Deploying and administering Microsoft Dynamics CRM Online and Microsoft Dynamics CRM 2016

Version 8.0

This document contains the information that was titled the *Microsoft Dynamics CRM Implementation Guide* in earlier versions of Microsoft Dynamics CRM.

Microsoft Dynamics CRM

Contents

Planning and deploying CRM 2016 (on-premises)

This section contains topics that can help you plan, install, operate, and maintain on-premises versions ofMicrosoft Dynamics CRM 2016.

For information about how to plan and deploy Microsoft Dynamics CRM Online, see **Manage Your Microsoft Dynamics CRM Online Subscription**.

In This Section

Planning on-premises CRM 2016

Installing on-premises CRM 2016

Operating on-premises CRM 2016

See Also

Administering CRM 2015 for online and on-premises

Planning and deploying CRM 2016 (on-premises)

Planning on-premises CRM 2016

IT Pros and Microsoft Dynamics CRM administrators can use the resources and topics in this guide to help them plan an on-premises deployment of Microsoft Dynamics CRM.

In This Section

Planning your deployment of Microsoft Dynamics CRM 2016

Microsoft Dynamics CRM 2016 editions and licensing

Microsoft Dynamics CRM 2016 system requirements and required technologies

Planning your deployment of Microsoft Dynamics CRM 2016

Advanced deployment options for Microsoft Dynamics CRM Server

Related Sections

Installing on-premises CRM 2016

Administration Guide for Microsoft Dynamics CRM 2013 and Microsoft Dynamics CRM Online

Operating on-premises CRM 2016

Report Writers Guide for Microsoft Dynamics CRM and Microsoft Dynamics CRM Online

Planning your deployment of Microsoft Dynamics CRM 2016

For larger organizations, planning Microsoft Dynamics CRM (on-premises) or Microsoft Dynamics CRM Online, like any enterprise-wide software, is a significant task. This guide is written for the team of people responsible for planning Microsoft Dynamics CRM, and provides information and tools that are needed to design a successful implementation. In smaller organizations, several roles may be filled by one person. In larger organizations, each role may be divided among several people. These roles include the following:

- **Business managers.** Responsible for determining how your business will use Microsoft Dynamics CRM. This includes mapping your processes to Microsoft Dynamics CRM, deciding on default values, and identifying any required customizations.
- **Customization technical staff.** Responsible for implementing the planned customizations.
- **Network technical staff.** Responsible for determining how Microsoft Dynamics CRM will be deployed on the network and how users will access the system.
- **Project manager.** Responsible for managing an enterprise-wide implementation project.

Organizations that implement Microsoft Dynamics CRM software may use the services of an independent software vendor (ISV) or value-added reseller, a consultant, or other organization that is partnered with Microsoft and will help you with implementing and maintaining your Microsoft Dynamics CRM installation. Because of this assumption, there may be references in this guide to these "partners" who are expected to provide services to you.

Resources for planning and preparing users for Microsoft Dynamics CRM

These resources are available to help you plan a deployment of Microsoft Dynamics CRM (on-premises) or Microsoft Dynamics CRM Online.

Microsoft Dynamics SureStep

Microsoft Dynamics Sure Step is a full customer lifecycle methodology for all Microsoft Dynamics solutions, providing the Microsoft ecosystem with comprehensive sales through delivery guidance, project management discipline alignment and field-driven best practices. Microsoft Dynamics Sure Step is designed for Microsoft Dynamics Partners to successfully and reliably complete customer projects on time and on budget. More information: Microsoft Dynamics CRM Sure Step Guide

Microsoft Dynamics CRM Online planning

If you're an administrator who needs to plan and implement Microsoft Dynamics CRM Online in your organization,TechNet: Manage your Microsoft Dynamics CRM Online subscription is designed for you. The guide also helps other users to ramp up with Microsoft Dynamics CRM Online.

User training and adoption

More information: Training and Adoption Kit for Microsoft Dynamics CRM.

See Also

Microsoft Dynamics CRM 2016 editions and licensing

Microsoft Dynamics CRM offers licensing options that cover implementations for small, to mid-level, to even very large organizations.

Editions and licensing for on-premises deployments

- **Microsoft Dynamics CRM 2016 Server**. There is no user limit for this edition. Additional features include support for multiple organizations, multiple server instances, and separate role-based service installation. Role-based services let you increase performance by installing Microsoft Dynamics CRM Server features on different computers.
- **Microsoft Dynamics CRM 2016 Workgroup Server**. This edition is limited to five, or fewer, users. This version is limited to a single organization and a single computer that is running Microsoft Dynamics CRM Server.

Licensing

A Microsoft Dynamics CRM deployment operates by using a single product key. However, each Microsoft Dynamics CRM Server in a deployment requires a server license. Only the Microsoft Dynamics CRM 2016 Server edition is licensed for multiple Microsoft Dynamics CRM servers or server roles in a deployment. Microsoft Dynamics CRM 2016 Workgroup Server edition is limited to running on a single server in a deployment.

You can view and upgrade a license by using the **Get-CrmAccessLicense** and **Set-CrmProductKey** Windows PowerShell commands or in Deployment Manager. Deployment Manager is a Microsoft Management Console (MMC) snap-in that system administrators can use to manage organizations, servers, and licenses for deployments of Microsoft Dynamics CRM.

Client access license types

You can view and modify client access license types for each user in the **Users** area of the **Settings** area in the Microsoft Dynamics CRM web client. For more information about Microsoft Dynamics CRM licensing, see How to buy Microsoft Dynamics CRM.

Microsoft Dynamics CRM Online licensing

With Microsoft Dynamics CRM Online, you get powerful CRM capabilities and features delivered as a cloud service from Microsoft, providing instant-on, anywhere access, and predictable pay-as-you-go pricing. Licensing plans for Microsoft Dynamics CRM Online determine the amount of features and functionality users need and is licensed using a subscription.

More information: Licensing plans for Microsoft Dynamics CRM Online

See Also

Microsoft Dynamics CRM 2016 system requirements and required technologies

This Microsoft Dynamics CRM (on-premises) version requires the following software:

- Microsoft Windows Server

- A Microsoft Windows Server Active Directory infrastructure

- An Internet Information Services (IIS) website

- Claims-based security token service (required for Internet-facing deployments)

- Microsoft SQL Server

- Microsoft SQL Server Reporting Services

- Microsoft Exchange Server or access to a POP3-compliant email server (required for email tracking)

- SharePoint Server (required for document management)

- Supported device, Microsoft Dynamics CRM app, or web browser, such as later versions of Internet Explorer or the latest versions of Apple Safari, Google Chrome and Mozilla Firefox

- Microsoft Office for Microsoft Dynamics CRM for Outlook and other Office integration features

📝 **Note**

For detailed hardware and software requirements or specific product versions and service pack levels that are supported, see the links in "In this Section" later in this topic.

🔷 **Important**

Typically, Microsoft Dynamics CRM applications support the latest version and service pack (SP) for all required components, such as Windows Server, Microsoft SQL Server, and Microsoft Office. However, to fully support the latest version of a required component, you should apply the latest update for Microsoft Dynamics CRM.

Microsoft Dynamics CRM conforms to the support policies of all dependent products and technologies, such as Microsoft Office or Microsoft Exchange Server. For example, mainstream support for Microsoft Office 2010 ended 10/13/2015; therefore mainstream support for Dynamics CRM for Outlook running on Microsoft Office 2010 also ended on that date. For more information, see Select a Product for Lifecycle Information.

Before you install Microsoft Dynamics CRM, review the following topics, which provide detailed information about the products and technologies that are required or optional and supported configurations.

In This Section

See Also

Supported web browsers and mobile devices

CRM for Outlook

Email Router

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

Planning your deployment of Microsoft Dynamics CRM 2016

Microsoft Dynamics CRM Server hardware requirements

The following table lists the minimum and recommended hardware requirements for this version of Microsoft Dynamics CRM Server running in a Full Server configuration. These requirements assume that additional components such as Microsoft SQL Server, Microsoft SQL Server Reporting Services, Microsoft SharePoint, or Microsoft Exchange Server aren't installed or running on the system.

Component	*Minimum	*Recommended
Processor	x64 architecture or compatible dual-core 1.5 GHz processor	Quad-core x64 architecture 2 GHz CPU or higher such as AMD Opteron or Intel Xeon systems
Memory	4-GB RAM	8-GB RAM or more
Hard disk	10 GB of available hard disk space	40 GB or more of available hard disk space

* Actual requirements and product functionality may vary based on your system configuration and operating system.

📝 **Note**

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

Computers with more than 16 GB of RAM will require more disk space for paging, hibernation, and dump files.

The minimum and recommended requirements are based on 320-user load simulation tests.

See Also

Microsoft Dynamics CRM 2016 system requirements and required technologies

Microsoft SQL Server hardware requirements for Microsoft Dynamics CRM Server

Microsoft SQL Server hardware requirements for Microsoft Dynamics CRM Server

You need Microsoft SQL Server database engine and Microsoft SQL Server Reporting Services to install and run on-premises versions of Microsoft Dynamics CRM Server. The following table lists the minimum and recommended hardware requirements for Microsoft SQL Server. These requirements assume that additional components such as Microsoft Dynamics CRM Server, Microsoft SQL Server Reporting Services, SharePoint, or Microsoft Exchange Server aren't installed or running on the system.

Component	*Minimum	*Recommended
Processor	x64 architecture or compatible dual-core 1.5 GHz processor	Quad-core x64 architecture 2 GHz CPU or higher such as AMD Opteron or Intel Xeon systems
Memory	4-GB RAM	16-GB RAM or more
Hard disk	SAS RAID 5 or RAID 10 hard disk array	SAS RAID 5 or RAID 10 hard disk array

* Actual requirements and product functionality may vary based on your system configuration and operating system.

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

The minimum and recommended requirements are based on 320-user load simulation tests.

See Also

Microsoft Dynamics CRM 2016 system requirements and required technologies

Microsoft Dynamics CRM Server hardware requirements

Software requirements for Microsoft Dynamics CRM Server

Software requirements for Microsoft Dynamics CRM Server

This section lists the software and application requirements for this version of Microsoft Dynamics CRM Server.

In This Topic

Windows Server operating system

This version of Microsoft Dynamics CRM Server can be installed only on Windows Server 64-bit-based computers. The specific versions and editions of Windows Server that are supported for installing and running this version of Microsoft Dynamics CRM Server are listed in the following sections.

⬥ **Important**

The following Windows Server versions are not supported for installing and running this version of Microsoft Dynamics CRM Server:

- Windows Server 2012 Foundation
- Windows Server 2012 Essentials
- Microsoft Windows Small Business Server editions
- The Windows Server 2008 family of operating systems

Supported Windows Server 2012 editions

The following editions of the Windows Server 2012 operating system are supported for installing and runningMicrosoft Dynamics CRM Server 2016:

- Windows Server 2012 R2 Datacenter
- Windows Server 2012 R2 Standard
- Windows Server 2012 Standard
- Windows Server 2012 Developer

Server Core installations

With the exception of the Microsoft Dynamics CRM Help Server and Microsoft Dynamics CRM Reporting Extensions roles, you can install any Microsoft Dynamics CRM 2016 Server server role

on a Server Core installation of Windows Server. Server Core is a minimal server installation option for the Windows Server family of operating systems. Server Core provides a low-maintenance server environment with limited functionality. For more information about Server Core as implemented on Windows Server 2012, see [Server Core for Windows Server 2012](#)

> ⬦ **Important**
>
> To install Microsoft Dynamics CRM Server on a Server Core Windows Server, you must run Setup in silent mode from the command line. More information: [Use the command prompt to install Microsoft Dynamics CRM Server 2016](#)
>
> The Help Server role cannot be installed on a Windows Server running as Server Core.
>
> Microsoft Dynamics CRM Reporting Extensions for SQL Server Reporting Services cannot be installed on Server Core. This is because Microsoft SQL Server Reporting Services, which is required by Microsoft Dynamics CRM Reporting Extensions for SQL Server Reporting Services, cannot be installed on a Windows Server running Server Core.

Server virtualization

Microsoft Dynamics CRM servers can be deployed in a virtualized environment by using Windows Server 2008 or Windows Server 2012 with Hyper-V or virtualization solutions from vendors who participate in the Microsoft Windows Server Virtualization Validation Program (SVVP). You must understand the limitations and best practices of server virtualization before you try to virtualize your installation of Microsoft Dynamics CRM. For information about Hyper-V, see the [Microsoft Virtualization](#) website.

Active Directory modes

The computer that Microsoft Dynamics CRM Server is running on must be a member in a domain that is running in one of the following Active Directory directory service forest and domain functional levels:

- Windows Server 2008
- Windows Server 2008 R2
- Windows Server 2012
- Windows Server 2012 R2

For more information about Active Directory domain and forest functional levels, see the Active Directory Domains and Trusts Microsoft Management Console (MMC) snap-in Help.

> ⬦ **Important**
> - The computer that Microsoft Dynamics CRM is running on shouldn't function as an Active Directory domain controller.
> - When you use the Add Users Wizard, only users from trusted domains in the current forest will be displayed. Users from trusted external forests aren't supported and don't appear in the wizard.
> - Installing Microsoft Dynamics CRM Server in an LDAP directory that is running in Active Directory Application Mode (ADAM) is not supported.

Internet Information Services (IIS)

This version of Microsoft Dynamics CRM Server supports Internet Information Services (IIS) versions 8.0 and 8.5.

We recommend that you install and run IIS in Native Mode before you install Microsoft Dynamics CRM Server. However, if IIS is not installed and it is required for a Microsoft Dynamics CRM server role, Microsoft Dynamics CRM Server Setup will install it.

💠 **Important**

Microsoft Dynamics CRM can't use a website that has more than one http or https binding. Although IIS supports multiple http and https bindings, there is a limitation in using additional bindings with Windows Communication Foundation (WCF). WCF is required when you use Microsoft Dynamics CRM for Outlook. Before you install or upgrade, you must remove the additional bindings from the website used for Microsoft Dynamics CRM or select a different website.

SQL Server editions

Any one of the following Microsoft SQL Server editions is required and must be installed on Windows Server 2008 (SP2 or R2) 64-bit-based versions or Windows Server 2012 (RTM or R2) 64-bit-based computers, running, and available for Microsoft Dynamics CRM:

- Microsoft SQL Server 2014, Enterprise, 64-bit
- Microsoft SQL Server 2014, Business Intelligence 64-bit
- Microsoft SQL Server 2014, Standard, 64-bitt
- Microsoft SQL Server 2014, Developer, 64-bit (for non-production use only)
- Microsoft SQL Server 2012, Enterprise, 64-bit SP1
- Microsoft SQL Server 2012, Business Intelligence, 64-bit SP1
- Microsoft SQL Server 2012, Standard, 64-bit SP1
- Microsoft SQL Server 2012, Developer, 64-bit SP1 (for non-production use only)

💠 **Important**

- 32-bit versions of Microsoft SQL Server database engine are not supported for this version of Microsoft Dynamics CRM.
- SQL Server Compact or Microsoft SQL Server Express editions are not supported for use with this version ofMicrosoft Dynamics CRM Server.
- Microsoft SQL Server 2008 versions are not supported for use with this version of Microsoft Dynamics CRM Server.

Accessing Microsoft Dynamics CRM from the Internet - Claims-based authentication and IFD requirements

The following items are required or recommended for Internet-facing deployment (IFD). This topic assumes you will be using Active Directory Federation Services (AD FS) as the security token service (STS). For more information about configuring Microsoft Dynamics CRM for claims-based authentication, see Configure IFD for Microsoft Dynamics CRM.

⬥ **Important**

> Exposing the Microsoft Dynamics CRM website to the Internet is not supported unless claims-based authentication is used and Microsoft Dynamics CRM is configured for IFD.
>
> Similarly, Outlook Anywhere (RPC over HTTP) is not supported as a solution to connect Dynamics CRM for Outlook to an on-premises deployment of Microsoft Dynamics CRM Server over the Internet. The on-premises deployment of Microsoft Dynamics CRM Server must be configured for IFD as described in the topic [Configure IFD for Microsoft Dynamics CRM](#).
>
> In order for Microsoft Dynamics CRM for tablets to successfully connect to a new deployment of Microsoft Dynamics CRM Server, you must run a Repair of Microsoft Dynamics CRM Server on the server running IIS where the Web Application Server role is installed *after* the Internet-Facing Deployment Configuration Wizard is successfully completed. For repair instructions, see [Uninstall, change, or repair Microsoft Dynamics CRM Server](#).

- The computer where Microsoft Dynamics CRM Server is installed must have access to a security token service (STS) service, such as Active Directory Federation Services (AD FS) federation server. Microsoft Dynamics CRM Server supports Active Directory Federation Services (AD FS) 2.0, 2.1, and 2.2 versions.

- Note the following conditions for the web components before you configure IFD:

  - If you are installing Microsoft Dynamics CRM in a single server configuration, be aware that Active Directory Federation Services 2.0 installs on the default website. Therefore, you must create a new website for Microsoft Dynamics CRM.

  - When you run the Internet-Facing Deployment Configuration Wizard, Microsoft Dynamics CRM Server must be running on a website that is configured to use Secure Sockets Layer (SSL). Microsoft Dynamics CRM Server Setup will not configure the website for SSL.

  - We recommend that the IIS website where the Microsoft Dynamics CRM web application will be installed requires SSL .

  - The website should have a single binding. Multiple IIS bindings, such as a website with an HTTPS and an HTTP binding or two HTTPS or two HTTP bindings, are not supported for running Microsoft Dynamics CRM.

  - Access to the Active Directory Federation Services (AD FS) federation metadata file from the computer where the Configure Claims-Based Authentication Wizard is run. Note the following:

    - The federation metadata endpoint must use the web services trust model (WS-Trust) 1.3 standard. Endpoints that use a previous standard, such as the WS-Trust 2005 standard, are not supported. In Active Directory Federation Services 2.0, all WS-Trust 1.3 endpoints contain /trust/13/ in the URL path.

  - Encryption certificates. The following encryption certificates are required. You can use the same encryption certificate for both purposes, such as when you use a wildcard certificate:

    ⬥ **Important**

If you use a certificate that is created by using a custom certificate request, the template that was used must be the **Legacy key** template. Custom certificate requests created by using the **CNG key** template are incompatible with Microsoft Dynamics CRM. For more information about custom certificate request templates, see Create a Custom Certificate Request.

- Claims encryption. Claims-based authentication requires identities to provide an encryption certificate for authentication. This certificate should be trusted by the computer where you are installing Microsoft Dynamics CRM Server so it must be located in the local Personal store where the Configure Claims-Based Authentication Wizard is running.

- SSL (HTTPS) encryption. The certificates for SSL encryption should be valid for host names similar to org.contoso.com, auth.contoso.com, and dev.contoso.com. To satisfy this requirement you can use a single wildcard certificate (*.contoso.com), a certificate that supports Subject Alternative Names, or individual certificates for each name. Individual certificates for each host name are only valid if you use different servers for each web server role. Multiple IIS bindings, such as a website with two HTTPS or two HTTP bindings, aren't supported for running Microsoft Dynamics CRM. For more information about available options, contact your certification authority service company or your certification authority administrator.

- The **CRMAppPool** account of each Microsoft Dynamics CRM website must have read permission to the private key of the encryption certificate specified when configuring claims-based authentication. You can use the Certificates Microsoft Management Console (MMC) snap-in to edit permissions for the encryption certificate found in the Personal store of the local computer account.

Software component prerequisites

The following SQL Server components must be installed and running on the computer that is running SQL Server before you installMicrosoft Dynamics CRM Server:

- SQL word breakers

  This is only required for some Microsoft Dynamics CRM language editions. For more information about word breaker versions for languages supported by SQL Server see Configure and Manage Word Breakers and Stemmers for Search.

- SQL Server Agent service
- SQL Server full-text indexing

The following components must be installed and running on the computer where Microsoft Dynamics CRM Serverwill be installed:

- Services
  - Indexing Service

    To install this service, see the Windows Server documentation.

  - IIS Admin
  - World Wide Web Publishing
- Windows Data Access Components (MDAC)

- Microsoft ASP.NET (Must be registered, but does not have to be running.)

Verify prerequisites

Before you install Microsoft Dynamics CRM Server, you should understand the following:

- Microsoft SQL Server can be, but is not required to be, installed on the same computer as Microsoft Dynamics CRM Server.

- If Microsoft Dynamics CRM Server and Microsoft SQL Server are installed on different computers, both computers must be in the same Active Directory directory service domain.

