdlets:

1. If you haven't already done so, download the CRM SDK package from the Microsoft Download Center, and run the package file to extract the contents of the package. Let's assume that you extracted the package to the `c:\CRM` folder on your computer. The Package Deployer tool and the other required files become available at the following location: `c:\CRM\SDK\Tools\PackageDeployer`.

2. Start Windows PowerShell on your computer with elevated privileges (run as administrator).

3. At the prompt in the Windows PowerShell window, change your directory to the Windows PowerShell folder under the `PackageDeployer` folder. In this case:

   cd c:\CRM\SDK\Tools\PackageDeployer\PowerShell

4. Run the `RegisterXRMTooling.ps1` script to register the Package Deployer Windows PowerShell assembly (dll), and install the Windows PowerShell snap-in for the Package Deployer tool. To do so, type the following command, and press ENTER:

   .\RegisterXRMTooling.ps1

5. Add the Windows PowerShell snap-in for XRM tooling. This will register the following cmdlets: `Get-CrmConnection` and `Get-CrmOrganizations`.

   Add-PSSnapin Microsoft.Xrm.Tooling.Connector

6. Add the Windows PowerShell snap-in for Package Deployer. This will register the following cmdlets: `Get-CrmPackages` and `Import-CrmPackage`.

   Add-PSSnapin Microsoft.Xrm.Tooling.PackageDeployment

You are now ready to use these Windows PowerShell cmdlets. To list the cmdlets that you registered, run the following command at the prompt in the Windows PowerShell window:

Get-Help "Crm"

Use the cmdlet to retrieve packages

Before you can use the cmdlet, ensure that you have copied your package to the **PackageDeployer** folder (in this case, c:\CRM\SDK\Tools\PackageDeployer). A package is a collection of files and folders that is created in your Visual Studio project folder (*<Project>*\Bin\Debug) when you build your project in Visual Studio. Copy the entire contents of your project debug folder to the **PackageDeployer** folder. For detailed information about building a package using Visual Studio, see [MSDN: Create packages for the CRM Package Deployer](#).

1. In the PowerShell window, use the following cmdlet to return a list of packages available for import in the specified directory (in this case, c:\CRM\SDK\Tools\PackageDeployer):

   ```
   Get-CrmPackages –PackageDirectory c:\CRM\SDK\Tools\PackageDeployer
   ```

2. If you want information about a package in a directory, you can use the **Get-CrmPackages** cmdlet along with the **–PackageName** parameter to specify the name of the assembly in the directory that contains the package definition.

   ```
   Get-CrmPackages –PackageDirectory c:\CRM\SDK\Tools\PackageDeployer –PackageName
   SampleCRMPackage.dll
   ```

Use the cmdlet to connect to your CRM server

1. Provide your credentials to connect to your Microsoft Dynamics CRM Online or Microsoft Dynamics CRM (on-premises) instance. Running the following command will prompt you to type your user name and password to connect to the CRM instance, and we will store it in the `$Cred` variable, and use it later for connecting to your CRM server.

   ```
   $Cred = Get-Credential
   ```

2. Use the following command to get a connection to your Microsoft Dynamics CRM Online or Microsoft Dynamics CRM (on-premises) instance. We will store the connection information in the `$CRMConn` variable:

   - If you are connecting to the Microsoft Dynamics CRM (on-premises) instance:

     ```
     $CRMConn = Get-CrmConnection -ServerUrl http://<your_CRM_Server> -OrganizationName
     <your_Org_Name> -Credential $Cred
     ```

   - If you are connecting to the Microsoft Dynamics CRM Online server:

     ```
     $CRMConn = Get-CrmConnection -DeploymentRegion NorthAmerica –OnlineType Office365 –
     OrganizationName <your_Org_Name> -Credential $Cred
     ```

   ☑ **Note**

   For the `DeploymentRegion` parameter, valid values are **NorthAmerica**, **EMEA**, APAC **SouthAmerica**, **Oceania**, **JPN**, and **NorthAmerica2**. For the `OnlineType` parameter, valid values are **Office365** and **LiveID**.