- Microsoft SQL Server can be installed by using either Windows Authentication or mixed-mode authentication. (Windows Authentication is recommended for increased security and Microsoft Dynamics CRM will use only Windows Authentication).

- The service account that SQL Server uses to log on to the network must be either a domain user account (recommended) or one of the built-in system accounts supported by SQL Server (Network Service, Local Service, or Local System). Installation of Microsoft Dynamics CRM Server will fail if the SQL Server service account is the local administrator.

- The SQL Server service must be started and can be configured to automatically start when the computer is started.

- The Microsoft SQL Server Reporting Services service must be started and configured to automatically start when the computer is started.

- The SQL Server Agent service must be started. This service can be configured to automatically start when the computer is started.

- Although it is optional, we recommend that you accept the SQL Server default settings for Collation Designator, Sort Order, and SQL Collation. Microsoft Dynamics CRM supports both case-sensitive and case-insensitive sort orders.

- Microsoft Dynamics CRM Server Setup requires at least one network protocol to be enabled to authenticate by using SQL Server. By default, TCP/IP protocol is enabled when you install SQL Server. You can view network protocols in SQL Server Configuration Manager.

See Also

[Microsoft SQL Server hardware requirements for Microsoft Dynamics CRM Server](#)

[Microsoft Dynamics CRM reporting requirements](#)

Active Directory and network requirements for Microsoft Dynamics CRM

Active Directory Domain Services (AD DS) is a feature of the Windows Server operating systems. AD DS provides a directory and security structure for network applications such as Microsoft Dynamics CRM.

As with most applications that rely on a directory service, Microsoft Dynamics CRM has dependencies that are important for operation, such as use of AD DS to store user and group information and to create application security.

Microsoft Dynamics CRM Server should only be installed on a Windows Server that is a domain member. The domain where the server is located must be running in one of the Active Directory domain functional levels listed in the [Active Directory modes](#) topic.

Federation and claims-based authentication support

When you configure Microsoft Dynamics CRM for Internet-facing access it requires federated services that support claims-based authentication. We recommend Active Directory Federation Services (AD FS) in Microsoft Windows Server.

Active Directory Federation Services

Active Directory Federation Services (AD FS) is a highly secure, highly extensible, and Internet-scalable identity access solution that allows organizations to authenticate users from partner organizations. Using AD FS in Microsoft Windows Server, you can easily and very securely grant external users access to your organization's domain resources. AD FS can also simplify integration between untrusted resources and domain resources within your own organization.

AD FS is available as a server role in Windows Server.

Digital certificates

Active Directory Federation Services (AD FS) requires two types of digital certificates:

- **Claims encryption**. Claims-based authentication requires identities to provide an encryption certificate for authentication. This certificate should be trusted by the computer where you are installing Microsoft Dynamics CRM Server, so it must be located in the local Personal store where the Configure Claims-Based Authentication Wizard is running.

- **SSL (HTTPS) encryption**. The certificates for SSL encryption should be valid for host names similar to org.contoso.com, auth.contoso.com, and dev.contoso.com. To satisfy this requirement you can use a single wildcard certificate (*.contoso.com), a certificate that supports subject alternative names, or individual certificates for each name. Individual certificates for each host name are only valid if you use different servers for each web server role. Multiple IIS bindings, such as a website with two HTTPS or two HTTP bindings, aren't supported for running Microsoft Dynamics CRM. For more information about the options that are available to you, contact your certification authority service company or your certification authority administrator.

To meet these requirements, your organization should have a public key infrastructure or a contract with a digital certificate provider such as VeriSign, GoDaddy, or Comodo.

IPv6 Support

This version of Microsoft Dynamics CRM works with IPv6 either alone or together with IPv4 within environments that have networks where IPv6 is supported.

See Also

Prerequisites and considerations for planning your deployment of Microsoft Dynamics CRM 2016

Software requirements

SQL Server installation and configuration

Microsoft Dynamics CRM reporting requirements

Microsoft Dynamics CRM Reporting Extensions are data processing extensions that are installed on the Microsoft SQL Server Reporting Services server. The Microsoft Dynamics CRM Reporting

Extensions accept authentication information from Microsoft Dynamics CRM Server and pass it to the Microsoft SQL Server Reporting Services server.

Microsoft Dynamics CRM Reporting Extensions Setup includes two data processing extensions: Fetch data processing extension and SQL data processing extension. By default, these extensions are installed during Microsoft Dynamics CRM Reporting Extensions Setup:

- The Fetch data processing extension is required to create, run, and schedule Fetch-based reports.
- The SQL data processing extension is required to run and schedule the default (out-of-the-box) or SQL-based custom reports inMicrosoft Dynamics CRM.

You don't need Microsoft Dynamics CRM Reporting Extensions to run Microsoft Dynamics CRM. However, if you want to create, use, or schedule reports in Microsoft Dynamics CRM, you need to install Microsoft Dynamics CRM Reporting Extensions. Additionally, you need to install these extensions if you want to create or import an organization, like when you migrate from an earlier version of Microsoft Dynamics CRM using Deployment Manager.

In this topic

SQL Server Reporting Services

Microsoft Dynamics CRM Reporting Extensions requirements

Microsoft Dynamics CRM Reporting Authoring Extension requirements

SQL Server Reporting Services

Microsoft SQL Server Reporting Services is required for reporting features in Microsoft Dynamics CRM.

You can use the following Microsoft SQL Server editions for Microsoft Dynamics CRM reporting; you'll need to install them on a Windows Server 2012 (x64 RTM or R2) 64-bit-based computer, running and available for Microsoft Dynamics CRM:

- SQL Server 2014 Enterprise, 64-bit
- SQL Server 2014 Business Intelligence, 64-bit
- SQL Server 2014 Standard, 64-bit
- SQL Server 2014 Developer, 64-bit (for non-production use only)
- Microsoft SQL Server 2012, Enterprise, 64-bit SP1
- Microsoft SQL Server 2012, Business Intelligence, 64-bit SP1
- Microsoft SQL Server 2012, Standard, 64-bit SP1
- Microsoft SQL Server 2012, Developer, 64-bit SP1 (for non-production use only)

 Important
- 32-bit versions of Microsoft SQL Server 2012 Reporting Services are not supported for this version of Microsoft Dynamics CRM.
- SQL Server Compact or Microsoft SQL Server Express editions are not supported for use with Microsoft Dynamics CRM Server.
- Microsoft SQL Server 2008 versions are not supported for use with this version of Microsoft Dynamics CRM Server.

- Using a SQL Server Reporting Services server running in SharePoint mode is not supported with Microsoft Dynamics CRM. For more information about Microsoft SQL Server 2012 Reporting Services SharePoint mode, see Install Reporting Services SharePoint Mode.

Microsoft Dynamics CRM Reporting Extensions requirements

The Microsoft Dynamics CRM Reporting Extensions component has the following requirements:

- You must complete Microsoft Dynamics CRM Server Setup *before* you run Microsoft Dynamics CRM Reporting Extensions Setup.

- You can install and run Microsoft Dynamics CRM Reporting Extensions on only one instance of Microsoft SQL Server Reporting Services on a computer.

- The identity account running the instance of Microsoft SQL Server Reporting Services where the Microsoft Dynamics CRM Reporting Extensions are running can't be the local system or a virtual account. This is required for Microsoft Dynamics CRM reporting to work because the identity account must be added to the **PrivReportingGroup** Active Directory security group that is used by Microsoft Dynamics CRM.

- Separate deployments of Microsoft Dynamics CRM cannot share one Microsoft SQL Server Reporting Services server. However, a single deployment of Microsoft Dynamics CRM that has multiple organizations can use the same Microsoft SQL Server Reporting Services server.

- You must run the Microsoft Dynamics CRM Reporting Extensions Setup on a computer that has a supported version of Microsoft SQL Server Reporting Services installed. More information: SQL Server Reporting Services

- For smaller data sets and fewer users, you can use a single-server deployment or a multi-server deployment. With larger data sets or more users, performance decreases quickly when running complex reports. Use a multi-server deployment with one computer that is running SQL Server for Microsoft Dynamics CRM, and another server for Microsoft SQL Server Reporting Services.

Microsoft Dynamics CRM Reporting Authoring Extension requirements

Microsoft Dynamics CRM Report Authoring Extension is required to author Fetch-based reports by using SQL Server Data Tools.

You must install the Microsoft Dynamics CRM Report Authoring Extension on a PC that has the following software.

- Microsoft Visual Studio 2012 or Microsoft Visual Studio 2010.

  📝 **Note**

  Report Authoring Extension is not compatible with Microsoft Visual Studio 2013.

- SQL Server Data Tools (SSDT) installed with either Microsoft Visual Studio 2012 or Microsoft Visual Studio 2010. More information: Install SQL Server Data Tools

  - For Microsoft Visual Studio 2012: Download and install Microsoft SQL Server Data Tools - Business Intelligence for Visual Studio 2012.

  - For Microsoft Visual Studio 2010: Select and install the SQL Server Data Tools (SSDT) feature that is included with Microsoft SQL Server 2012 or Microsoft SQL Server 2012 Express on the computer that is running Visual Studio 2010. Download: Microsoft SQL Server 2012 Express

- If your organization uses Microsoft Office 365, make sure the computer with Microsoft Dynamics CRM Report Authoring Extension installed also has the Microsoft Online Services Sign-in Assistant installed on it. 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.

See Also

Microsoft Dynamics CRM 2016 system requirements and required technologies

Microsoft Dynamics CRM language support

Microsoft Dynamics CRM language support

This section describes the supported configurations for different language versions of a Microsoft Dynamics CRM system. It doesn't include information about Microsoft Dynamics CRM Language Pack support, but instead explains the supported configurations for the base-language versions. For more information about Microsoft Dynamics CRM Language Pack, see Install and enable a Language Pack.

Microsoft Dynamics CRM Server language requirements

The following requirements must be met when you run Microsoft Dynamics CRM Server with applications such as SQL Server. Note that all available CRM languages are supported.

Microsoft Dynamics CRM product	Requirement
Microsoft Dynamics CRM Server	The base language of Windows Server, SQL Server, Microsoft .NET Framework, MDAC, and MSXML must be either the same language as Microsoft Dynamics CRM Server or English. If an application isn't available in a certain language, the English version can be used.
Microsoft Dynamics CRM for Outlook	The base language of Windows Server, Microsoft SQL Server 2008 Express Edition, Internet Explorer, Microsoft Office, Microsoft .NET Framework, MDAC, and MSXML don't have to be the same language as Dynamics CRM for Outlook. Each client stack in a single deployment can be in a different language.
Microsoft Dynamics CRM Server and Microsoft Dynamics CRM for Outlook	The base language version of Microsoft Dynamics CRM Server must match that of Dynamics CRM for Outlook. For example, there can't be some users who run the German version of Dynamics CRM for

Microsoft Dynamics CRM product	Requirement
	Outlook while other users run the English version. For this scenario, we recommend provisioning the appropriate Microsoft Dynamics CRM Language Pack.

For example, you could have the following configuration with German as the base language for all programs:

- Microsoft Dynamics CRM Server
- Windows Server
- Microsoft SQL Server
- Microsoft Exchange Server
- MSXML
- .NET Framework

As another example, you could have Microsoft Dynamics CRM Server with Swedish as its base language, and it could be configured with the following applications that have English as their base language:

- Windows Server
- Microsoft SQL Server
- Microsoft Exchange Server
- MSXML
- .NET Framework

See Also

64-bit supported configurations for Microsoft Dynamics CRM 2011

[Microsoft Dynamics CRM 2016 system requirements and required technologies](#)

Mobile phone support for Microsoft Dynamics CRM 2013 and Microsoft Dynamics CRM Online

Prerequisites and considerations for planning your deployment of Microsoft Dynamics CRM 2016

This section contains lists of what you must have before you install Microsoft Dynamics CRM, such as needed hardware and software. Use this section for preparing your network and to make sure that all requirements are satisfied before you run Microsoft Dynamics CRM Server Setup.

In This Section

[Hardware requirements](#)

[Software requirements](#)

[Active Directory and network requirements for Microsoft Dynamics CRM](#)

SQL Server installation and configuration

Planning requirements for SQL Server Reporting Services

See Also

Integrate your email system with Microsoft Dynamics CRM

Planning your deployment of Microsoft Dynamics CRM 2016

Security considerations for Microsoft Dynamics CRM 2016

Hardware requirements

Depending on how you plan to deploy the system, as a single-server solution, a multiple-server solution, or a clustered solution, the computer hardware that Microsoft Dynamics CRM and components will run on is important for acceptable application performance.

There are many factors that you must consider that can affect the hardware requirements. They include the following:

- Number of users the CRM implementation will support and the way the application will be used, such as for intensive reporting.
- Number of servers and how they're configured.
- Microsoft SQL Server performance and availability.
- Integration of Microsoft Dynamics CRM with the Microsoft Exchange Server or POP3 email servers.
- Integration with SharePoint Server.
- Performance of your servers and the local area network (LAN).
- Whether users will be connecting from untrusted domains and forests or from the Internet.

For a list of the suggested hardware requirements, see these topics.

Microsoft Dynamics CRM Server hardware requirements

Microsoft SQL Server hardware requirements for Microsoft Dynamics CRM Server

See Also

Microsoft Dynamics CRM Email Router hardware requirements

Microsoft Dynamics CRM for Outlook hardware requirements

Tablet support for Microsoft Dynamics CRM 2015 and CRM Online

Mobile phone support for Microsoft Dynamics CRM 2015 and Microsoft Dynamics CRM Online

Prerequisites and considerations for planning your deployment of Microsoft Dynamics CRM 2016

Software requirements

Software requirements

Before you install an on-premises deployment of Microsoft Dynamics CRM, there are several operating system, application, and software features that must be installed, configured, and

running either on the computer where Microsoft Dynamics CRM Server is running or on another computer on your network. Some of these operating system and software components include Windows Server, Microsoft SQL Server, Microsoft SQL Server Reporting Services, and .NET Framework.

For a complete list of the software requirements, see Microsoft Dynamics CRM 2016 system requirements and required technologies in this guide.

See Also

Prerequisites and considerations for planning your deployment of Microsoft Dynamics CRM 2016

Hardware requirements

Active Directory and network requirements for Microsoft Dynamics CRM

SQL Server installation and configuration

To plan your use of Microsoft SQL Server with Microsoft Dynamics CRM Server, you must understand how Microsoft Dynamics CRM uses SQL Server, and what Microsoft Dynamics CRM Server Setup does and does not do:

- Microsoft Dynamics CRM Server requires SQL Server 64-bit versions for storing the databases that contain Microsoft Dynamics CRM data and metadata. For specific details, see SQL Server editions.

- Reports in Microsoft Dynamics CRM depend on Microsoft SQL Server Reporting Services, a feature in SQL Server. Reporting Services includes two server components that are used to store, display, and manage reports: Report Server and Report Manager. A third component, Report Builder, is used to customize reports and write new reports. The Report Designer component is available for download on the Microsoft Download Center and is installed on a workstation, instead of on the computer that is running SQL Server.

- Microsoft Dynamics CRM Server Setup does not install SQL Server database engine or Microsoft SQL Server Reporting Services.

There are many configurations possible based on your expected usage of Microsoft Dynamics CRM. For information about the feature implications when you install Microsoft SQL Server Reporting Services on a separate computer, see Editions and Components of SQL Server.

- Although we do not recommend it, you can install SQL Server on the same computer as Microsoft Dynamics CRM Server. For better performance, install and run SQL Server on a separate dedicated computer. For better performance and improved availability, install and run SQL Server on separate multiple dedicated computers in a clustered configuration. For more information, see Set configuration and organization databases for SQL Server 2012 AlwaysOn failover.

- Similarly, we recommend that you install Microsoft Dynamics CRM Reporting Extensions on a separate SQL Server that is running Microsoft SQL Server Reporting Services. However, if needed you can install Microsoft Dynamics CRM Reporting Extensions on a SQL Server that is running Microsoft SQL Server Reporting Services but also stores the Microsoft Dynamics CRM databases.

- Although, in a multiple organization deployment of Microsoft Dynamics CRM, you can specify different Reporting Services servers or server instances when you create or edit an organization, only one instance of Reporting Services is supported for all organizations in the deployment. For better load balancing of reports, we recommend configuring Report Server in a Network Load Balancing (NLB) cluster. For more information, see Configure a Report Server on a Network Load Balancing Cluster.
- Multiple Microsoft Dynamics CRM front-end servers that run in a network load balancing cluster can use the same computer that is running SQL Server.

In This Section

SQL Server requirements and recommendations for Microsoft Dynamics CRM

SQL Server deployment

Additional resources for SQL Server

Related Sections

Prerequisites and considerations for planning your deployment of Microsoft Dynamics CRM 2016

Planning requirements for SQL Server Reporting Services

SQL Server requirements and recommendations for Microsoft Dynamics CRM

The following requirements apply to new and existing installations of SQL Server:

- Microsoft Dynamics CRM Server requires an instance of Microsoft SQL Server Reporting Services be installed, running, and available. All installations of the supported SQL Server editions can be used as the reporting server. However, the Reporting Services edition must match the SQL Server edition.
- For a list of supported SQL Server versions, see SQL Server editions.
- Microsoft Dynamics CRM Server isn't supported with SQL Server that's running on Windows Server 2008 or Windows Server 2003.
- When Microsoft Dynamics CRM Server and SQL Server are installed on different computers, they must be in the same Active Directory domain.
- Microsoft Dynamics CRM Server Setup and Deployment Manager support the default instance or a named instance of SQL Server.
- Although you can install SQL Server by using either Windows Authentication or mixed-mode authentication, Windows Authentication is a prerequisite for Microsoft Dynamics CRM.
- The service account that SQL Server uses to log on to the network must be either a domain user account (recommended) or the Network Service account (you can't use a local user account on the server). Using a low-privilege account strategy is recommended to help avoid compromising the security of the server.
- The SQL Server service must be started. This service should be configured to automatically start when the computer is started.
- SQL Server Agent must be started. This service should be configured to automatically start when the computer is started.
- SQL Server Full-Text Search must be installed and started. This service should be configured to automatically start when the computer is started.

- Microsoft Dynamics CRM Server Setup requires a network library to authenticate SQL Server. By default, TCP/IP network libraries are enabled when you install Microsoft SQL Server. SQL Server can use both TCP/IP or Named Pipes for authentication. However, the computer that is running SQL Server must be configured for at least one of the two network libraries.

- We recommend that the computer that is running SQL Server be located on the same local area network (LAN) as the computer that is running the Microsoft Dynamics CRM Server Back End Server roles. For a description of the server roles, see Microsoft Dynamics CRM server roles.

- The computer that is running SQL Server must be configured to have sufficient disk space, memory, and processing power to support the Microsoft Dynamics CRM environment. For more information, see Microsoft Dynamics CRM Server hardware requirements.

- Although it's optional, consider accepting the SQL Server default settings for Collation Designator, Sort Order, and SQL Collation. Microsoft Dynamics CRM supports the following collation orders:
  - Case-sensitive
  - Case-insensitive
  - Accent-sensitive
  - Accent-insensitive
  - Binary sort order (such as Latin1_General_100_BIN)

  📝 **Note**

  Microsoft Dynamics CRM sets the collation order at the database level. This setting might differ from that set at the SQL Server level.

- Review all SQL Server installation options and be prepared to make the needed selections when you run Setup. For more information, see Installation for SQL Server.

- If you plan to install SQL Server in a location other than the default file location, see File Locations for Default and Named Instances of SQL Server.

  You should also consider where the Microsoft Dynamics CRM databases are located on the server, and the hard-disk configuration that will support them.

  📝 **Note**

  To achieve the best combination of disk fault tolerance and performance, consider the many specifications for redundant array of independent disks (RAID) available from hardware vendors. Format the disks where the SQL Server database files reside for the fault-tolerance requirements of the application and performance parameters for the I/O activity occurring on that partition.

- We recommend that Common Runtime Language (CLR) be enabled on the SQL Server that hosts the Microsoft Dynamics CRM organization database. CLR can show a significant improvement in performance for some features such as time zone conversions when you run dashboards, charts, advanced finds, and Microsoft Dynamics CRM interactive service hub experience. More information: Enabling CRL Integration

See Also

SQL Server installation and configuration

SQL Server deployment

SQL Server deployment

If your organization uses Microsoft SQL Server for applications other than Microsoft Dynamics CRM, performance may degrade as resources are consumed by other applications. If you use a computer that is running SQL Server that is used for other applications, you must carefully analyze the effect that Microsoft Dynamics CRM will have on the existing installation of SQL Server. For information about monitoring SQL Server, see Performance Monitoring and Tuning Tools.

For best results, we recommend that you maintain the Microsoft Dynamics CRM databases on a computer that is running SQL Server and that will support only Microsoft Dynamics CRM and no other databases or database applications.

In This Topic

SQL Server deployment considerations

Language locale collation and sort order

Disk configurations and file locations

SQL Server program file location

SQL Server data file location

Microsoft Dynamics CRM database renaming considerations

SQL Server transparent data encryption (TDE)

SQL Server deployment considerations

Microsoft Dynamics CRM is a database-intensive application. Before you deploy Microsoft Dynamics CRM to an instance of SQL Server, you should consider the following requirements and database configurations:

- **Modification of system tables.** The SQL Server system tables should not be modified before you install Microsoft Dynamics CRM Server. Some database applications may modify the SQL Server system tables. If this occurs, problems with Microsoft Dynamics CRM and data may result.

- **Indexing.** Full-text indexing must be installed. This is required for Microsoft Dynamics CRM knowledge-base functionality.

- **Compatibility level.** During an upgrade or a new installation, Microsoft Dynamics CRM Server Setup sets the organization database compatibility level to 100, which is the compatibility level of Microsoft SQL Server 2008.

- **Autogrowth**. By default, Microsoft Dynamics CRM organization database files are created to have an autogrowth setting of 256 megabytes. Earlier versions of Microsoft Dynamics CRM used the default setting of 1 megabyte autogrowth. If you perform intensive database transactions, such as large data imports, consider increasing the autogrowth value to improve performance. For information about how to change the autogrowth setting for a database, see the SQL Server Management Studio Help.

- **Max server memory.** We recommend that, if you run SQL Server on a computer that is also running other applications, that the SQL Server max server memory be set to no more than one half of the installed RAM. By default, max server memory is set to 2147483647 megabytes in recent versions of SQL Server, which has demonstrated resource issues with SQL Server during intensive use of Microsoft Dynamics CRM. More information: MSDN: Server Memory Options

- **Max degree of parallelism.** We recommend if you experience poor SQL Server performance, which can occur due to complex index statements, that the SQL Server max degree of parallelism be set to 1 to help improve overall application performance on multiprocessor systems. More information: MSDN: Configure max degree of parallelism Option

- **RCSI.** Running Microsoft Dynamics CRM that uses a SQL Server configured for read committed snapshot isolation (RCSI) is supported for use with this version of Microsoft Dynamics CRM Server.

Language locale collation and sort order

Installing SQL Server in a language other than English (U.S.) may require changing the Collation designator. The following table indicates the Collation designator to use for some of the available languages.

Windows Locale	Locale Identifier (LCID)	Collation Designator	Code Page
Danish	0X406	Danish_Norwegian	1252
Dutch (Standard)	0X413	Latin1_General	1252
English (United States)	0X409	Latin1_General	1252
French (France)	0X40C	French	1252
German (Germany)	0X407	Latin1_General	1252
Italian	0X410	Latin1_General	1252
Portuguese (Brazil)	0X416	Latin1_General	1252
Spanish (Traditional Sort)	0XC0A	Modern_Spanish	1252

Disk configurations and file locations

For the default instance of SQL Server, the default directory for data files is \Program Files\Microsoft SQL Server\MSSQL*<ver>*.MSSQLSERVER\MSSQL\DATA, where *<ver>* is the major version of SQL Server, such as 11 for Microsoft SQL Server 2012. You can specify a file path other than the default for both program and data files.

 Note

The default locations for program and data files are not necessarily the best locations. For the best combination of disk fault tolerance and performance, consider the RAID specifications available from hardware vendors. You can create the Microsoft Dynamics CRM databases on your partitions, especially for these files, and specify the existing databases when you run Microsoft Dynamics CRM Server Setup. The databases created by Microsoft Dynamics CRM are noted in the specified data file location. For more information, see SQL Server data file location later in this topic.

By default, tools are installed in \Program Files\Microsoft SQL Server\110\Tools on the system drive. This folder contains the default and named files shared by all instances of SQL Server. Tools include Microsoft SQL Server Management Studio, the T-SQL command line utility, and the OSQL SQL query tool.

Microsoft SQL Server Setup also installs files in the Windows system directory. The system file location cannot be changed.

SQL Server program file location

The SQL Server program files are located in \Program Files\Microsoft SQL Server\MSSQL<ver>.MSSQLSERVER\MSSQL\Binn.

The binary file location is in the root directory where Setup creates the folders that contain program files and other files that typically do not change this path as you use SQL Server. Although these files are not read-only, the folders do not contain data, logs, back-up files, or replication data. Therefore, the space requirements for these files should increase only marginally as SQL Server is used, and over time as updates are applied.

⬥ **Important**

Program files cannot be installed on a removable disk drive.

SQL Server data file location

Each SQL Server database consists of one or more database files and one or more transaction log files. Microsoft Dynamics CRM creates at least two databases:

- **MSCRM_CONFIG.** This database contains Microsoft Dynamics CRM metadata, such as configuration and location information that is specific to each organization database.
- **OrganizationName_MSCRM.** This is the organization database where Microsoft Dynamics CRM data is stored, such as all records and activities. Microsoft Dynamics CRM Server supports multiple organizations so that you can have multiple-organization databases.

Microsoft Dynamics CRM also relies on the SQL Server system databases to store Microsoft Dynamics CRM configuration information. These databases include the master and msdb databases. The database files that accompany a database contain all its data and properties. Transaction log files contain a record of the write activity in the database, such as when a row is added, changed, or removed. Transaction log files are binary and cannot be used for auditing database activity.

For backup and recovery information for SQL Server databases including transaction log files, see MSDN: Back Up and Restore of SQL Server Databases.

Microsoft Dynamics CRM database renaming considerations

As described earlier, a Microsoft Dynamics CRM (on-premises) deployment contains the following databases:

- A single MSCRM_CONFIG database

- One or more (for multi-tenant deployments) *OrganizationName*_MSCRM databases

The configuration database, MSCRM_CONFIG, cannot be renamed. If the MSCRM_CONFIG database is renamed, the Microsoft Dynamics CRM system will not function correctly.

Organization databases, OrganizationName_MSCRM, can be renamed by following the guidelines and considerations described here.

Organization database names

Microsoft Dynamics CRM organization databases use both a display and a unique name.

- **Display name.** This is the name that appears in the Microsoft Dynamics CRM application, such as the upper-right corner of the main application screen. The display name can contain spaces and be up to 250 characters long.

- **Unique name.** This is the name that is used to create the URL to connect to the application and is appended with **_MSCRM**. It is also the physical name of the database as it appears in SQL Server applications, such as Microsoft SQL Server Management Studio. This name cannot contain spaces and cannot be more than 30 characters long.

Organization database renaming

The display name may be changed by using the Edit Organization Wizard in Deployment Manager. The basic steps are to disable the organization, and then run the Edit Organization Wizard. For more information, see the Deployment Manager Help.

Although we do not recommend it, you can change the name of an organization's unique database name (*OrganizationName*_MSCRM). To change the database unique name, follow these steps:

⚠ **Warning**

Renaming the unique database name for an organization has not been fully tested by Microsoft and may cause unexpected results. We cannot guarantee that problems caused by performing this procedure can be resolved. Rename the organization database unique name at your own risk.

🔷 **Important**

Before you start the following procedure, take a full back up of the organization database that you want to rename.

The following steps require you to already have a functioning organization database that was created by Microsoft Dynamics CRM Server Setup or imported by a supported Microsoft Dynamics CRM method.

1. Restore the backup of the organization database to your SQL Server that uses the name that you want and that is supported by SQL Server.

2. Import the renamed organization database to your existing Microsoft Dynamics CRM deployment by using the Import Organization Wizard in Deployment Manager.

3. During the import, enter into the organization database a display name and unique name that are unrelated to the original database name.

4. Follow the instructions on your screen to complete the import.

5. Ensure that Microsoft Dynamics CRM users have the new URL that will be created as a result of the organization rename.

SQL Server transparent data encryption (TDE)

The Microsoft SQL Server transparent data encryption (TDE) feature is supported for use with Microsoft Dynamics CRM. However, based on test results conducted internally, using this feature can cause a decrease in overall performance of approximately 10% when run against an encrypted database with the same workload.

See Also

SQL Server installation and configuration

SQL Server requirements and recommendations for Microsoft Dynamics CRM

Additional resources for SQL Server

Additional resources for SQL Server

For more information about how to plan for and install Microsoft SQL Server, see the following resources:

Microsoft SQL Server

Books Online for SQL Server

Microsoft SQL Server Solution Center

See Also

SQL Server installation and configuration

SQL Server deployment

Planning requirements for SQL Server Reporting Services

Planning requirements for SQL Server Reporting Services

The Microsoft Dynamics CRM Reporting Extensions are data processing extensions that are installed on the Microsoft SQL Server Reporting Services server. Microsoft Dynamics CRM Reporting Extensions accept the authentication information from Microsoft Dynamics CRM Server and passes it to the Microsoft SQL Server Reporting Services server. Microsoft Dynamics CRM Reporting Extensions Setup includes both the Fetch data processing extension and SQL data processing extension.

The Microsoft Dynamics CRM Reporting Extensions are required for all major reporting tasks in Microsoft Dynamics CRM, such as working with default (out-of-box) Microsoft Dynamics CRM reports, uploading custom reports, creating Report Wizard reports, or scheduling reports. Microsoft Dynamics CRM Reporting Extensions must also be installed before you import or provision new organizations.

The Microsoft Dynamics CRM Reporting Extensions Setup does the following:

1. Installs Fetch data processing extension and SQL data processing extension on the Microsoft SQL Server Reporting Services server.
2. Installs custom assemblies used by default reports and wizard reports on Microsoft SQL Server Reporting Services server.
3. Creates default reports (SQL-based) for the default organization both on Microsoft Dynamics CRM Server and Microsoft SQL Server Reporting Services servers.

The following table explains what reporting options will be available to you if you install Microsoft Dynamics CRM Reporting Extensions.

What reports will work?

Installed?	Default reports	Custom SQL-based reports	Fetch-based Wizard reports	Custom Fetch-based reports
No	Clean installation: Will not be available.	• Can't be scheduled. • Can be uploaded and run if Microsoft Dynamics CRM Server and SQL Server are installed on one computer or Trust for Delegation is configured.	Will not be available.	Cannot be uploaded and run.
Yes	Will be published for the default organization.	Can be uploaded and run.	Can be created, run, and scheduled.	Can be uploaded, run, and scheduled.

💧 **Important**

Microsoft Dynamics CRM Reporting Extensions shouldn't be installed on an instance of Microsoft SQL Server Reporting Services that is running under an account that is a member of the Active Directory SQL Access Group. This can occur when Microsoft SQL Server Reporting Services is running under the same account as a Microsoft Dynamics CRM Server service or feature. This configuration can make the system vulnerable to certain attacks. During installation, Setup detects this scenario and you can click Help for information about how to work around the issue.

Note that when you install Microsoft Dynamics CRM Reporting Extensions, you have the option of installing the component on a different server that is running Reporting Services. Therefore, by isolating Microsoft Dynamics CRM Reporting Extensions on a separate instance of SQL Server, which does not store the Microsoft Dynamics CRM databases, report performance may be improved.

Microsoft Dynamics CRM Reporting Extensions requirements

Microsoft Dynamics CRM Reporting Extensions has the following requirements:

- You must complete Microsoft Dynamics CRM Server Setup before you run the Microsoft Dynamics CRM Reporting Extensions Setup.

- You must run the Microsoft Dynamics CRM Reporting Extensions Setup on a computer that has Microsoft SQL Server Reporting Services installed. For smaller data sets and fewer users, you can use either a single-server deployment, or a multiple-server deployment with one computer that is running SQL Server for Microsoft Dynamics CRM, and another server for Microsoft SQL Server Reporting Services. With larger datasets or more users, performance will decrease quickly when complex reports are run.

See Also

SQL Server installation and configuration

Operating system and platform technology security considerations for Microsoft Dynamics CRM

Security considerations for Microsoft Dynamics CRM 2016

Microsoft Dynamics CRM is designed in a way that helps make your deployment more secure. This section provides information and best practices for the Microsoft Dynamics CRM application. More information: **Overview of security for Microsoft Dynamics CRM**

In This Topic

What kind of service account should I choose?

Minimum permissions required for Microsoft Dynamics CRM Setup and services

Microsoft Dynamics CRM installation files

What kind of service account should I choose?

When you specify an identity to run a Microsoft Dynamics CRM service, you can choose either a domain user account or the Network Service account.

If the service interacts with network services, accesses domain resources like file shares or if it uses linked server connections to other computers, you can use a minimally-privileged domain account. Many server-to-server activities can be performed only with a domain user account and can provide the most secure option. This account should be pre-created by domain administration in your environment.

📝 **Note**

When you configure a service to use a domain account, you can isolate the privileges for the application, but must manually manage passwords or create a custom solution for managing these passwords. Many server applications use this strategy to enhance security, but this strategy requires additional administration and complexity. In these deployments, service administrators spend a considerable amount of time on maintenance tasks such as managing service passwords and service principal names

(SPNs), which are required for Kerberos authentication. In addition, these maintenance tasks can disrupt service.

The Network Service account is a built-in account that has more access to resources and objects than members of the Domain Users group. Services that run as the Network Service account access network resources by using the credentials of the computer account in the format <domain_name>\<computer_name>$. The actual name of the account is NT AUTHORITY\NETWORK SERVICE.

Minimum permissions required for Microsoft Dynamics CRM Setup and services

Microsoft Dynamics CRM is designed so that its features can run under separate identities. By specifying a domain user account that is granted only the permissions necessary to enable a particular feature to function, you help secure the system and reduce the likelihood of exploitation.

This topic describes the minimum permissions that are required by the user account for Microsoft Dynamics CRM services and features.

Microsoft Dynamics CRM Server Setup

The user account used to run Microsoft Dynamics CRM Server Setup that includes the creation of databases requires the following minimum permissions:

- Be a member of the Active Directory Domain Users group. By default, Active Directory Users and Computers adds new users to the Domain Users group.

- Be a member of the Administrators group on the local computer where Setup is running.

- Have Local Program Files folder read and write permission.

- Be a member of the Administrators group on the local computer where the instance of SQL Server is located that will be used to store the Microsoft Dynamics CRM databases.

- Have sysadmin membership on the instance of SQL Server that will be used to store the Microsoft Dynamics CRM databases.

- Have organizational unit and security group creation and add membership permission to those groups in Active Directory. Alternatively, you can use a Setup XML configuration file to install Microsoft Dynamics CRM Server when security groups have already been created. For more information, see Use the command prompt to install Microsoft Dynamics CRM Server 2016.

- If Microsoft SQL Server Reporting Services is installed on a different server, you must add the Content Manager role at the root level for the installing user account. You must also add the System Administrator Role at the site-wide level for the installing user account.

Microsoft Dynamics CRM services and IIS application pool identity permissions

This section lists the minimum permissions that domain user accounts require for the services and the IIS application pools that Microsoft Dynamics CRM uses.

 Important

- Microsoft Dynamics CRM services and application pool (CRMAppPool) identity accounts must not be configured as a Microsoft Dynamics CRM user. Doing so can cause authentication issues and unexpected behavior in the application for all Microsoft Dynamics CRM users. More information: [Problems in CRM when the CRMAppPool user account is a CRM user](#)
- Managed service accounts (group-managed service accounts (gMSA) or single-managed service accounts) and virtual accounts (NT SERVICE\,<SERVICENAME>) aren't supported for running Microsoft Dynamics CRM services.

The following subsections describe the domain user account permissions required for each service or application pool identity:

[Microsoft Dynamics CRM Sandbox Processing Service](#)

[Microsoft Dynamics CRM Asynchronous Processing Service and Microsoft Dynamics CRM Asynchronous Processing Service (maintenance) services](#)

[Microsoft Dynamics CRM Monitoring Service](#)

[Microsoft Dynamics CRM VSS Writer service](#)

[Deployment Web Service (CRMDeploymentServiceAppPool Application Pool identity)](#)

[Application Service (CRMAppPool IIS Application Pool identity)](#)

Microsoft Dynamics CRM Sandbox Processing Service

- Domain Users membership.
- That account must be granted the **Logon as service** permission in the Local Security Policy.
- Folder read and write permission on the **Trace**, by default located under \Program Files\Microsoft Dynamics CRM\Trace, and user account **%AppData%** folders on the local computer.
- Read permission to the **HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\MSCRM** subkey in the Windows registry.
- The service account may need an SPN for the URL used to access the website that is associated with it. To set the SPN for the Sandbox Processing Service account, run the following command at a command prompt on the computer where the service is running.

```
SETSPN –a MSCRMSandboxService/<ComputerName> <service account>
```

Microsoft Dynamics CRM Asynchronous Processing Service and Microsoft Dynamics CRM Asynchronous Processing Service (maintenance) services

- Domain Users membership.
- PrivUserGroup and SQLAccessGroup membership. By default, these groups are created and appropriate membership is granted during Microsoft Dynamics CRM Server Setup.
- Built-in local group Performance Log Users membership.
- That account must be granted the **Logon as service** permission in the Local Security Policy.
- Read and write permission on the following folders.
    - The **Trace** folder. By default located under \Program Files\Microsoft Dynamics CRM\, and user account **%AppData%** folder on the local computer.

- The **CustomizationImport** folder. By default located under \Program Files\Microsoft Dynamics CRM\. This may be required for solution import when you use the Microsoft Dynamics CRM SDK.

- All access permissions except Full Control and Write DAC to the **HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\MSCRM** and **HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\MSCRMSandboxServic e** subkeys in the Windows registry.

- The service account may need an SPN for the URL used to access the website that is associated with it. To set the SPN for the Asynchronous Service account, run the following command at a command prompt on the computer where the service is running.

  ```
  SETSPN –a MSCRMAsyncService/<ComputerName> <service account>
  ```

Microsoft Dynamics CRM Monitoring Service

- Domain Users membership.

- That account must be granted the **Logon as service** permission in the Local Security Policy.

- If the Microsoft Dynamics CRM Monitoring Service is installed with a Front End Server server role, local administrator group membership on the computer where the service is running is required to monitor the web site and application pools. More information: Available individual server roles

- Read permission to the **HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\MSCRM**

- SQLAccessGroup membership. By default, this group is created and appropriate membership is granted during Microsoft Dynamics CRM Server Setup.

- The service account may need an SPN for the URL used to access the website that is associated with it.

Microsoft Dynamics CRM VSS Writer service

- Domain Users membership.

- That account must be granted the **Logon as service** permission in the Local Security Policy.

- Read permission to the **HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\MSCRM**

- PrivUserGroup and SQLAccessGroup membership. By default, these groups are created and appropriate membership is granted during Microsoft Dynamics CRM Server Setup.

Deployment Web Service (CRMDeploymentServiceAppPool Application Pool identity)

- Domain Users membership.

- That account must be granted the **Logon as service** permission in the Local Security Policy.

- Local administrator group membership on the computer where SQL Server is running is required to perform organization database operations (such as create new or import organization).

- Local administrator group membership on the computer where the Deployment Web Service is running.

- Sysadmin permission on the instance of SQL Server to be used for the configuration and organization databases.

- Folder read and write permission on the **Trace** and **CRMWeb** folders, by default located under \Program Files\Microsoft Dynamics CRM\, and user account **%AppData%** folder on the local computer.

- All access permissions except Full Control and Write DAC to the **HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\MSCRM** and **HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\MSCRMSandboxServic e** subkeys in the Windows registry.

- PrivUserGroup and SQLAccessGroup membership. By default, these groups are created and appropriate membership is granted during Microsoft Dynamics CRM Server Setup.

- CRM_WPG group membership. This group is used for IIS worker processes. The group is created and the membership is added during Microsoft Dynamics CRM Server Setup.

- The service account may need an SPN for the URL used to access the website that is associated with it.

Application Service (CRMAppPool IIS Application Pool identity)

- Domain Users group membership.

- Built-in local group Performance Log Users membership.

- Folder read and write permission on the **Trace** and **CRMWeb** folders, by default located under \Program Files\Microsoft Dynamics CRM\, and user account **%AppData%** folder on the local computer.