3. Your supplied credentials are validated when you run the command in step 2.

Use the cmdlet to deploy packages

Next, use the CRM connection information stored in the `$CRMConn` variable to deploy packages to the CRM instance. Run the following command to deploy your package.

```
Import-CrmPackage –CrmConnection $CRMConn –PackageDirectory c:\CRM\SDK\Tools\PackageDeployer –
PackageName SampleCRMPackage.dll –UnpackFilesDirectory c:\UnpackedFiles -Verbose
```

📝 Note

- `CrmConnection`, `PackageDirectory`, and `PackageName` parameters are mandatory.

- For the `PackageName` parameter, you have to specify the name of the assembly that contains the package definition.

- You do not need to specify the `UnpackFilesDirectory` parameter if your package does not unpack files during package deployment. While defining a package in Visual Studio, you specify whether to unpack files using the **agentdesktopzipfile** parameter in the ImportConfig.xml file. More information: [MSDN: Create packages for the CRM Package Deployer](#)

- The `Verbose` parameter is optional, and is used to display a detailed log of the activities performed during the package deployment process.

- The optional `RuntimePackageSettings` parameter can be used together with the following parameters.

  - The `LCID=localeID` parameter specifies the locale ID, such as 1033 for English-United States or 1036 for French-France, from the available locale IDs in the package. If not specified, the default language will be used.

  - The
    `SkipChecks=true/false` parameter should only be used when the target environment does not contain any other solutions or customizations. When set to true, solution import will bypass some safety checks, which can improve performance of the import.

The following example command imports a package named *SampleCRMPackage* and specifies English-United States (1033) as the language to import the package.

```
Import-CrmPackage –CrmConnection $CRMConn –PackageDirectory c:\CRM\SDK\Tools\PackageDeployer –
PackageName SampleCRMPackage.dll –UnpackFilesDirectory c:\UnpackedFiles –RuntimePackageSettings
LCID=1033
```

Get detailed help on cmdlets

In the PowerShell window, use the `Get-Help` cmdlet with a cmdlet name to view a detailed help for the cmdlet. For example, to get detailed help for the `Import-CrmPackage` cmdlet:

```
Get-Help Import-CrmPackage -full
```

To view the online help for the cmdlets, see [CRM PowerShell Reference](#).

Troubleshoot package deployment issues by using log files

The Package Deployer tool provides logging support to get detailed information about errors that can occur when someone signs in to the Microsoft Dynamics CRM instance using the tool and deploying packages. The tool generates three log files that are available at the following location on the computer where you run the tool:
c:\Users\<UserName>\AppData\Roaming\Microsoft\PackageDeployer\<Version>.

- **Login_ErrorLog.log**: Provides information about the issues that occurred when you use the tool to sign in to the CRM instance. If there are any issues during sign in, a message appears on the tool's login screen with a link to this log file. The message states that an error occurred while processing the login request and the user can view the error log. You can click the link in the message to view this log file. The log file is created the first time you encounter any sign-in issues in the tool. Thereafter, the log file is used to log information about a sign-in issue, whenever it occurs.

- **PackageDeployer.log**: Provides detailed information about each task performed in the tool during the deployment of the packages. You can view the log file from the tool by clicking the **View Log File** link at the bottom of the screen.

- **ComplexImportDetail.log**: Provides detailed information about the data imported in the last deployment by using the tool. Each time you deploy a package using this tool, the existing details from the log file are moved to a file called ComplexImportDetail._old.log in the same directory, and the ComplexImportDetail.log file displays information about the latest import done using the tool.

Best practices for deploying packages

While deploying packages, CRM administrators must:

- Insist on a signed package assembly so that they can track an assembly back to its source.

- Test the package on a pre-production instance (preferably a mirror image of the production instance) before running it on a production server.

- Back up the production instance before deploying a package.

See Also

MSDN: Create packages for the CRM Package Deployer
Administering CRM 2016

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Use Power BI with Microsoft Dynamics CRM

Applies To: Dynamics CRM 2016, Dynamics CRM Online

The Power BI for Office 365 cloud service works with and Microsoft Dynamics CRM to provide a self-service analytics solution. Power BI automatically refreshes the Microsoft Dynamics CRM Online data displayed. With Excel for authoring reports and Power BI for sharing dashboards and refreshing data from Microsoft Dynamics CRM Online, sales, marketing, and service personnel in your organization have a powerful new way to work with CRM data.