- All access permissions except Full Control and Write DAC to the **HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\MSCRM** and **HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\MSCRMSandboxServic e** subkeys in the Windows registry.

- CRM_WPG group membership. This group is used for IIS worker processes. The group is created and the membership is added during Microsoft Dynamics CRM Server Setup.

- The service account may need an SPN for the URL used to access the website that is associated with it.

IIS Application Pool identities running under Kernel-Mode authentication and SPNs

By default, IIS websites are configured to use Kernel-Mode authentication. When you run the Microsoft Dynamics CRM website by using Kernel-Mode authentication, you might not need to configure additional service principal names (SPNs) for the CRMAppPool identities.

To determine whether your IIS deployment requires SPNs, see Service Principal Name (SPN) checklist for Kerberos authentication with IIS 7.0/7.5.

Microsoft Dynamics CRM installation files

If you plan to install Microsoft Dynamics CRM from a location on the network, such as a network share, you must make sure that the correct permissions are applied to the folder, preferably on an NTFS volume, where the installation files are located. For example, you may want to allow only members of the Domain Admins group permissions for the folder. This practice can help to reduce the risk of attacks on the installation files that may compromise or alter them. For more

information about how to set permissions on files and folders on the Windows operating system, see Windows Help.

See Also

Planning your deployment of Microsoft Dynamics CRM 2016

Security best practices for Microsoft Dynamics CRM

Administration best practices for on-premises deployments of Microsoft Dynamics CRM

Network ports for Microsoft Dynamics CRM

Microsoft Dynamics CRM server roles

Security best practices for Microsoft Dynamics CRM

Internet Information Services (IIS) is a mature web service that is included with Windows Server. Microsoft Dynamics CRM depends on an efficient and secure IIS web service. Consider the following:

- In the **machine.config** and **web.config** configuration files you can determine whether debugging is enabled, and also if detailed error messages are sent to the client. You should make sure that debugging is disabled on all production servers, and that a generic error message is sent to the client if a problem occurs. This avoids unnecessary information about the web server configuration being sent to the client.

- Make sure that the latest operating system and IIS service packs and updates are applied. For the latest information, see the Microsoft Security website.

- Microsoft Dynamics CRM Server Setup creates application pools called **CRMAppPool** and **CRMDeploymentServiceAppPool** that operate under user credentials that you specify during Setup. To facilitate a least-privileged model, we recommend that you specify separate domain user accounts for these application pools instead of using the Network Service account. Additionally, we recommend that no other ASP.NET-connected application be installed under these application pools. For information about the minimum permissions required for these components, see Minimum permissions required for Microsoft Dynamics CRM Setup and services.

⬥ **Important**
- Make sure all websites that are running on the same computer as the Microsoft Dynamics CRM website also have access to the CRM database.

- If you use a domain user account, before you run Microsoft Dynamics CRM Server Setup, you may need to verify that the service principal name (SPN) is set correctly for that account, and if necessary, set the correct SPN. For more information about SPNs and how to set them, see How to use SPNs when you configure Web applications that are hosted on IIS.

Service principal name management in Microsoft Dynamics CRM

The service principal name (SPN) attribute is a multivalued, nonlinked attribute that is built from the DNS host name. The SPN is used during mutual authentication between the client and the

server hosting a particular service. The client finds a computer account based on the SPN of the service that it's trying to connect to.

The Microsoft Dynamics CRM Server installer deploys role-specific services and web application pools that operate under user credentials specified during Setup. To review the complete list of these roles and their permission requirements, see Minimum permissions required for Microsoft Dynamics CRM Setup and services.

When you deploy a hosted Microsoft Dynamics CRM infrastructure, two of these roles may require additional consideration:

- Deployment Web Service
- Application Service

In web farm scenarios, as is the case for a hosted offering, the recommendation is to leave kernel-mode authentication enabled. In addition, you should closely consider using separate domain user accounts to run these services because:

- Having separate service accounts for these server roles facilitates being able to implement hardware load balancing.
- The Deployment Web Service server role requires elevated permissions to provision organizations in the CRM database. If you want to adhere to a least-privileged model, the safest approach for implementing SPNs in a hosted Microsoft Dynamics CRM infrastructure involves having the Deployment Web Service run under a different domain user account than the Application Service.

If you follow this suggestion to use separate domain accounts for these server roles, you should check to make sure that the SPN is correct for each account before you start Microsoft Dynamics CRM Server Setup. This will make it easier for you to set the correct SPN when necessary.

If kernel-mode authentication is enabled, the SPNs will be defined for the machine account, regardless of the specified service account. When you implement a web farm, enable kernel-mode authentication and change the local **ApplicationHost.config** file.

If application and deployment web services are running on the same system, and kernel-mode authentication is disabled, you could configure both services to run under the same domain user account to prevent duplicate SPN issues. If you can't enable kernel-mode authentication, install the Application and Deployment web services on separate systems. The SPNs may still need to be created manually since kernel-mode authentication is disabled.

For more information about SPNs and how to set them, see Service Principal Name (SPN) checklist for Kerberos authentication with IIS 7.0/7.5

See Also

Security considerations for Microsoft Dynamics CRM 2016

Administration best practices for on-premises deployments of Microsoft Dynamics CRM

Administration best practices for on-premises deployments of Microsoft Dynamics CRM

By following some simple rules of administration, you can significantly improve the security of your Microsoft Dynamics CRM on-premises deployment.

- Typically, there is no need for CRM users to have administrative privileges over the domain. Therefore, all CRM user accounts should be restricted to Domain Users membership. Also, following the principle of least-privilege, anyone who uses the CRM system should have minimal rights. This starts at the domain level. A domain user account should be created and used to run CRM. Domain Administrator accounts should never be used to run CRM.

- Limit the number of Microsoft Dynamics CRM Deployment Administrator and System Administrator roles to a few people who are responsible for rule changes. Others who are SQL Server, Microsoft Exchange Server, or Active Directory administrators do not have to be members of the CRM users group.

- Make sure that at least two or three trusted people have the Deployment Administrator role. This avoids system lockout if the primary Deployment Administrator is unavailable.

- In some organizations it is a common practice to reuse passwords across systems and domains. For example, an administrator responsible for two domains may create Domain Administrator accounts in each domain that use the same password, and even set local administrator passwords on domain computers that are the same across the domain. In such a case, a compromise of a single account or computer could lead to a compromise of the entire domain. Passwords should never be reused in this manner.

- It is also common practice to use Domain Administrator accounts as service accounts for common services such as back-up systems. However, it is a security risk to use Domain Administrator accounts as service accounts. The password can easily be retrieved by anyone who has administrative rights over the computer. In such a case, the compromise could affect the entire domain. Service accounts should never be Domain Administrator accounts, and they should be limited in privilege as much as possible.

- A domain user account that is specified to run a Microsoft Dynamics CRM service must not also be configured as a CRM user. This can cause unexpected behavior in the application.

See Also

Security considerations for Microsoft Dynamics CRM 2016

Security best practices for Microsoft Dynamics CRM

Network ports for Microsoft Dynamics CRM

Microsoft Dynamics CRM security model

Operating system and platform technology security considerations for Microsoft Dynamics CRM

In the broadest sense, security involves planning and considering tradeoffs between threats and access. For example, a computer can be locked in a vault and available only to one system administrator. This computer may be secure, but it's not very usable because it's not connected to any other computer. If your business users need access to the Internet and your corporate intranet, you must consider how to make the network both secure and usable.

In this topic you'll find helpful information and links to many resources you can use to make your computing environment more secure. Because ultimately, Microsoft Dynamics CRM data security largely depends on how well you first secure the operating system and software components.

In this topic

[Securing Windows Server](#)

[Securing SQL Server](#)

[Securing Exchange Server and Outlook](#)

[Securing mobile devices](#)

Securing Windows Server

Windows Server, the foundation of Microsoft Dynamics CRM, provides sophisticated network security. The Kerberos version 5 authentication protocol that is integrated into Active Directory and Active Directory Federation Services (AD FS) lets you federate Active Directory domains by using claims-based authentication. Both give you powerful standards-based authentication. These authentication standards let users enter a single user name and password sign-in combination for resource access across the network. Windows Server also includes several features that help make the network even more secure.

Follow these links to learn more about these features and how to make your Windows Server deployment more secure:

- Windows Server 2012
  - [Secure Windows Server 2012 R2 and Windows Server 2012](#)
  - [Windows Server 2012 Security Baseline](#)

Windows error reporting

Microsoft Dynamics CRM requires the Windows Error Reporting (WER) service, which Setup will install if it is missing. The WER service collects information, such as IP addresses. These IP addresses are not used to identify users. The WER service does not intentionally collect names, addresses, email addresses, computer names, or any other form of personally identifiable information (PII). It is possible that such information may be captured in memory or in the data collected from open files, but Microsoft does not use it to identify users. In addition, some information that is transmitted between the Microsoft Dynamics CRM application and Microsoft may not be secure. For more information about the type of information that is transmitted, see [Privacy statement for the Microsoft Error Reporting Service](#).

Virus, malware, and identity protection

To better protect your identity and your system against malware or viruses, check out these resources:

- [Microsoft Security](#). This page is an entry point for tips, training, and guidance about how to keep your computer up to date and prevent it from being susceptible to exploitation, spyware, and viruses.

- Security TechCenter. This page has links to technical bulletins, advisories, updates, tools, and guidance designed to make computers and applications up to date and more secure.

Update management

Microsoft Dynamics CRM updates include security, performance, and functional improvements. Making sure your Microsoft Dynamics CRM applications have the latest updates helps make sure your system runs as efficiently and reliably as it can. You can find more information about how to manage updates here:

- Windows Server Update Services
- Software Updates in Configuration Manager
- Update Management in Windows Server 2012: Revealing Cluster-Aware Updating and the New Generation of WSUS

Securing SQL Server

Because Microsoft Dynamics CRM relies on SQL Server, make sure you take the following measures to improve the security of your SQL Server database:

- Apply the latest operating system, SQL Server service packs (SPs), and updates. Check the Microsoft Security website for the latest details.
- Install all SQL Server data and system files on NTFS partitions for file system-level security. You should make the files available only to administrative or system-level users through NTFS permissions. This helps safeguard against users who access those files when the MSSQLSERVER service is not running.
- Use a low-privilege domain account. Or, specify the Network Service or Local System Account for SQL Server services. However, we do not recommend that you use these accounts because Domain User accounts can be configured with fewer permissions to run the SQL Server services. Domain User accounts should have minimal rights in the domain, which should help contain (but will not stop) an attack on the server if there is a compromise. In other words, Domain User accounts should have only local user-level permissions in the domain. If SQL Server is installed using a Domain Administrator account to run the services, a compromise of SQL Server will lead to a compromise of the entire domain. If you have to change this setting, use SQL Server Management Studio to make the change, because the access control lists (ACLs) on files, the registry, and user rights will be changed automatically.
- Because SQL Server authenticates users who have either Windows Authentication or SQL Server credentials, we suggest you use Windows Authentication for single sign-on convenience and the most secure authentication.
- At a minimum, enable auditing of failed sign-ins. By default, SQL Server system auditing is disabled, and no conditions are audited. This makes intrusion detection difficult and helps attackers cover their tracks.
- Report Server administrators should enable RDL Sandboxing to restrict access to the Report Server. More information: Enabling and Disabling RDL Sandboxing
- Configure each SQL logon to use the master database as the default database. Although users shouldn't have rights to the master database, as a best practice, you should change the default for every SQL logon (except those with the SYSADMIN role) to use

*OrganizationName*_MSCRM as the default database. More information: [Securing SQL Server](#)

Securing Exchange Server and Outlook

The following considerations are for Microsoft Exchange Server or Exchange Server in a Microsoft Dynamics CRM environment:

- Exchange Server contains a rich series of mechanisms for precise administrative control of its infrastructure. In particular, you can use administrative groups to collect Exchange Server objects like servers, connectors, or policies, and then modify the ACLs on those administrative groups to make sure only certain users can access them. You may, for example, want to give Microsoft Dynamics CRM administrators control over servers that directly affect their applications. When you implement administrative groups efficiently, you know you are giving Microsoft Dynamics CRM administrators exactly the rights they need to do their jobs.

- Frequently, you may find it convenient to create a separate organizational unit (OU) for Microsoft Dynamics CRM users, and give Microsoft Dynamics CRM administrators limited administrative rights over that OU. Administrators can make changes for any user in that OU, but not for any user outside it.

- Always be sure you adequately protect against unauthorized email relay. Email relay lets an SMTP client use an SMTP server to forward email messages to a remote domain. By default, Microsoft Exchange Server is configured to prevent email relay. The settings you configure will depend on your message flow and how your Internet service provider's (ISP) email server is configured. However, the best approach here is to lock down your email relay settings and then gradually open them to let email flow successfully. For more information, see the Exchange Server Help.

- If you use forward mailbox monitoring, the Email Router requires an Exchange Server or POP3-compliant mailbox. We recommend you set the permissions on this mailbox to prevent other users from adding server-side rules. For more information about Exchange Server mailboxes, see [Recipients Permissions](#).

- The Microsoft Dynamics CRM Email Router service operates under the Local System Account. This enables the Email Router to access a specified user's mailbox and process email in that mailbox.

For more information about how to make Exchange Server more secure, see [Deployment Security Checklist](#).

Securing mobile devices

As organizations move to support an increasingly mobile workforce, strong security remains essential. Here are some resources to help you implement best practices for mobile devices, such as smartphones and tablets:

- [How to Manage Mobile Devices by Using Configuration Manager and Windows Intune](#)
- [Windows for business](#)
- [Security Considerations](#) (Microsoft Surface)
- [iOS in Business](#) (iPad and iPhone)

Set up and manage email processing and CRM for Outlook

Set up and manage tablets and phones

Security considerations for Microsoft Dynamics CRM 2016

Network ports for Microsoft Dynamics CRM

This section describes the ports that are used for Microsoft Dynamics CRM. This information is helpful as you configure the network when users connect through a firewall.

In This Topic

Network ports for the Microsoft Dynamics CRM web application

Network ports for the Asynchronous Service, Web Application Server, and Sandbox Processing Service server roles

Network ports for the Deployment Web Service server role

Network ports that are used by the SQL Server that runs the SQL Server and Microsoft Dynamics CRM Reporting Extensions server roles

Network ports for the Microsoft Dynamics CRM web application

The following table lists the ports used for a server that is running a Full Server installation of Microsoft Dynamics CRM. Moreover, except for the Microsoft SQL Server role, and the Microsoft Dynamics CRM Reporting Extensions server role, all server roles are installed on the same computer.

Protocol	Port	Description	Explanation
TCP	80	HTTP	Default web application port. This port may be different as it can be changed during Microsoft Dynamics CRM Server Setup. For new websites, the default port number is 5555.
TCP	135	MSRPC	RPC endpoint resolution.
TCP	139	NETBIOS-SSN	NETBIOS session service.
TCP	443	HTTPS	Default secure HTTP port. The port number may differ from the default port. This secure network

Protocol	Port	Description	Explanation
			transport must be manually configured. Although this port is not required to run Microsoft Dynamics CRM, we strongly recommend it. For information about how to configure HTTPS for CRM, see Make Microsoft Dynamics CRM client-to-server network communications more secure.
TCP	445	Microsoft-DS	Active Directory service required for Active Directory access and authentication.
UDP	123	NTP	Network Time Protocol.
UDP	137	NETBIOS-NS	NETBIOS name service.
UDP	138	NETBIOS-dgm	NETBIOS datagram service.
UDP	445	Microsoft-DS	Active Directory service required for Active Directory access and authentication.
UDP	1025	Blackjack	DCOM, used as an RPC listener.

⬦ **Important**

Depending on your domain trust configuration, additional network ports may need to be available for Microsoft Dynamics CRM to work correctly. More information: Active Directory and Active Directory Domain Services Port Requirements

Network ports for the Asynchronous Service, Web Application Server, and Sandbox Processing Service server roles

The following table lists the additional ports that are used for a deployment where the Sandbox Processing Service is running on a separate computer.

Protocol	Port	Description	Explanation
TCP	808	CRM server role communication	The Asynchronous Service and Web Application Server services communicate to the Sandbox Processing Service through this channel. The default port is 808, but can be changed in the Windows registry by adding the DWORD registry value TcpPort in the key HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\MSCRM\.

Network ports for the Deployment Web Service server role

The following table lists the additional port that is used by the Deployment Web Service server role.

Protocol	Port	Description	Explanation
TCP	808	Used for Fetch-based reports	Client computers that are running Fetch-based reports communicate over this port when communicating with the computer that is running the Deployment Web Service server role.

Network ports that are used by the SQL Server that runs the SQL Server and Microsoft Dynamics CRM Reporting Extensions server roles

The following table lists the ports that are used for a computer that is running SQL Server and has only SQL Server and the Microsoft Dynamics CRM Reporting Extensions (SRS Data Connector) server roles installed.

Protocol	Port	Description	Explanation
TCP	135	MSRPC	RPC endpoint resolution.
TCP	139	NETBIOS-SSN	NETBIOS session service.
TCP	445	Microsoft-DS	Active Directory service required for Active Directory access and authentication.
TCP	1433	ms-sql-s	SQL Server sockets service. This port is

Protocol	Port	Description	Explanation
			required for access to SQL Server. This number may be different if you have configured your default instance of SQL Server to use a different port number or you are using a named instance.
UDP	123	NTP	Network Time Protocol.
UDP	137	NETBIOS-NS	NETBIOS name service.
UDP	138	NETBIOS-dgm	NETBIOS datagram service.
UDP	445	Microsoft-DS	Active Directory service required for Active Directory access and authentication.
UDP	1025	Blackjack	DCOM, used as an RPC listener.

Important

In addition to the ports listed previously, UDP port 1434 (SQL Server Browser Service) on the SQL Server is required by Microsoft Dynamics CRM Server Setup to return a list of the computers that are running SQL Server during the installation of Microsoft Dynamics CRM Server. To work around this, specify the *SQLServer\InstanceName* during Setup.

See Also

Microsoft Dynamics CRM security model

Known risks and vulnerabilities

Known risks and vulnerabilities

This topic describes the risks and vulnerabilities that may exist when you use Microsoft Dynamics CRM. Mitigations and workarounds are also described when applicable.

In This Topic

Risks when users connect to CRM over an unsecured network

Security recommendations on server role deployments

Anonymous authentication

Risks when users connect to CRM over an unsecured network

Here are some issues that can occur when you run Microsoft Dynamics CRM without using Secure Sockets Layer (SSL) (HTTPS):

- Microsoft Dynamics CRM user-provided data, including Visual chart definitions, can be altered over an unsecured HTTP connection by using "man in the middle" type attacks. To mitigate this vulnerability, configure Microsoft Dynamics CRM to only use SSL. For more information about how to configure Microsoft Dynamics CRM Server to use SSL, see [Make Microsoft Dynamics CRM client-to-server network communications more secure](#).

Security recommendations on server role deployments

The following recommendations can help make your Microsoft Dynamics CRM deployment more reliable and secure.

Server role	Recommendation
Sandbox Processing Service	Install this role on a dedicated server on a separate virtual LAN (VLAN) from other computers that are running Microsoft Dynamics CRM Server roles. Then, if there is a malicious plug-in running in the sandbox that exploits the computer, the network isolation from a separate VLAN can help protect other CRM resources from being compromised.
Help Server	Install this role on a separate computer for both IFD and internally-facing deployments. For more information, see [Isolate the HelpServer role for Internet-facing deployments](#) later in this topic.

Anonymous authentication

Microsoft Dynamics CRM Internet-facing deployment (IFD) requires anonymous authentication enabled on IIS for claims-based authentication. The claims-based authentication token doesn't

contain raw credentials or the connection string to Microsoft Dynamics CRM Server. However, the web.config file does contain configuration information about the authentication mode. For more information, see Secure the web.config file later in this topic. To secure the Microsoft Dynamics CRM website, use SSL.

Isolate the HelpServer role for Internet-facing deployments

Microsoft Dynamics CRM Internet-facing deployment (IFD) requires anonymous authentication. Because anonymous website authentication is used, the virtual directory used by the Microsoft Dynamics CRM Help site can be targeted for denial of service (DoS) attacks.

To isolate the Microsoft Dynamics CRM Help pages, and help protect the other Microsoft Dynamics CRM Server roles from potential DoS attacks, consider installing the Help Server role on a separate computer.

For more information about the options for installing Microsoft Dynamics CRM roles on separate computers, see Microsoft Dynamics CRM server roles.

For more information about reducing the risk of DoS attacks, see MSDN: Improving Web Application Security: Threats and Counter-measures.

Claims-based authentication issues and limitations

This topic describes issues and limitations when you use claims-based authentication with Microsoft Dynamics CRM.

Verify that the identity provider uses a strong password policy

When you use claims-based authentication, you should verify that the identity provider is trusted by the security token service (STS) and, in turn, Microsoft Dynamics CRM, enforces strong password policies. Microsoft Dynamics CRM doesn't enforce strong passwords. By default, when it is used as an identity provider, Active Directory enforces a strong password policy.

AD FS federation server sessions are valid up to 8 hours even for deactivated or deleted users

By default, Active Directory Federation Services (AD FS) server tokens allocate a web single sign-on (SSO) cookie expiration of 8 hours. So even when a user is deactivated or deleted from an authentication provider, as long as the user session is still active, the user can continue to be authenticated to secure resources.

Use any of these options to work around this issue:

- Disable the user in Microsoft Dynamics CRM and in Active Directory. For information about how to disable a user in Microsoft Dynamics CRM, see **Manage users**. For information about how to disable a user in Active Directory, see the Active Directory Users and Computers Help.
- Reduce the web SSO lifetime. To do this, see the Active Directory Federation Services (AD FS) Management Help.

Secure the web.config file

The web.config file that is created by Microsoft Dynamics CRM does not contain connection strings or encryption keys. However, the file does contain configuration information about the

authentication mode and strategy, ASP.NET view state information, and debug error message display. If this file is modified with malicious intent it can threaten the server where Microsoft Dynamics CRM is running. To help secure the web.config file, we recommend you do these things:

- Give permissions to the folder where the web.config file is located to only those user accounts that require it, such as administrators. By default, the web.config file is located in the <drive:>Program Files\Microsoft Dynamics CRM\CRMWeb folder.

- Limit the number of users who have interactive access to CRM servers, such as console logon permission.

- Disable directory browsing on the CRM website. By default, this is disabled. For more information about how to disable directory browsing, see Internet Information Services (IIS) Manager Help.

Outbound Internet calls from custom code executed by the Sandbox Processing Service are enabled

By default, outbound calls from custom code executed by the Microsoft Dynamics CRM Sandbox Processing Service that access services on the Internet are enabled. For high-security deployments of Microsoft Dynamics CRM, this can pose a security risk. If you don't want to allow outbound calls from custom code, such as CRM plug-ins or custom workflow activities, you can disable outbound connections from custom code executed by the Sandbox Processing Service by following the procedure here.

Instead of blocking all outbound calls, you can enforce web access restrictions on sandboxed plug-ins. More information: MSDN: Plug-in isolation, trusts, and statistics

Disabling outbound connections for custom code includes disabling calls to cloud services such as Microsoft Azure and Microsoft Azure SQL Database.

▶**Disable outbound connections for custom code on the computer that is running the sandbox processing service**

1. On the Windows Server computer where the Microsoft Dynamics CRM Sandbox Processing Service server role is installed, start Registry Editor and locate the following subkey:
   HKEY_LOCAL_MACHINE\SOFTWARE\MICROSOFT\MSCRM

2. Right-click **MSCRM**, point to **New**, click **DWORD Value**, type **SandboxWorkerDisableOutboundCalls**, and then press ENTER.

3. Right-click **SandboxWorkerDisableOutboundCalls**, click **Modify**, type 1, and then press ENTER.

4. Close Registry Editor.

5. Restart the Sandbox Processing Service. To do this, click **Start**, type **services.msc**, and then press ENTER.

6. Right-click **Microsoft Dynamics CRM Sandbox Processing Service**, and then click **Restart**.

7. Close the Microsoft Management Console (MMC) Services snap-in.

Secure server-to-server communication

By default, Microsoft Dynamics CRM server-to-server communication, such as communication between the Web Application Server role and the server that is running Microsoft SQL Server, isn't executed over a secure channel. Therefore, information that is transmitted between servers may be susceptible to certain attacks, like man-in-the-middle attacks.

We recommend you implement secure networking, such as Windows Firewall, to help protect information that is transmitted between servers in your organization. More information: Windows Firewall with Advanced Security Overview

DNS rebinding attacks

Like many web-based applications, Microsoft Dynamics CRM may be vulnerable to DNS rebinding attacks. This exploit involves misleading a web browser into retrieving pages from two different servers, trusting that the servers are from the same domain, and subsequently breaking the Same Origin Policy. Using this technique, an attacker can tamper with CRM data using the victim's identity through cross-site scripting attacks on CRM pages.

For more information about how to help protect against such attacks, see Protecting Browsers from DNS Rebinding Attacks.

JavaScript allowed for Power BI URLs on personal dashboards

Because JavaScript can be used so that personal dashboards can use Power BI URLs, be aware of the following risks of script injection attacks from malicious sources:

- Arbitrary redirection to an unexpected website, such as a phishing website.
- The creation of multiple large JavaScript objects in an attempt to crash the web browser.

To reduce the risk, consider implementing the following best practices:

- Only allow approved SharePoint sites to host Microsoft Office Excel documents used for embedding Power BI reports in dashboards. More information:Introduction to Power BI for Office 365 Admin Center
- Secure the SharePoint site that hosts the Power BI components so that only trusted sources can add documents that will be added to dashboards. Read about SharePoint permission levels
- Ask Microsoft Dynamics CRM users to avoid adding unapproved components to their dashboards. This is similar to educating users to not open attachments or click hyperlinks found in email messages from unknown sources.

See Also

Security considerations for Microsoft Dynamics CRM 2016

Network ports for Microsoft Dynamics CRM

Microsoft Dynamics CRM 2016 supported configurations

Microsoft Dynamics CRM 2016 supported configurations

The deployment architecture you will use depends on your business needs. Examples are provided here for planning a Microsoft Dynamics CRM deployment on four representative

computer system architectures: a single-computer server deployment, a two-server deployment, a five-server deployment, and a multiple-server deployment involving a minimum of six servers. These deployments are discussed in detail in [Microsoft Dynamics CRM 2016 supported configurations](#).

Additionally, this section describes the supported network, domain, and server configurations for Microsoft Dynamics CRM, which supports multiple forest and domain topologies.

Active Directory requirements

The Active Directory requirements are as follows:

- The computers that run Microsoft Dynamics CRM Server roles and the computer that runs SQL Server, where the Microsoft Dynamics CRM databases are located, must be in the same Active Directory domain.

- The Active Directory domain where a Microsoft Dynamics CRM Server role is located must run in one of the domain modes listed in the [Active Directory modes](#) topic.

- The user account that is used to run a Microsoft Dynamics CRM service must be in the same domain as the computer that is running the Microsoft Dynamics CRM Server role.

- The Microsoft Dynamics CRM security groups (PrivUserGroup, SQLAccessGroup, ReportingGroup, and PrivReportingGroup) must be in the same domain as the computer that is running Microsoft Dynamics CRM Server. These security groups can be located in the same organizational unit (OU) or in different OUs. To use security groups that are located in different OUs, you must install Microsoft Dynamics CRM Server by using an XML configuration file and specify the correct distinguished name for each pre-existing security group within the **<Groups>** element. More information: [Sample server XML configuration file for installing with pre-created groups](#)

  ⚠ **Warning**

  Direct user account membership in the Microsoft Dynamics CRM privusergroup security group is required and group membership nesting under privusergroup currently is not supported. Granting membership to privusergroup through another security group can cause system-wide failures in the CRM web application and reporting features. For example, if you add a security group named mycrmprivgroupusers to privusergroup, members of mycrmprivgroupusers will not resolve as privusergroup members. This includes the CRMAppPool or the SQL Server Reporting Services service identities.

- For users who access Microsoft Dynamics CRM from another domain and are not using claims-based authentication, a one-way trust must exist in which the domain where the Microsoft Dynamics CRM Server is located trusts the domain where the users are located.

  🔷 **Important**

  To add users to Microsoft Dynamics CRM that are not authenticated by using claims-based authentication, a two-way forest trust is required.

Single-server deployment

For small user bases, a Microsoft Dynamics CRM Server can be deployed in a single-server configuration, with Microsoft Dynamics CRM Server, SQL Server, Microsoft SQL Server Reporting Services, and optionally Microsoft Exchange Server installed and running on the same computer.

Single-server deployments are not recommended for best experience in application performance and disaster recovery.

There is one limitation to single-server deployments: the server where Microsoft Dynamics CRM Server is installed cannot also function as a domain controller. If the computer is a member server (not functioning as a domain controller), you can deploy the Microsoft Dynamics CRM Server Full Server role on a single Windows Server that is also running the additional required products.

💠 **Important**
Running Microsoft Dynamics CRM Server in a production environment on an Active Directory domain controller is not supported.

💡 **Tip**
To reduce IT administration overhead, consider running Microsoft Dynamics CRM in the cloud. More information: Microsoft Dynamics

In This Section

Microsoft Dynamics CRM multiple-server deployment

See Also

Planning your deployment of Microsoft Dynamics CRM 2016

Microsoft Dynamics CRM multiple-server deployment

Microsoft Dynamics CRM multiple-server deployment

Microsoft Dynamics CRM Server deployments can include multiple servers, which provide additional performance and scaling benefits. However, with Microsoft Dynamics CRM Workgroup Server 2016, server roles can't be installed on separate computers. Therefore, all server roles are installed on every computer where you install Microsoft Dynamics CRM Server.

Install server roles by running Microsoft Dynamics CRM Server Setup

During Microsoft Dynamics CRM Server Setup, you can select to install a server role:

- Individually.
- As one of the three predefined groups of server roles.
- As a full server installation that includes all roles.

Server roles let you increase flexibility and scalability of the Microsoft Dynamics CRM deployment. Note that all server roles must be running and available on the network to provide a fully functioning Microsoft Dynamics CRM system.

Install server roles by running Microsoft Dynamics CRM Server Setup at the command prompt

You can install Microsoft Dynamics CRM Server roles and Microsoft Dynamics CRM Reporting Extensions from their respective installation disks or file download location unattended by using the command prompt. The required setup information is provided to the Setup program both as command-line parameters and as an XML configuration file that the Setup program references. More information: Use the command prompt to install Microsoft Dynamics CRM Server 2016.

Microsoft Dynamics CRM Server placement

For improved application performance, the computer or computers that run the Microsoft Dynamics CRM Server roles and the computer that is running SQL Server should be on the same LAN. This is because of the large amount of network traffic passing between the computers. This is also recommended with Active Directory where the computer or computers on which Microsoft Dynamics CRM Server and the Active Directory domain controller are running should be on the same LAN to guarantee efficient Active Directory access to Microsoft Dynamics CRM.

SQL Server and Active Directory domain controller placement

For each organization, Microsoft Dynamics CRM stores all customer relationship management data in a SQL Server database. Make sure that the computer on which SQL Server is running that maintains the Microsoft Dynamics CRM databases is located near the Microsoft Dynamics CRM Server. This means there should be a high-speed, permanent network connection between the Microsoft Dynamics CRM Server and the computer that is running SQL Server. A network communications failure between these computers can result in data loss and service becoming unavailable.

The same is true for Active Directory because Microsoft Dynamics CRM depends on it for security information. If communication with Active Directory is lost, Microsoft Dynamics CRM will not function correctly. If communication with Active Directory is inefficient, Microsoft Dynamics CRM performance will be affected. Therefore, it is important to put an Active Directory domain controller on the same high-speed, permanent network connection as the Microsoft Dynamics CRM and SQL Server computers.

See Also

Microsoft Dynamics CRM 2016 supported configurations

Microsoft Dynamics CRM server roles

Support for Microsoft Dynamics CRM multiple-server topologies

Microsoft Dynamics CRM server roles

With Microsoft Dynamics CRM Server, you can install specific server functionality, components, and services on different computers. These components and services correspond to specific server roles. For example, customers who have larger user bases can install the Front End

Server role on two or more servers that run Internet Information Services (IIS) to increase throughput performance for users. Or, a Full Server role can be installed on one computer and Microsoft Dynamics CRM Reporting Extensions on another. If a server role is missing, Deployment Manager displays a message in the **Messages** area.

Use one of the following options to install server roles:

- Run the Microsoft Dynamics CRM Server Setup Wizard to select one or more server role groups or one or more individual server roles. If Microsoft Dynamics CRM Server is already installed, you can use Programs and Features in Control Panel to add or remove server roles.

- Configure an XML Setup configuration file and then run Setup at the command prompt to specify a server role group or one or more individual server roles. You cannot explicitly select the SQL Server "role" for installation during Microsoft Dynamics CRM Server Setup. This is a logical role that SQL Server sets when you specify a particular instance of SQL Server, either local or on another computer (recommended) for use in the Microsoft Dynamics CRM deployment. For more information, see Microsoft Dynamics CRM Server XML configuration file.

📝 **Note**

At any time after the initial installation of server roles, you can add or remove server roles in Control Panel. For more information, see Uninstall, change, or repair Microsoft Dynamics CRM Server.

♦ **Important**

If you have a Microsoft Dynamics CRM deployment that includes one or more Front End Server and Back End Server roles, the Language Pack must be installed on the computer that has the Front End Server role. If you have deployed individual server roles, the Language Packs must be installed on the computers that are running the Web Application Server and the Help Server roles.

In This Topic

Available group server roles

Available individual server roles

Scope definition

Installation method definition

Install the Microsoft CRM Asynchronous Service to process only asynchronous events or email

Microsoft Dynamics CRM Server role requirements

Available group server roles

Although these server role groups are recommended for most deployments, any individual server role may be installed during Setup.

All server roles must be running in your organization's network to provide a fully functioning system.

Server Role Group	Description	Scope	Installation Method
Full Server	Contains all roles from Front End Server, Back End Server, and Deployment Administration Server. By default, Microsoft Dynamics CRM Server Setup deploys the system as Full Server. In a Full Server deployment, server roles are not listed separately in Control Panel. To view the installed roles or make changes, right-click **Microsoft Dynamics CRM Server** , click **Uninstall/Change**, and then click **Configure**.	Deployment	Full
Front End Server	Enables the server roles for running client applications and applications developed with the Microsoft Dynamics CRM SDK.	Deployment	Group or Full
Back End Server	Includes the server roles that handle processing asynchronous events, such as workflows and custom plug-ins, database maintenance, and email routing. These roles are usually not exposed to the Internet. For a list of server roles that are included in this group, see the following table.	Deployment	Group or Full
Deployment Administration Server	Enables the server roles for components that are used to manage the Microsoft Dynamics CRM deployment either by using the methods described in the Microsoft	Deployment	Group or Full

Server Role Group	Description	Scope	Installation Method
	Dynamics CRM SDK or the deployment tools. Also includes the interface for database disaster recovery support. For a list of server roles that are included in this group, see the following table.		

Available individual server roles

Server Role	Description	Server Group	Scope	Installation Method
Discovery Web Service	Finds the organization that a user belongs to in a multi-tenant deployment.	Front End Server	Deployment	Individual, Group, or Full
Organization Web Service	Supports running applications that use the methods described in the Microsoft Dynamics CRM SDK .	Front End Server	Deployment	Individual, Group, or Full
Web Application Server	Runs the Web Application Server that is used to connect users to Microsoft Dynamics CRM data. The Web Application Server role requires the Organization Web Service role.	Front End Server	Deployment	Individual, Group, or Full
Help Server	Makes Microsoft Dynamics CRM Help available to users.	Front End Server	Deployment	Individual, Group, or Full
Asynchronou	Processes queued asynchronous	Back End	Deployment	Individual, Group, or Full

Server Role	Description	Server Group	Scope	Installation Method
s Service	events, such as workflows, bulk e-mail, or data import.	Server	t	
Sandbox Processing Service	Enables an isolated environment to allow for the execution of custom code, such as plug-ins. This isolated environment reduces the possibility of custom code affecting the operation of the organizations.	Back End Server	Deployment	Individual, Group, or Full
Email Integration Service	Handles sending and receiving of email messages by connecting to an external email server.	Back End Server	Deployment	Individual, Group, or Full
Deployment Web Service	Publishes the web service that provides the deployment interface described in the Microsoft Dynamics CRM SDK, such as those used to create an organization or manage the list of Deployment Administrators for the Microsoft Dynamics CRM deployment.	Deployment Administration Server	Deployment	Individual, Group, or Full
Deployment Tools	Consists of the Deployment Manager and Windows PowerShell cmdlets. Microsoft	Deployment Administration Server	Deployment	Individual, Group, or Full

Server Role	Description	Server Group	Scope	Installation Method
	Dynamics CRM administrators can use the Windows PowerShell cmdlets to automate Deployment Manager tasks. Deployment Manager is a Microsoft Management Console (MMC) snap-in that deployment administrators can use to manage organizations, servers, and licenses for deployments of Microsoft Dynamics CRM.			
Microsoft Dynamics CRM VSS Writer	The Microsoft Dynamics CRM VSS Writer service provides an interface to backup and restore Dynamics CRM data by using the Windows Server Volume Shadow Copy Service (VSS) infrastructure.	Deployment Administration Server	Deployment	Individual, Group, or Full
Microsoft Dynamics CRM Reporting Extensions	Provides reporting functionality by interfacing with the Microsoft Dynamics CRM system and Microsoft SQL Server Reporting Services.	N/A	Deployment	Individual by using srsDataConnectorSetup.exe.

Server Role	Description	Server Group	Scope	Installation Method
SQL Server	Installs the MSCRM_CONFIG database on the SQL Server.	N/A	Deployment	Individual during Microsoft Dynamics CRM Server Setup or from Deployment Manager **Edit Organization Wizard**.

Scope definition

- **Deployment**. Each instance of the server role services the entire deployment.
- **Organization**. Each instance of the server role services an organization. Therefore, you can use a different server role instance for a given organization.

Installation method definition

- **Individual , Group, or Full**. During Microsoft Dynamics CRM Server Setup, you can install a server role individually, install one of the three predefined groups of server roles, or perform a Full Server installation that includes all roles. Or, you can select multiple individual server roles.
- **Microsoft Dynamics CRM Reporting Extensions**. Install this role using srsDataConnectorSetup.exe on the computer where Microsoft SQL Server Reporting Services is running.

For more information about Microsoft Dynamics CRM server roles and multiple server deployment, see [Install Microsoft Dynamics CRM Server on multiple computers](#).

Install the Microsoft CRM Asynchronous Service to process only asynchronous events or email

The Microsoft CRM Asynchronous Processing Service (NT style service) can be used to process asynchronous events and email, accounts, contacts, and tasks using server-side synchronization. Depending on what server roles you select during Microsoft Dynamics CRM Server Setup, you can configure the Asynchronous Service to have the following features.

- Selecting both Asynchronous Service and Email Integration Service server roles installs the Asynchronous Processing Service that will be configured to process both asynchronous events and email, accounts, contacts, and tasks using server-side synchronization.
- Selecting only the Asynchronous Service server role installs the Asynchronous Processing Service that will be configured to process only asynchronous events.
- Selecting only the Email Integration Service server role, installs the Asynchronous Processing Service that will be configured to only process email, accounts, contacts, and tasks by using server-side synchronization.

Given these options, you can separate asynchronous events from server-side synchronization to help improve CRM system performance and simplify monitoring.

Microsoft Dynamics CRM Server role requirements

The following table describes the components necessary for each Microsoft Dynamics CRM Server role. An "X" indicates the component is required for the Microsoft Dynamics CRM Server

role to install and function. Notice that, in most cases if a component is not already installed, Microsoft Dynamics CRM Server Setup will install it.

Microsoft Dynamics CRM Server Role Prerequisites

Component	Back End Server	Front End Server	Deployment Administration Server
Microsoft SQL Server Reporting Services ReportViewer control		X	
SQL Server Native Client	X	X	X
Microsoft Application Error Reporting Tool	X	X	X
Microsoft Visual C++ Runtime Library	X	X	X
Windows Server Web Server Role		X	X
Indexing Service		X	
Microsoft .NET Framework 4	X	X	X
Microsoft Chart Controls for Microsoft .NET Framework		X	
Microsoft Azure platform SDK	X	X	X
Windows PowerShell			X
Microsoft URL Rewrite Module for IIS		X	
File Server Resource Manager		X	

The following table describes the group membership for the Active Directory that is used by Microsoft Dynamics CRM. An "X" indicates the group membership required for the service to function.