Notice that you can author Power BI reports using Excel with Microsoft Dynamics CRM (on-premises) and share them by using the Power BI cloud service; however, data refresh is not supported.

In this topic

Get started using Microsoft Power BI with Microsoft Dynamics CRM Online
Embed Power BI tiles in your personal dashboard
Use Power BI with Microsoft Dynamics CRM on-premises

Get started using Microsoft Power BI with Microsoft Dynamics CRM Online

The Microsoft Dynamics CRM content packs for Power BI cloud service allow you to easily access and analyze your sales or service data.

To create a Power BI dashboard using a content pack, follow these instructions.

1. If you haven't already done so,   register with Microsoft Power BI.

2. After you have signed in to Power BI, in the **Datasets** area click **Get**, select from the following content packs, and then click **Connect**.

   - **Dynamics CRM Sales**

   - **Dynamics CRM Service**

   - **Dynamics CRM Marketing**

3. Enter the OData service URL of your Microsoft Dynamics CRM Online instance, such as *https://OrganizationName.crm.dynamics.com/XRMServices/2011/OrganizationData.svc*, where *OrganizationName* is the organization name of your instance of Microsoft Dynamics CRM Online, and click **Next**.

4. Under **Authentication method**, select **oAuth**.

5. Your Microsoft Dynamics CRM Online organization data is imported and several visualizations become available.

  Note

The Microsoft Dynamics CRM content packs support the default out-of-box entities. However, customizations aren't supported. To extend the content pack using your custom fields and entities, author your own Power BI reports and dashboards.

Embed Power BI tiles in your personal dashboard

Before users can embed Power BI tiles in personal dashboards, the organization-wide setting must be enabled.

 📝 **Note**

This feature was first introduced in CRM Online 2016 Update 1.

By default, Power BI tile embedding is disabled and must be enabled before users can embed them in personal dashboards.

Enable Power BI tile embedding in the organization

1. Sign-in to Microsoft Dynamics CRM as a user with the system administrator security role.

2. Go to **Settings** > **Administration** > **System Settings**.

3. On the **Reporting** tab in the **Allow Power BI tile embedding** option, select **Yes** to enable or **No** to disable.

Follow these steps to add one or more Power BI tiles to your dashboard. To use the Power BI service, you must have registered and enabled your Microsoft Dynamics CRM Online instance as a data source within Power BI,

1. Sign in to Microsoft Dynamics CRM, and go to **Sales** > **Dashboards**.

2. Click **New**.

3. From the new dashboard, click**Power BI Tile** on the toolbar.

4. In the **Add Component** dialog select the Power BI dashboard and Power BI tile that you want to display in your dashboard, and then click **OK**.

   Click another area of the dashboard and repeat this step to add more Power BI tiles to your dashboard.

5. Click **Save** to save your dashboard.

Use Power BI with Microsoft Dynamics CRM on-premises

To use Power BI with Microsoft Dynamics CRM (on-premises), follow these steps. Notice that automatic data refresh isn't supported.

1. Configure the standard OData Feed connector to your Microsoft Dynamics CRM (on-premises) system by using Windows or OAuth authentication. You do this by creating an account on the Power BI site and then selecting the OData Feed connector.

2. Build reports with Microsoft Excel or Power BI Desktop.

3. Upload your reports to Power BI and build dashboards.

4. Refresh reports locally with Power BI Desktop and then upload them again either by refreshing with Excel or Power BI Desktop.

See Also

Install or remove a preferred solution

Applies To: CRM 2016 on-prem, CRM Online
Install preferred solutions to gain added features and functionality for Microsoft Dynamics CRM Online.

Install a preferred solution

1. Sign in to https://portal.office.com with your Global administrator or CRM System Administrator credentials.
2. Click **Admin** > **CRM**
3. On the **Manage all CRM Online instances** page, select the instance to add the solution to.
4. Click **Solutions**.
5. Select the solution you want to install and click **Install**.

    Proceed through **Terms of service** to accept the terms.

The status for the solution changes to **Installation pending**.

The status for the solution will change to **Installed** when the solution is ready.

See Also

Copyright