Group Membership Requirements

Service	PrivUserGroup	SQLAccessGroup	PrivReportingGroup	ReportingGroup
Deployment Web Service service account	X	X		
Web Application Service*	X	X		
Asynchronous Service service account	X	X		
Sandbox Processing Service service account**				
SQL Server service account		X		
Microsoft SQL Server Reporting Services server account	X		X	
Email Router service account	X			
Installing User/Service account				X
Individual user accounts in Microsoft Dynamics CRM				X
Unzip Service service account	X			
Microsoft Dynamics CRM VSS Writer service account	X	X		

* The Web Application Service identity is applied to the CRMAppPool application pool. Subsequently, this identity is used by the Organization Service, Web Application, and Microsoft Dynamics CRM platform.

** The Sandbox Service does not need any Microsoft Dynamics CRM group membership.

📝 **Note**

Email Router runs as a local system.

🔷 **Important**

- The Installing user should be a separate service account, but it should not be used to run any services.
- If any of the service accounts are created as users in Microsoft Dynamics CRM, you may encounter various problems, some of which are potential security issues.

See Also

Microsoft Dynamics CRM multiple-server deployment

Support for Microsoft Dynamics CRM multiple-server topologies

Support for Microsoft Dynamics CRM multiple-server topologies

This section provides examples of various multiple-server topologies.

In This Topic

Five-server topology

Multi-forest and multi-domain with Internet access Active Directory topology

Five-server topology

The five-server topology is for small to midsize user bases, typically 25 or fewer users concurrently using Microsoft Dynamics CRM. The following example depicts a possible configuration running a supported version of Windows Server and the required and optional software technologies. It also includes a Full Server deployment of Microsoft Dynamics CRM Server that is configured for an Internet-facing deployment (IFD). For a complete list of the supported versions of the required and optional technologies, see Software requirements for Microsoft Dynamics CRM Server.

A five server topology can consist of the following configuration:

- Server 1: Running on Microsoft Windows Server as a functioning domain controller.
- Server 2: Running on Windows Server as a secondary domain controller and Active Directory Federation Services (AD FS) server.
- Server 3: Running on Windows Server with IIS and an Active Directory Federation Services (AD FS) proxy.
- Server 4: Running on Windows Server with an instance of Microsoft SQL Server the includes the database engine, Microsoft SQL Server Reporting Services, and Microsoft Dynamics CRM Reporting Extensions.
- Server 5: Running on Windows Server, IIS, and a Full Server deployment of Microsoft Dynamics CRM Server configured for Internet-facing deployment (IFD).

- CRMWebClient, CRMforOutlook, tablet, and phone devices: These computers and devices are running applications that are available, connecting from the Internet or the LAN-based network, such as Dynamics CRM for Outlook, Microsoft Dynamics CRM for tablets, and Microsoft Dynamics CRM for phones.
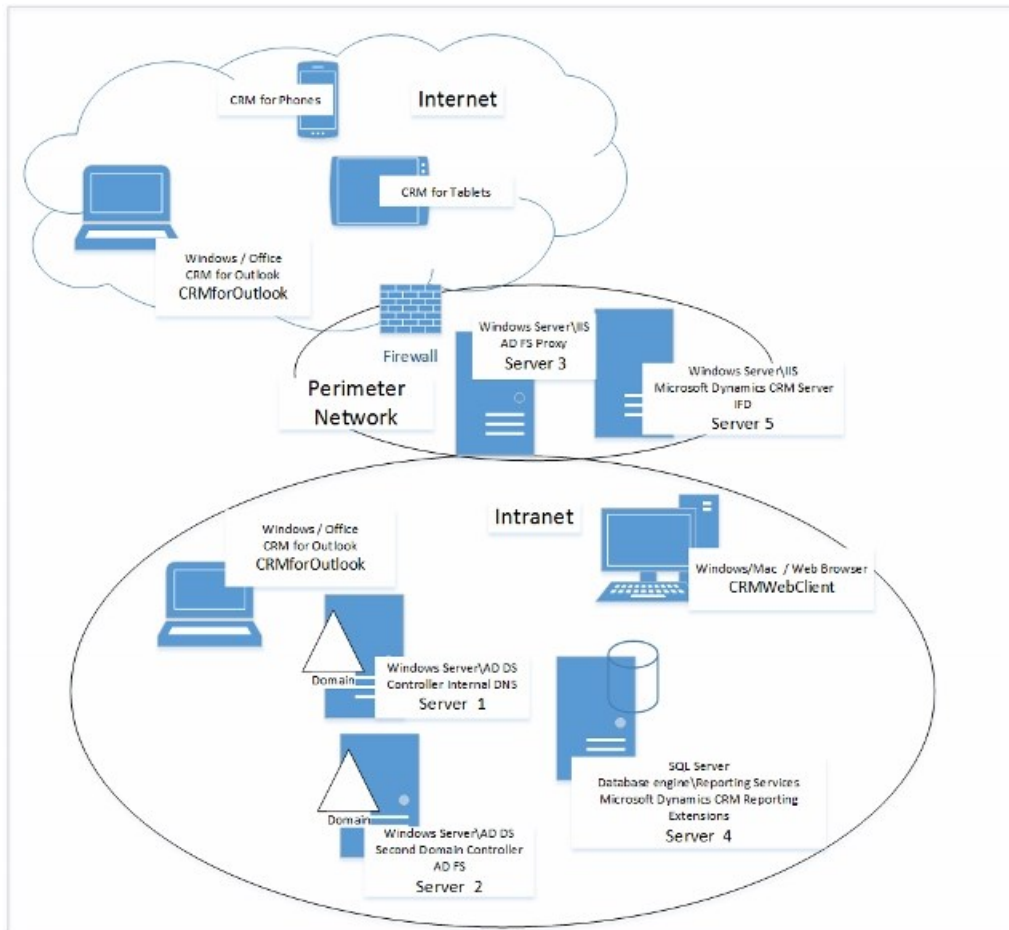
Basic Microsoft Dynamics CRM five-server topology with Internet access example

Multi-forest and multi-domain with Internet access Active Directory topology

For very large user bases that span multiple domains and, in some cases, forests, the following configuration is supported. The following example depicts a possible configuration running a particular version of Windows Server and required software, such as SQL Server and Microsoft SharePoint.

The text and diagram show a possible deployment that lets users access Microsoft Dynamics CRM through the Internet by implementing Active Directory Federation Services (AD FS) supported by Front End Server roles that are isolated from user and resource domains on a perimeter network (also known as DMZ, demilitarized zone, and screened subnet) model.

For a complete list of the supported versions of these software technologies, see Software requirements for Microsoft Dynamics CRM Server.

Forest X: Domain A: Perimeter subnet

- Network Load Balanced (NLB) virtual server consisting of the following two nodes:
  - Front End Server: Running Windows Server and Microsoft Dynamics CRM Server with the Front End Server role.
  - Front End Server: Another Windows Server running Microsoft Dynamics CRM Server with the Front End Server role.

  Note
  To use Microsoft Dynamics CRM Server with NLB requires manual configuration.

- Active Directory Federation Services (AD FS) Server: Running on Windows Server as the Internet-facing claims-based authentication security token service.

Forest X: Domain A: Intranet

- NLB virtual server consisting of the following two nodes:
  - Windows Server, Microsoft SQL Server Reporting Services, and Microsoft Dynamics CRM Reporting Extensions for SQL Server Reporting Services (Server X).
  - Windows Server, Microsoft SQL Server Reporting Services, and Microsoft Dynamics CRM Reporting Extensions for SQL Server Reporting Services (Server Y).

- NLB virtual server consisting of the following nodes:
  - Front End Server and Deployment Administration Server: Running Windows Server and Microsoft Dynamics CRM Server with the Front End Server and Deployment Administration Server roles.
  - Front End Server and Deployment Administration Server: Another Windows Server running Microsoft Dynamics CRM Server with the Front End Server and Deployment Administration Server roles.

  Note
  To use Microsoft Dynamics CRM Server with NLB requires manual configuration.

- Microsoft SQL Server failover cluster running the following two nodes:
  - Windows Server, SQL Server database engine (Server X).
  - Windows Server, SQL Server database engine (Server Y).

  Note
  To use Microsoft Dynamics CRM Server with SQL Server failover clustering requires manual configuration. More information: Set configuration and organization databases for SQL Server 2012 AlwaysOn failover

- Windows Server running the Asynchronous Service server role.
- Windows Server running the Sandbox Processing Service server role.
- Windows Server running the Active Directory Federation Services (AD FS) Windows Server role.
- Windows Server running Microsoft SharePoint (required for document management).

Forest Y: Domain B: Intranet

- Exchange Server failover cluster consisting of the following two nodes:

- Windows Server running Exchange Server (Server X).
- Windows Server running Exchange Server (Server Y).
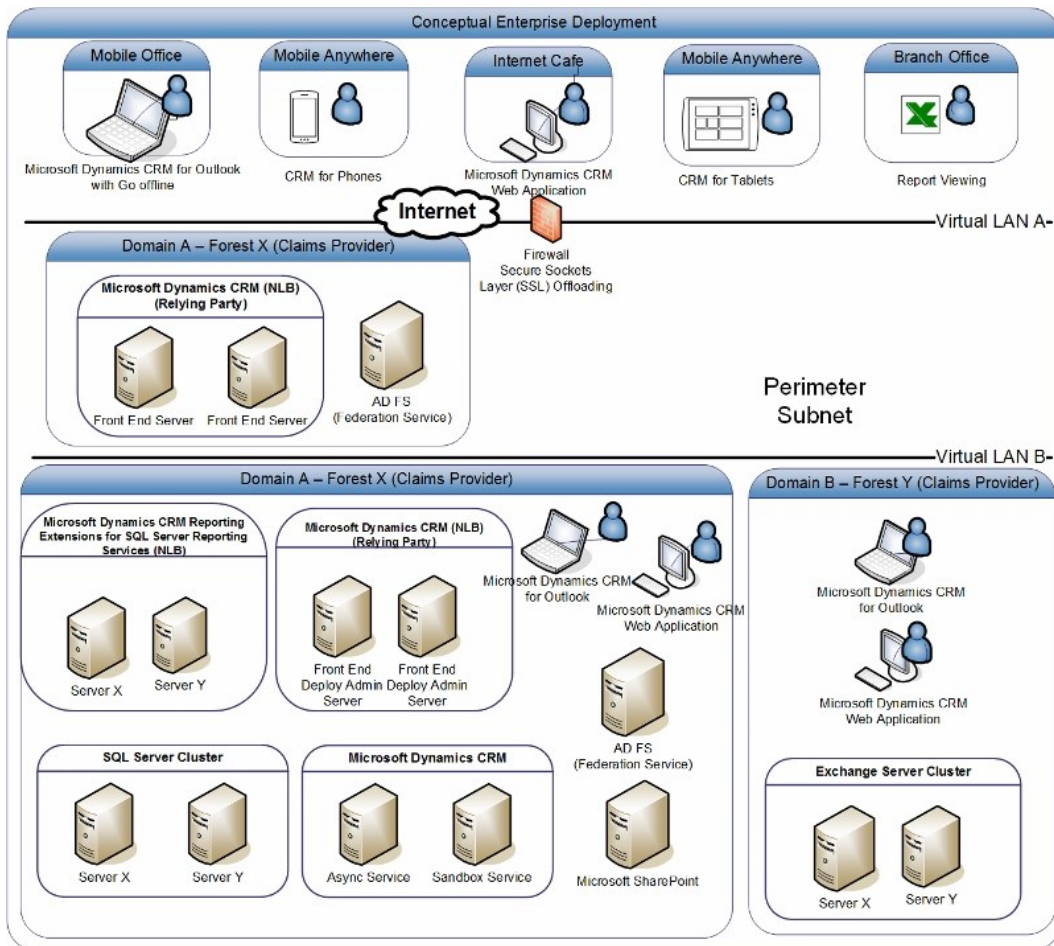
Multiple forest with Internet access to Microsoft Dynamics CRM topology example

See Also

Microsoft Dynamics CRM multiple-server deployment

Upgrade a Microsoft Dynamics CRM Server

Upgrade a Microsoft Dynamics CRM Server

The only supported upgrade path to Microsoft Dynamics CRM Server 2016 is from Microsoft Dynamics CRM Server 2015. This section provides guidelines for preparing for an upgrade to Microsoft Dynamics CRM Server 2016. Performing these tasks in advance can help minimize system downtime and ensure a successful upgrade. Also, this section describes how Microsoft Dynamics CRM Server 2016 upgrades your current system and what happens to items such as existing reports, customizations, and solutions.

Microsoft Dynamics CRM 2015 server roles are not compatible with a Microsoft Dynamics CRM Server 2016 deployment. Therefore, after you upgrade the first Microsoft Dynamics CRM Server, other Microsoft Dynamics CRM 2015 servers that are running in the deployment will become disabled. As each server is upgraded, the corresponding server will be enabled.

You can upgrade Microsoft Dynamics CRM 2015 server roles in any order. However, to have a fully functioning Microsoft Dynamics CRM 2016 deployment, all servers and server roles must be upgraded.

In This Topic

Recommended upgrade steps

Microsoft Dynamics CRM Server upgrade options

Microsoft Dynamics CRM Server versions supported for upgrade

Upgrade product key

User permissions and privileges

Sharing a SQL Server

Tips for a successful upgrade

Next steps

Recommended upgrade steps

To ease the upgrade process and minimize downtime, we recommend that you use the following order when you upgrade Microsoft Dynamics CRM Server.

1. Although you can upgrade any version of Dynamics CRM 2015 for Outlook to Microsoft Dynamics CRM 2016 for Outlook, we recommend that you apply the latest update rollup before you begin the upgrade. Microsoft Dynamics CRM 2015 updates and hotfixes

2. Upgrade all Microsoft Dynamics CRM 2015 servers and organizations to Microsoft Dynamics CRM Server 2016.

3. Upgrade Dynamics CRM for Outlook to Microsoft Dynamics CRM 2016 for Outlook in order to have the **Go offline** capability.

Microsoft Dynamics CRM Server upgrade options

There are three different upgrade options:

- **Migrate by using a new instance of SQL Server**. We recommend this option for upgrading Microsoft Dynamics CRM Server. Although this option requires a different computer for Microsoft Dynamics CRM 2016 and a different instance of SQL Server, it provides the least amount of potential downtime for users since the existing deployment can remain functioning until the upgrade is completed and verified.

- **Migrate by using the same instance of SQL Server.** This option requires a different computer for Microsoft Dynamics CRM Server 2016, but will upgrade in-place the configuration and default organization databases using the same instance of SQL Server. If

issues occur during the upgrade, you must roll back to the previous Microsoft Dynamics CRM version to avoid significant downtime.

- **In-place upgrade**. Although this option doesn't require a different computer for Microsoft Dynamics CRM Server 2016 or a different instance of SQL Server, it poses the greatest risk if upgrade issues occur because a roll back and reinstall of the previous version of Microsoft Dynamics CRM will be required to avoid potential downtime.

For detailed procedures for each of these options, see Upgrade Microsoft Dynamics CRM Server.

For the latest product information, see the Microsoft Dynamics CRM 2016 and Microsoft Dynamics CRM Online Readme.

Important

Always run a full backup of the Microsoft Dynamics CRM databases before you upgrade to a new version of the product. For information about database backups, see Back up the Microsoft Dynamics CRM System.

During an in-place upgrade, only the organization that you specify to upgrade is upgraded. If the deployment contains additional organizations, those organizations are disabled and are not upgraded. You must upgrade those organizations using the **Import-CrmOrganization** Windows PowerShell command or by using Deployment Manager. More information: **CRM 2016 PowerShell Reference** and Import an organization

For each organization that you upgrade, we recommend that the volume have free space that is at least three times the size of the organization database file (organizationName_MSCRM.mdf) and four times the size of the log file (organizationName_MSCRM.ldf). For example, if a single organization database and log file are located on the same volume where the mdf file is 326 MB and the ldf file is 56 MB, the recommended available space should be at least 1.2 GB to allow for growth ((326 x 3) + (56 x 4)). Notice that the database files that expand during upgrade do not reduce in size after the upgrade is complete.

Microsoft Dynamics CRM Server versions supported for upgrade

Microsoft Dynamics CRM Server 2015 is supported for upgrade to Microsoft Dynamics CRM Server 2016.

For information about upgrading from Microsoft Dynamics CRM Server 2013 and Microsoft Dynamics CRM Server 2011, see Upgrade from Dynamics CRM Server 2013 or Dynamics Server 2011.

Upgrade product key

Before the upgrade, obtain the product key that you will enter during the upgrade. In Microsoft Dynamics CRM, the server and client keys are combined so that you enter only one key.

More information: Microsoft Dynamics CRM 2016 editions and licensing

If you want to make system changes that require changes to your existing Microsoft Dynamics CRM licensing agreement, see How to buy Microsoft Dynamics.

User permissions and privileges

To perform a successful upgrade, the user who runs Microsoft Dynamics CRM Setup must:

- Have an account in the same Active Directory domain as the server or servers that are being upgraded.
- Be a member of both the Deployment Administrator Role and the Microsoft Dynamics CRM System Administrator Role for any organizations that will be upgraded.

    ### Important
    The upgrade will fail if the user who is running the upgrade has a disabled System Administrator Role.

- Have administrator rights on the SQL Server and Reporting Services server associated with the deployment that is being upgraded.
- Have sufficient permissions to create new security groups and add members to those groups in the Active Directory organizational unit that contains the existing Microsoft Dynamics CRM groups.

Sharing a SQL Server

Only one Microsoft Dynamics CRM deployment per instance of SQL Server is supported. This is because each deployment requires its own MSCRM_CONFIG database, and multiple instances of the MSCRM_CONFIG database can't coexist on the same instance of SQL Server. If you have multiple SQL Server instances running on the same computer, you can host the databases for multiple Microsoft Dynamics CRM deployments on the same computer. However, this might decrease system performance.

Tips for a successful upgrade

The following issues, if applicable to your current Microsoft Dynamics CRM 2015 deployment, should be resolved before you start the upgrade.

Do not exceed the maximum number of fields

If you have more than 1023 fields defined for an entity, you must delete the additional fields before you run the upgrade, or the upgrade will fail with the following message:

CREATE VIEW failed because column *'column_name'* in view *'view_name'* exceeds the maximum of 1024 columns.

Remove custom database objects

The Microsoft Dynamics CRM databases often change from one major release to the next because of database redesign.

We suggest that, if you have added custom database objects such as triggers, statistics, stored procedures, and certain indexes, you remove those objects from the configuration and organization databases. In many cases, Microsoft Dynamics CRM Server Setup displays a warning when these objects are detected.

Remove the ignorechecks registry subkey

If you have manually added the ignorechecks registry subkey on the Microsoft Dynamics CRM server, remove it before you start the upgrade. More information: [You cannot deploy Microsoft Dynamics CRM by using an account that does not have local administrator permissions on Microsoft SQL Server](#)

Next steps

Read more about upgrade in the following topics:

- [Before you upgrade: issues and considerations](#)
- [Upgrade the Microsoft Dynamics CRM Deployment](#)
- **Upgrade Microsoft Dynamics CRM for Outlook**

See Also

[Microsoft Dynamics CRM 2016 supported configurations](#)

[Advanced deployment options for Microsoft Dynamics CRM Server](#)

Before you upgrade: issues and considerations

This topic describes the changes and limitations when you upgrade Microsoft Dynamics CRM, as well as what might affect your instance or deployment after the upgrade is complete.

Upgrading from Microsoft Dynamics CRM 2015 to Microsoft Dynamics CRM 2016

[What's changed in supported products and technologies](#)

[Microsoft Dynamics CRM software and components not supported for in-place upgrade](#)

What's changed in supported products and technologies

For platform technology changes, see these topics.

- [Windows Server operating system](#)
- [SQL Server editions](#)
- **Supported versions of Internet Explorer**
- **Exchange Server**

Microsoft Dynamics CRM software and components not supported for in-place upgrade

The following products and components aren't supported by Microsoft Dynamics CRM 2016 and won't be upgraded during Microsoft Dynamics CRM Setup. If you upgrade a Microsoft Dynamics CRM system that includes the product or component listed, or you install these components after you install Microsoft Dynamics CRM, these products or solutions may not function correctly. We recommend that you uninstall or manually remove the component before you upgrade.

- Microsoft Dynamics CRM 2015 Reporting Extensions (on-premises only)
- Microsoft Dynamics CRM 2015 Email Router
- Microsoft Dynamics CRM List Component for SharePoint Server

Upgrading from previous versions of Microsoft Dynamics CRM

Microsoft Dynamics CRM 2013 and Microsoft Dynamics CRM 2011 are not supported for upgrade to Microsoft Dynamics CRM 2016. However, you can migrate or in-place upgrade Microsoft Dynamics CRM Server 2013 SP1 to Microsoft Dynamics CRM Server 2015 by using a trial product key, and then either migrate or in-place upgrade to Microsoft Dynamics CRM 2016. More information: Upgrade from Dynamics CRM Server 2013 or Dynamics Server 2011

See Also

Upgrade a Microsoft Dynamics CRM Server

Upgrade the Microsoft Dynamics CRM Deployment

Upgrade the Microsoft Dynamics CRM Deployment

Microsoft Dynamics CRM 2016 presents a significant advancement in features and functionality from the previous version. As such, existing features, solutions, and extensions may be affected as a result of the upgrade. This topic provides a best practices process to minimize downtime while helping determine issues that may occur as a result of the upgrade.

In This Topic

The upgrade process

Prepare to upgrade

Establish the test environment

Upgrade and validate the test environment

What to do when you cannot successfully upgrade or migrate?

The upgrade process

There are two separate environments as part of the upgrade process:

- **Test environment**. The test environment represents a restricted deployment of Microsoft Dynamics CRM that is used to validate the upgrade. The test environment must mirror the production environment as closely as possible whereby there are substantial similarities in hardware (processor, disk, memory, and so on), technology platform (Windows Server, SQL Server, and so on), topology (1-server, 2-server, 5-server, and so on) and data Microsoft Dynamics CRM databases). To create an appropriate environment for testing, it may require setting up Windows Network Load Balancing (NLB) or clustering, installing and configuring Microsoft Dynamics CRM components and applications, such as Email Router, workflows, customizations, and connectors, as well as installing any additional add-ons, plug-ins, or solutions particular to the deployment. Establishing a test environment that is running and configured wholly or in part by using virtualization technology, such as Windows Server Hyper-V, can greatly facilitate this process. In this test environment, the administrator performs the upgrade, optimizes for performance, may introduce upgraded code, and tests that the system is running well.

- **Production deployment**. This deployment represents the deployment of Microsoft Dynamics CRM that is used by all Microsoft Dynamics CRM users in the organization. In the production deployment, the upgrade is performed, and the administrator may use strategies that

optimize upgrade performance. The upgrade administrator may move upgraded code from the development or test environment to the production environment. The administrator then brings the production environment online, validates that the system is running well, and deploys Dynamics CRM for Outlook for users as needed.

Prepare to upgrade

Make sure you have enough staff, resources, and time to dedicate to the upgrade. As part of this phase, you must determine who will be involved in the upgrade, designate the test deployment hardware and software that will be used to validate the upgrade, and plan for potential failures.

You should also assess the current production environment for upgrade suitability. This requires reviewing the most recent Microsoft Dynamics CRM documentation.

- [Microsoft Dynamics CRM 2016 system requirements and required technologies](#)
- [Microsoft Dynamics CRM 2016 and Microsoft Dynamics CRM Online Readme](#)
- [Get ready for the next release](#)

Additionally, you must determine the acceptance criteria that will be used to decide whether to go forward with the production upgrade.

💡 **Tip**

Microsoft Dynamics Sure Step is available to Microsoft Dynamics Partners to help reduce risk and guide you through the tasks associated with deployment and configuration of Microsoft Dynamics solutions. For more information about Microsoft Dynamics Sure Step, including training, methodology, and tool downloads, visit the [PartnerSource website](#) (requires Dynamics Partner membership).

Determine the upgrade strategy

To determine the upgrade strategy, you need to answer the following questions:

- What will be upgraded? Upgrading the Microsoft Dynamics CRM server may require that you upgrade platform components such as Windows Server or SQL Server. It will also require that other Microsoft Dynamics CRM applications or solutions such as Dynamics CRM for Outlook and Unified Service Desk be upgraded.
- When? What is the timeline for the upgrade?
- How? For example, will you upgrade in-place or will you migrate to new hardware before the upgrade? This should also include how the upgrade will be rolled out. Who will validate the upgrade? Will there be a pilot or phased rollout? Based on the outcome of the test upgrade you may need to modify or mitigate your strategy and perform corrective actions to ensure functionality. For example, if some workflows cannot be upgraded, you must plan to re-create those workflows and test them.

Plan for failure, backup, and recovery

Some components, such as custom reports, workflows, custom JavaScript, or third-party extensions may cause the upgrade to fail or not function correctly. These items should be documented and a contingency plan be established for each issue. Additionally, custom JavaScript and third-party extensions may need to be removed before the upgrade.

Therefore, you must be prepared to quickly and completely rollback the system. If you will recover from any scenario, you must back up all needed information and store a copy offsite. A backup plan should be created and rehearsed for all Microsoft Dynamics CRM components and services to make sure that, if a failure occurs, the maximum amount of data is recoverable. To understand the failure-recovery procedures, you must examine several different scenarios to learn how restoration occurs in each case.

For more information about how to back up or recover Microsoft Dynamics CRM data, see [Microsoft Dynamics CRM 2016 data protection and recovery](#).

Review appropriate planning and prerequisite documentation

Product documentation is instrumental in helping you scope the amount of preparation required before you upgrade. The documentation to review should include:

- [Microsoft Dynamics CRM 2016 and Microsoft Dynamics CRM Online Readme](#)

- This document and [Installing on-premises CRM 2016](#). Of particular importance are the [Upgrade a Microsoft Dynamics CRM Server](#), [Microsoft Dynamics CRM 2016 system requirements and required technologies](#), and [Microsoft Dynamics CRM 2016 supported configurations](#) topics.

- Also, if you will be installing additional components, such as Dynamics CRM for Outlook or Microsoft Dynamics CRM Email Router, download and review the following topics:

  - **Set up CRM for Outlook**
  - **Set up Email Router**

Ensure you have the latest technologies

For best results, verify that you have applied the latest service packs and update rollups not only for Microsoft Dynamics CRM but for other dependent technologies such as Windows Server, SQL Server, and Exchange Server.

Determine an upgrade plan and checklists

In this task you will determine how to evaluate the overall functionality and production readiness of the upgraded environment. The purpose of these tasks is to validate a production ready and fully operational system suitable for rolling out to the user base.

Use the following steps as a checklist for the tasks that are required leading up to the production upgrade or "go-live" day.

Verify that the system is functional after the upgrade by performing these basic tests:

- Review the Setup log files for issues that may have occurred during the upgrade. By default, Setup creates these files in the C:\Documents and Settings*<username>*\Application Data\Microsoft\MSCRM\Logs folder on the computer where Setup is run and where <username> is the name of the user account who ran Setup.

- Review the Event Viewer log files. Microsoft Dynamics CRM Server events are recorded under the sources that begin with **MSCRM** in Event Viewer.

- Run the Microsoft Dynamics CRM Windows PowerShell commands to verify server and organizations that were upgraded are enabled. More information: [Administer the deployment using Windows PowerShell](#)

Alternatively, start Deployment Manager and verify that all Microsoft Dynamics CRM servers are enabled and that the upgraded organizations are enabled. Depending on whether you migrated or performed an in-place upgrade, additional organizations are upgraded by using the Import Organization Wizard or the Upgrade Organization Wizard in Deployment Manager.

- Start Internet Explorer and connect to the Microsoft Dynamics CRM server. After you have performed the previous tasks, perform a user acceptance test. The following is an example of some of the features to test in a typical organization:

  - Validate reports against previous version reports.

  - Print reports in Microsoft Dynamics CRM.

  - Validate applicable data in the Microsoft Dynamics CRM system, such as creating, editing, deleting, and promoting/converting records for the following entities:

    - Accounts

    - Contacts

    - Opportunities

    - Cases

    - Activities

    - Custom Entities

  - Verify workflows against previous workflows. Update any workflow items affected by configuration or data model modifications.

  - Test all custom code, JavaScript, and custom reports (if applicable).

  - Test all integration processes (if applicable).

  - Test remote client and mobile app access and functionality.

  - Test of third party applications or extensions.

Establish the test environment

We strongly recommend that you plan to run at least one test upgrade before you upgrade your production environment. After you run a test upgrade, verify the product configuration by performing operations that you would typically use in your production environment. For example, for a service organization, you may want to create an e-mail activity related to a case, and then verify the functionality by sending a test e-mail that contains text from an existing case. If you receive any errors while you are using Microsoft Dynamics CRM in a test environment, make sure that you resolve them before you upgrade your production environment.

Tip
Virtual machine software, such as Windows Server Hyper-V, can ease the deployment time to establish the test environment as well as limit the amount of hardware resources that are required to emulate the production deployment.

Determine which computers you will use, or, if you are using virtual machine technology, which virtual machine you will use.

Migrate by using a new instance of SQL Server

We recommend this upgrade option because it lets you maintain a deployment of the previous version at the same time that a new Microsoft Dynamics CRM system is being deployed. This reduces application down time as the new deployment can be installed, organizations imported, and then verified without effecting the production deployment in the event of an issue.

> ⬥ **Important**
>
> **The Migrate by using a new instance of SQL Server** option provides the least amount of potential downtime in the event of an issue as the result of the upgraded deployment.

1. Establish a new instance of SQL Server. You can use an existing instance but it must not be the same instance where the previous version's configuration database is located.

2. Run Microsoft Dynamics CRM Server Setup on a new 64-bit computer that does not already have Microsoft Dynamics CRM Server installed.

3. Back up the production Microsoft Dynamics CRM configuration and organization databases and restore them to the new instance of SQL Server.

4. Run the Import-CrmOrganization Windows PowerShell command or run the Import Organization Wizard to import one or more organizations to the newly installed system. During the import, the organization database will be upgraded to the new version.

5. If you have additional organizations or if you are using a new SQL Server for the migration, you must import the organization databases to the new system. To do this, on the computer where the new version of Microsoft Dynamics CRM Server is installed and running, run the Import-CrmOrganization Windows PowerShell command. Alternatively, start Microsoft Dynamics CRM Deployment Manager, right-click **Organizations**, click **Import Organization**, and then select the newly restored **OrganizationName_**MSCRM database.

6. If customizations were made to .NET assemblies or configuration files, you must copy those customized files to the new system. By default, these files are located under the **<drive>**:\Program Files\Microsoft Dynamics CRM\Server\bin\assembly\ folder on the earlier version of Microsoft Dynamics CRM Server.

Upgrade and validate the test environment

Verify the newly upgraded Microsoft Dynamics CRM environment for stability and operation. This includes having a select set of users connect by using the Microsoft Dynamics CRM web application and use the system to perform all normal day-to-day tasks. Make sure workflows and reports are functioning correctly and test that new features from the upgrade are functioning as well.

Run acceptance criteria and checklists

Execute the previously mentioned tasks on the new deployment. Based on the tests, a decision will be made to either implement or not implement the upgrade to the production environment.

User acceptance testing

After the test checklist is completed and the quality of the tasks is within acceptable limits, user acceptance testing can start. This involves a subset of all users and typically can involve key users that carry out their normal day-to-day tasks against the system. These key users report any issues or unexpected behavior to the Microsoft Dynamics CRM administration team for action.

Go live

After user acceptance testing has successfully completed, bring the new Microsoft Dynamics CRM server online. This may require removing the previous version server before joining the new Microsoft Dynamics CRM Server to the domain, configuring the IIS bindings to use the same bindings as the previous version of Microsoft Dynamics CRM website, and updating DNS records as necessary to correctly resolve to the new website.

What to do when you cannot successfully upgrade or migrate?

If, after following the guidelines in this section, you cannot successfully upgrade the production deployment or migrate, use the following resources to help resolve the issue.

Self support

- Use the Event Viewer to view events that can help you troubleshoot the issue. Microsoft Dynamics CRM Server events are recorded under the sources that begin with **MSCRM** in the Event Viewer.

- Turn on platform tracing. For instructions, see the tracing topics under Monitor and troubleshoot Microsoft Dynamics CRM.

- Browse or search for knowledge base articles for Microsoft Dynamics CRM in the Microsoft Dynamics CRM Solution Center.

- Visit the CustomerSource or the PartnerSource website.

Assisted support

Contact Microsoft Customer Support Services. For a complete list of Microsoft Customer Support Services telephone numbers and information, visit the Microsoft Customer Support page.

See Also

Upgrade a Microsoft Dynamics CRM Server

Advanced deployment options for Microsoft Dynamics CRM Server

Advanced deployment options for Microsoft Dynamics CRM Server

This topic describes advanced deployment options for Microsoft Dynamics CRM Server.

Use a local package to update Setup files

The update Setup feature lets you know if you have the latest updates to Microsoft Dynamics CRM before you run Setup. You can then tell Setup exactly where to find the MSP package that will be applied to the Setup files. This gives you more control over the update, like being able to apply the update package locally so you don't need an Internet connection.

To specify the location, you'll need to edit the XML configuration file **Patch** element, and then run Setup from the command prompt. More information: Use the command prompt to install Microsoft Dynamics CRM Server 2016

Add or remove server roles

Use either of these methods to easily add or remove server roles:

- Run the Microsoft Dynamics CRM Server Setup Wizard to choose one or more server role groups or individual server roles. If Microsoft Dynamics CRM Server is already installed, you can use Programs and Features in Control Panel to add or remove server roles. For more information, see Microsoft Dynamics CRM server roles.

- Configure an XML configuration file, and then run Setup at the command prompt to choose a server role group, or one or more individual server roles. For more information, see Install Microsoft Dynamics CRM Server roles using the command prompt.

Use Windows Powershell to perform deployment tasks

With Windows PowerShell you can perform many Microsoft Dynamics CRM deployment tasks. More information: Administer the deployment using Windows PowerShell.

In this section

Configure a Microsoft Dynamics CRM Internet-facing deployment

Multi-organization deployment

See Also

Upgrade a Microsoft Dynamics CRM Server

Installing on-premises CRM 2016

Configure a Microsoft Dynamics CRM Internet-facing deployment

You can deploy Microsoft Dynamics CRM so that remote users can connect to the application through the Internet. The following Internet-facing deployment (IFD) configurations are supported:

- Microsoft Dynamics CRM for internal users only
- Microsoft Dynamics CRM for internal users and IFD access
- Microsoft Dynamics CRM for IFD-only access

Configuring an IFD enables access to Microsoft Dynamics CRM from the Internet, outside the company firewall, without using a virtual private network (VPN) solution. Microsoft Dynamics CRM configured for Internet access uses claims-based authentication to verify credentials of external users. When you configure Microsoft Dynamics CRM for Internet access, integrated Windows Authentication must remain in place for internal users.

To let users access the application over the Internet, the server that is running Internet Information Services (IIS) where the Microsoft Dynamics CRM application is installed must be available over the Internet.

For more information, see Accessing Microsoft Dynamics CRM from the Internet - Claims-based authentication and IFD requirements.

In This Topic

[About claims-based authentication](#)

[Internet-facing server best practices](#)

[Configure IFD](#)

About claims-based authentication

The claims-based security model extends traditional authentication models to include other directory sources that contain information about users. This identity federation lets users from various sources, such as Active Directory Domain Services (AD DS), customers via the Internet, or business partners, authenticate with native single sign-on.

The claims-based model has three components: the relying party, which needs the claim to decide what it is going to do; the identity provider, which provides the claim; and the user, who decides what if any information they want to provide. Microsoft provides a claims-based access solution called Active Directory Federation Services (AD FS). AD FS enables Active Directory Domain Services (AD DS) to be an identity provider in the claims-based access platform.

AD FS consists of the following components:

- AD FS Framework provides developers pre-built .NET security logic for building claims-aware applications, enhancing either ASP.NET or WCF applications.
- Active Directory Federation Services (AD FS) is a security token service (STS) for issuing and transforming claims, enabling federations, and managing user access. Active Directory Federation Services (AD FS) supports the WS-Trust, WS-Federation, and Security Assertion Markup Language (SAML) protocols. Active Directory Federation Services (AD FS) can also issue manage information cards for AD DS users.

For more information about AD FS, see:

- [Active Directory Federation Services Overview](#) (Windows Server 2012)
- Download AD FS 2.0 for Windows Server 2008: [AD FS 2.0 RTW](#)

Internet-facing server best practices

Implement a strong password policy

To reduce the risk of "brute-force attacks" we strongly recommend that you implement a strong password policy for remote users who are accessing the domain where Microsoft Dynamics CRM is installed. For more information about how to implement a strong password policy in Windows Server, see [Creating a Strong Password Policy](#) on Microsoft TechNet and the "Understanding User Accounts" topic in Active Directory Users and Computers Help.

Internet connection firewall

The current Windows Server operating systems provide firewall software to prevent unauthorized connections to the server from remote computers. For more information about how to configure the Internet connection firewall for Internet Information Services (IIS) Manager, see the IIS Help.

For information about how to make a Web site available on the Internet, see the "Domain Name Resolution" topic in the IIS Help.

Advanced network security

If you do not have a secure proxy and firewall solution on your network, we recommend that you use a dedicated remote access, proxy, or firewall server, such as the Windows Server Remote Access Server role or Windows Firewall with Advanced Security. For more information, see Remote Access Overview and Windows Firewall with Advanced Security Overview.

Configure IFD

Use the following steps as configuration guidelines.

Step 1: Configure Microsoft Dynamics CRM Server for Internet access

You can configure Microsoft Dynamics CRM Server for Internet access. To do this, run the Configure Claims-Based Authentication Wizard, and then run the Internet-Facing Deployment Configuration Wizard where the Deployment Administration Server role is installed. For more information, see Configure claims-based authentication and Configure an Internet-facing deployment.

Step 2: Configure Microsoft Dynamics CRM for Outlook to connect to the Microsoft Dynamics CRM Server by using the Internet

For Microsoft Dynamics CRM for Outlook to be able to access the Microsoft Dynamics CRM Server over the Internet, you must specify the external Web address that will be used to access the Internet-facing Microsoft Dynamics CRM Server. To do this, you must install Dynamics CRM for Outlook, and then run the Configuration Wizard. Then, during configuration, type the external Web address in the **External Web** address box. If you install server roles, this Web address must specify where the Discovery Web Service role is installed. For more information about how to configure Dynamics CRM for Outlook, see **Task 2: Configure Microsoft Dynamics CRM for Outlook**.

For detailed steps to configure IFD, see Configure IFD for Microsoft Dynamics CRM.

See Also

Advanced deployment options for Microsoft Dynamics CRM Server

Multi-organization deployment

Multi-organization deployment

Deployment Manager is a Microsoft Management Console (MMC) snap-in that you can use to manage organizations, servers, and licenses for deployments of Microsoft Dynamics CRM. Deployment Manager is installed with the Full Server, Deployment Administration Server, or Deployment Tools server roles.

To use Deployment Manager, you must be a member of the deployment administrators group. This membership can be configured in Deployment Manager. By default, the user who runs Microsoft Dynamics CRM Server Setup is added to the deployment administrators group.

In the **Organizations** area of the Deployment Manager, you import, create, update, enable, disable, or remove organizations. For more information about organization management in CRM, see Use Deployment Manager to manage the deployment.

Alternatively, you can perform Microsoft Dynamics CRM deployment tasks, such as organization management, using Windows PowerShell. More information: Administer the deployment using Windows PowerShell

> ### Important
>
> There are several names that can't be used to name an organization. To view a list of reserved names, open the **ReservedNames** table in the MSCRM_CONFIG database, and review the names in the **ReservedName** column or use the following SQL query.

```
USE MSCRM_CONFIG SELECT ReservedName FROM ReservedNames
```

See Also

Advanced deployment options for Microsoft Dynamics CRM Server

Installing on-premises CRM 2016

Accessibility in Microsoft Dynamics CRM

Administrators and users who have administrative responsibilities typically use the Settings area of the Microsoft Dynamics CRM web application to manage Microsoft Dynamics CRM Online. A mouse and keyboard are the typical devices that administrators use to interact with the application.

Users who don't use a mouse can use a keyboard to navigate the user interface and complete actions. The ability to use the keyboard in this way is a result of support for keyboard interactions that a browser provides.

For more information, see the following Microsoft Dynamics CRM web application accessibility topics:

- Keyboard shortcuts
- Accessibility for people with disabilities

Administrators and other users who have administrative responsibilities for on-premises deployments of Microsoft Dynamics CRM also use Microsoft Dynamics CRM Deployment Manager, a Microsoft Management Console (MMC) application, to manage on-premises deployments of Microsoft Dynamics CRM Server.

For more information, see the following Microsoft Management Console (MMC) accessibility topics:

- Navigation in MMC Using the Keyboard and Mouse
- MMC Keyboard Shortcuts

Accessibility features in browsers

The following table contains links to documentation about web browser accessibility.

Browser	Documentation
Internet Explorer	[Accessibility in Internet Explorer](#)
Mozilla Firefox	[Accessibility features in Firefox](#)
Apple Safari	[Safari](#)
Google Chrome	[Accessibility Technical Documentation](#)

See Also

[Microsoft Accessibility Resource Center](#)

[Manage Your Microsoft Dynamics CRM Online Subscription](#)

[Help and additional resources for Microsoft Dynamics CRM Online](#)

Installing on-premises CRM 2016

IT professionals and CRM administrators can use the resources and topics in this guide to help them install and configure on-premises deployments of Microsoft Dynamics CRM Server.

In This Section

[Install or upgrade Microsoft Dynamics CRM Server](#)

[Install or upgrade Language Packs for Microsoft Dynamics CRM](#)

[Install Microsoft Dynamics CRM Report Authoring Extension](#)

[Uninstall, repair, and change Microsoft Dynamics CRM 2016](#)

[Use the command prompt to install Microsoft Dynamics CRM Server 2016](#)

[Deploy Microsoft Dynamics CRM on Azure FAQ](#)

[Post-installation and configuration guidelines for Microsoft Dynamics CRM](#)

Related Sections

Install CRM for Outlook for Microsoft Dynamics CRM 2015 and Dynamics CRM Online

Microsoft Dynamics CRM E-mail Router Installation Instructions

[Planning on-premises CRM 2016](#)

Administering CRM 2015 for online and on-premises

Install or upgrade Microsoft Dynamics CRM Server

This section explains how to install Microsoft Dynamics CRM Server. In addition, there is installation troubleshooting information and procedures to uninstall Microsoft Dynamics CRM Server.

💠 **Important**

For up-to-date information, see the [Microsoft Dynamics CRM 2016 and Microsoft Dynamics CRM Online Readme](#).

Components installed during Microsoft Dynamics CRM Server Setup

This section describes what is installed during Microsoft Dynamics CRM Server Setup.

Microsoft Dynamics CRM Server installed configuration components

When you install Microsoft Dynamics CRM Server, by default Setup creates a folder structure under *SystemDrive*:\ Program Files\Microsoft Dynamics CRM\. Additional components include the following.

All of the following web components are added during a Full Server role installation. During an individual role installation, fewer or none of these components are installed on the server.

Component	Name	Description
Application Pool	CRMAppPool	Microsoft Dynamics CRM Server Setup creates a separate application pool for the Microsoft Dynamics CRM application.
Application Pool	CRMDeploymentServiceAppPool	Microsoft Dynamics CRM Server Setup creates a separate application pool for the Deployment Web Service.
Site	Microsoft Dynamics CRM	Website for Microsoft Dynamics CRM.
Applications	XRMDeployment	Facilitates the implementation of XRM deployments.
Applications	Help	Services the Microsoft Dynamics CRM Help system for the application.

Microsoft Dynamics CRM Server Setup uses active directory groups to manage permissions as described in the following table.

Group	Description
PrivReportingGroup	Privileged Microsoft Dynamics CRM user group for reporting functions. This group is created during Microsoft Dynamics CRM Server Setup and configured during Microsoft Dynamics CRM Reporting Extensions Setup.
PrivUserGroup	Privileged Microsoft Dynamics CRM user group for special administrative functions, including CRMAppPool identity (domain user or Network Service). The users who configure Microsoft Dynamics CRM Server must be added to this group.
SQLAccessGroup	All server processes/service accounts that require access to SQL Server, including CRMAppPool identity (domain user or Network Service). Members of this group have db_owner permission on the Microsoft Dynamics CRM databases.
ReportingGroup	All Microsoft Dynamics CRM users are included in this group. This group is updated automatically as users are added and removed from Microsoft Dynamics CRM. By default, all Microsoft Dynamics CRM Reporting Services reports grant Browse permission to this group.

All of the following services are added during a Full Server role installation. During an individual role installation, fewer or none of these services are installed on the server.

Service	Description
Microsoft Dynamics CRM Asynchronous Processing Service	Services asynchronous processes such as bulk email and workflow.
Microsoft Dynamics CRM Asynchronous Processing Service (maintenance)	Services asynchronous maintenance such as encryption key generation for authentication and database deletion clean up.
Microsoft Dynamics CRM Unzip Service	Handles the uncompressing of zipped files for data import. This service is installed as part of

Service	Description
	the Web Application Server role.
Microsoft Dynamics CRM Sandbox Processing Service	The Sandbox Processing Service server role enables an isolated environment to allow for the execution of custom code, such as plug-ins.
Microsoft Dynamics CRM Monitoring Service	Monitors all Microsoft Dynamics CRM Server roles that are installed on the local computer. With this release of Microsoft Dynamics CRM, the service is used to detect expired digital certificates that may affect Microsoft Dynamics CRM services that are running in the deployment. The Monitoring Service does not perform any other monitoring tasks and does not transmit information outside the computer where the service is running. The Monitoring Service is installed with the installation of any Microsoft Dynamics CRM Server role and records events under the MSCRMMonitoringServerRole source in the Event log.
Microsoft Dynamics CRM VSS Writer	Provides an interface to back up and restore Microsoft Dynamics CRM data by using the Windows Server Volume Shadow Copy Service (VSS) infrastructure.

The following SQL Server components are added.

Component	Name	Description
Databases	MSCRM_CONFIG OrganizationName_MSCRM	Microsoft SQL Server Setup creates the *SystemDrive:*\Program Files\Microsoft SQL Server\MSSQL<ver>\MSSQL\Data\ folder and Microsoft Dynamics CRM Server Setup installs the Microsoft Dynamics CRM configuration database and organization databases in it.
SQL Server Jobs	MSCRM_CONFIG.SiteWideCleanup	Microsoft Dynamics CRM Server Setup creates one SQL Server job that is used for maintenance.

Component	Name	Description
Logins	PrivReportingGroup ReportingGroup SQLAccessGroup MSCRMSqlLogin	Microsoft Dynamics CRM Server Setup creates SQL Server logins for the PrivReportingGroup, ReportingGroup, and SQLAccessGroup Active Directory groups that are created. MSCRMSqlLogin is used for time zone conversions when you use dashboards and charts, and do queries using Advanced Find. When Microsoft SQL Server is enabled to use common language runtime (CLR), this can significantly improve performance for those features. 📝 **Note** By default, CLR is not enabled in Microsoft SQL Server. For more information about how to enable CLR, see Enabling CLR Integration.

Other software installed during setup

If not already installed, the following software is installed for a Full Server during Microsoft Dynamics CRM Server Setup:

📝 **Note**
The installation of some of these items such as Microsoft .NET Framework and SQL System Clr Types may require you to restart your computer before you can continue to run Microsoft Dynamics CRM Setup.

- Microsoft SQL Reporting Service Report Viewer Control
- Microsoft SQL Server Native Client
- SQL System Clr Types
- SQL Server Management Objects
- Microsoft Application Error Reporting Tool
- Microsoft Visual C++ Runtime Library
- Windows Server Web Server Role
- Windows Search
- Microsoft .NET Framework 4, which includes the following components:

- Microsoft .NET Framework 4.5.2 (required by Microsoft Dynamics CRM Server)
- Windows Workflow Foundation (required by Microsoft Dynamics CRM Server)
- Windows Presentation Foundation
- Windows Communication Foundation (WCF) (required by Microsoft Dynamics CRM Server)

- Microsoft Chart Controls for Microsoft .NET Framework
- Windows PowerShell
- Microsoft URL Rewrite Module for IIS
- File Server Resource Manager

The following topics describe step-by-step procedures to install Microsoft Dynamics CRM Server or upgrade from an earlier version.

In This Section

Microsoft Dynamics CRM Server installation

Upgrade Microsoft Dynamics CRM Server

Configure IFD for Microsoft Dynamics CRM

Troubleshooting installation and upgrade

Set configuration and organization databases for SQL Server 2012 AlwaysOn failover

See Also

Installing on-premises CRM 2016

Install or upgrade Language Packs for Microsoft Dynamics CRM

Microsoft Dynamics CRM Server installation

This section covers procedures to install Microsoft Dynamics CRM Server on a computer that doesn't already have Microsoft Dynamics CRM installed.

▶ **Install Microsoft Dynamics CRM Server**

1. Verify that you have completed the necessary planning and that you have the required hardware and software components installed and running. More information: Planning on-premises CRM 2016

2. Make sure that you have the appropriate permissions to run Microsoft Dynamics CRM Server Setup. More information: Minimum permissions required for Microsoft Dynamics CRM Setup and services

3. Run Microsoft Dynamics CRM Server Setup.

4. On a server that has Microsoft SQL Server Reporting Services, run Microsoft Dynamics CRM Reporting Extensions Setup.

5. If you want to configure Microsoft Dynamics CRM for Internet access, run the Set-CRMSettings ClaimsSettings and Set-CRMSettings IfdSettings Windows PowerShell commands. More information: **CRM 2015 PowerShell Reference**

Alternatively, start Deployment Manager and run the Configure Claims-Based Authentication Wizard and then the Internet-Facing Deployment Configuration Wizard.

6. If one or more Microsoft Dynamics CRM users will need email routing, configure server-side synchronization or, for more complex email routing options, consider installing the Email Router to enable email message tracking. More information: **Integrate your email system with Microsoft Dynamics CRM**

Microsoft Dynamics CRM installation files

The following table lists the Microsoft Dynamics CRM installation files to use and their location.

Setup file	Location
SetupServer.exe for Microsoft Dynamics CRM Server	..\Server\amd64
SetupSrsDataConnector.exe for the Microsoft Dynamics CRM Reporting Extensions	..\Server\amd64\SrsDataConnector
SetupBIDSExtensions.exe for the Microsoft Dynamics CRM Report Authoring Extension. This is an optional feature that can be installed on a computer that has Microsoft Visual Studio for creating and customizing fetch-based reports.	..\BIDSExtensions\i386
Setupclient.exe for Dynamics CRM for Outlook	..\Client\amd64 for 64-bit ..\Client\i386 for 32-bit
SetupEmailRouter.exe for Microsoft Dynamics CRM Email Router	..\EmailRouter\amd64 for 64-bit ..\EmailRouter\i386 for 32-bit

In This Section

Install Microsoft Dynamics CRM Front End Server and Back End Server roles

Install Microsoft Dynamics CRM Full Server role on a server without Microsoft Dynamics CRM installed

Install Microsoft Dynamics CRM Server on multiple computers

Install Microsoft Dynamics CRM Reporting Extensions

Set configuration and organization databases for SQL Server 2012 AlwaysOn failover

See Also

Install CRM for Outlook for Microsoft Dynamics CRM 2015 and Dynamics CRM Online

Install Email Router for Microsoft Dynamics CRM 2015 and CRM Online

[Install or upgrade Microsoft Dynamics CRM Server](#)

[Upgrade Microsoft Dynamics CRM Server](#)

Install Microsoft Dynamics CRM Front End Server and Back End Server roles

The following procedure installs Microsoft Dynamics CRM Front End Server and Back End Server roles on two separate servers that do not already have Microsoft Dynamics CRM Server installed. We recommend this configuration instead of a single Full Server deployment because it helps improve security and performance by isolating specific Microsoft Dynamics CRM Server services on each computer. As part of this procedure, the Microsoft Dynamics CRM Reporting Extensions are installed on the server where the Back End Server roles are installed, and the Deployment Tools are installed on the server where the Front End Server roles are installed. More information: [Microsoft Dynamics CRM server roles](#)

A backend and frontend deployment configuration requires two separate computers running Windows Server. This example uses two computers that are named *CRMbackend* and *CRMfrontend*.

⬥ **Important**

> After Setup is completed, you must either import or create at least one organization to be able to connect a client to the Microsoft Dynamics CRM deployment. You can do this by using Windows PowerShell or Microsoft Dynamics CRM Deployment Manager. More information: [Administer the deployment using Windows PowerShell](#)

In this example, the Back End Server role will be installed before the Front End Server role.

In This Topic

[Install Back End Server role](#)

[Install Front End Server role](#)

[Create the Microsoft Dynamics CRM organization](#)

Install Back End Server role

On the computer named *CRMbackend* complete the following procedure.

▶

1. Meet all requirements specified in [Microsoft Dynamics CRM 2016 system requirements and required technologies](#) in the Planning Guide.
2. Log on to the domain as a user who has administrator-level privileges where Microsoft Dynamics CRM will be installed and who is a member of the Administrators group on the local computer. You cannot install the application as a member from a trusted domain.
3. Locate the Microsoft Dynamics CRM installation files. You can find the Microsoft Dynamics CRM Server [download packages on the Microsoft Download Center](#).
4. In the folder where the Microsoft Dynamics CRM files are located, move to the Server\amd64 folder, and then double-click **SetupServer.exe**.
5. On the **Welcome to Microsoft Dynamics CRM Server Setup** page, we recommend that you click **Get updates for Microsoft Dynamics CRM**, to make sure that Setup has the

most recent installation files. Click **Next**.

6. On the **Product Key Information** page, type your product key in the **Product key** boxes, and then click **Next**.

7. 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**.

8. If Setup detects that components are missing, the **Install Required Components** page appears.

   - If you have already installed the required components, this page will not appear.

   - If you have not installed the required components listed, you can install them now. Click **Install**. When the components are installed, the status column will change from **Not Installed** to **Installed**, and you can click **Next** to continue.

   📝 **Note**

   If you are prompted to restart the computer, do so, and then start Setup again.

9. On the **Select Installation Location** page, accept the default location or enter a different file installation location, and then click **Next**.

10. On the **Specify Server roles** page, select all the Back End Server roles. Leave the rest blank.
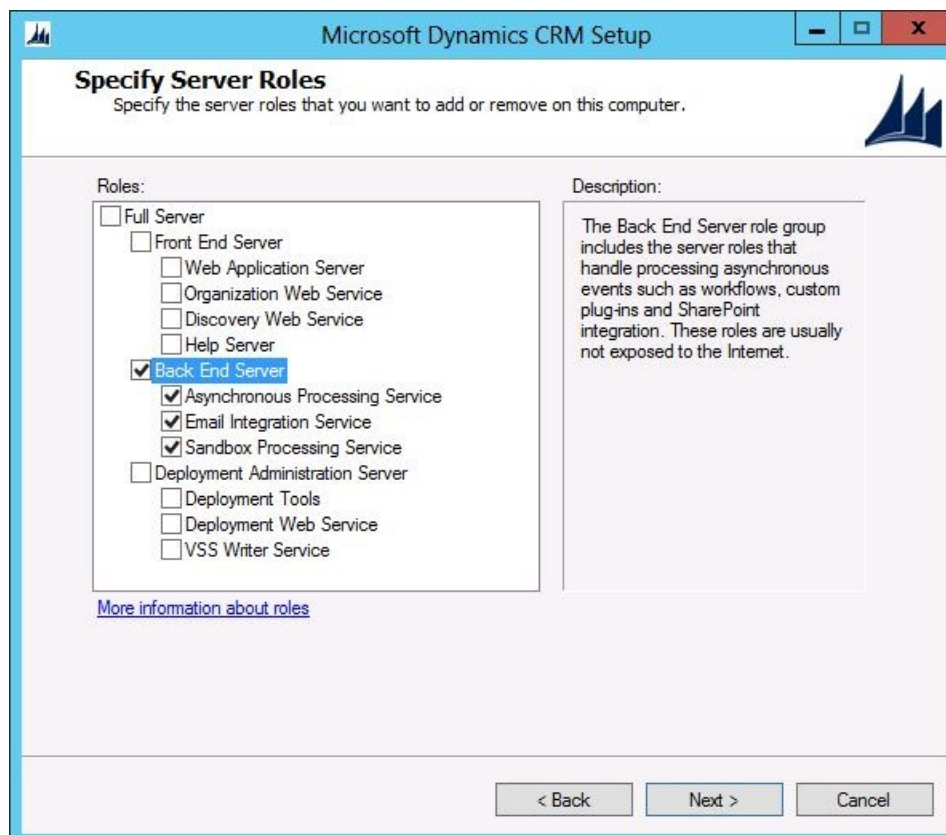
11. On the **Specify Deployment Options** page, in the **Enter or select the name of the computer that is running SQL Server to use with the deployment** box, type or select

the instance of Microsoft SQL Server that will be used to store the Microsoft Dynamics CRM database (MSCRM_CONFIG).

12. On the **Select the Organizational Unit** page, click **Browse** to display your Active Directory structure. Select the organizational unit where you want Microsoft Dynamics CRM to add security groups, click **OK**, and then click **Next**.

13. On the **Specify Service Accounts** page, select the security accounts for the Microsoft Dynamics CRM services, and then click **Next**.

    The services are described below. For more information about the service accounts required to run these services, see Minimum permissions required for Microsoft Dynamics CRM Setup and services.

    - **Sandbox Processing Service**. Enables an isolated environment to allow for the execution of custom code, such as plug-ins. This isolated environment reduces the possibility of custom code affecting the operation of the organizations in the Microsoft Dynamics CRM deployment.

    - **Asynchronous Processing Service.** Processes queued asynchronous events, such as bulk email or data import.

    - **Monitoring Service.** This service will be installed with any Microsoft Dynamics CRM Server role installation to monitor Microsoft Dynamics CRM server roles that are running on the local computer.

        More information: Available individual server roles

    For each service, we recommend that you select a low-privilege domain user account that is dedicated to running these services and is not used for any other purpose. Additionally, the user account that is used to run a Microsoft Dynamics CRM service cannot be a Microsoft Dynamics CRM user. The domain account must be a member of the Domain Users group. Additionally, if the Asynchronous Service and Sandbox Processing Service roles are installed, such as in a Full Server or a Back End Server installation, the domain account must be a member of the Performance Log Users security group.

14. On the **Select Microsoft Update Preference** page, select whether you want to use Microsoft Update for checking for updates for your Microsoft products, and click **Next**. We recommend that you use Microsoft Update to check for updates because this helps keep your computer up-to-date and secure. For more information about the legal terms and privacy with Microsoft Update licensing, see Windows Update FAQ.

15. The **System Checks** page appears. This page is a summary of all requirements and recommendations for a successful installation. Errors must be resolved before installation can continue. If no errors, or only warnings appear, you can continue with the installation. To do this, click **Next**.

16. The **Service Disruption Warning** page appears. This page lists all services that will be stopped or restarted during Setup.

17. Review the **Ready to Install Microsoft Dynamics CRM** page, and then click **Back** to correct any warnings. When you are ready to continue, click **Install**.

18. When the Setup program is finished, click **Finish**.

19. Run Microsoft Dynamics CRM Reporting Extensions Setup. More information: Install

[Microsoft Dynamics CRM Reporting Extensions](#)

💠 **Important**

Microsoft Dynamics CRM Reporting Extensions for SQL Server Reporting Services are required to complete the Front End Server and Back End Server deployment of Microsoft Dynamics CRM Server.

20. When the Microsoft Dynamics CRM Reporting Extensions Setup has finished, complete the next procedure to install the Front End Server role.

Install Front End Server role

On the computer named *CRMfrontend*, follow these steps.

➤

1. Log on to the domain as a user who has administrator-level privileges where Microsoft Dynamics CRM will be installed and who is a member of the Administrators group on the local computer. You cannot install the application as a member from a trusted domain.

2. In the folder where the Microsoft Dynamics CRM files are located, move to the Server\amd64 folder, and then double-click **SetupServer.exe**.

3. On the **Welcome to Microsoft Dynamics CRM Setup** page, we recommend that you click **Get updates for Microsoft Dynamics CRM**, to make sure that Setup has the most recent installation files. Click **Next**.

4. On the **Product Key Information** page, type your product key in the **Product key** boxes, and then click **Next**.

5. 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**.

6. If Setup detects that components are missing, the **Install Required Components** page appears.

   - If you have already installed the required components, this page will not appear.

   - If you have not installed the required components listed, you can install them now. Click **Install**. When the components are installed, the status column will change from **Not Installed** to **Installed**, and you can click **Next** to continue.

   📝 **Note**

   If you are prompted to restart the computer, do so, and then start Setup again.

7. On the **Select Installation Location** page, accept the default location or enter a different file installation location, and then click **Next**.

8. On the **Specify Server roles** page, select all the Front End Server and Deployment Administration Server roles. Leave the rest blank.
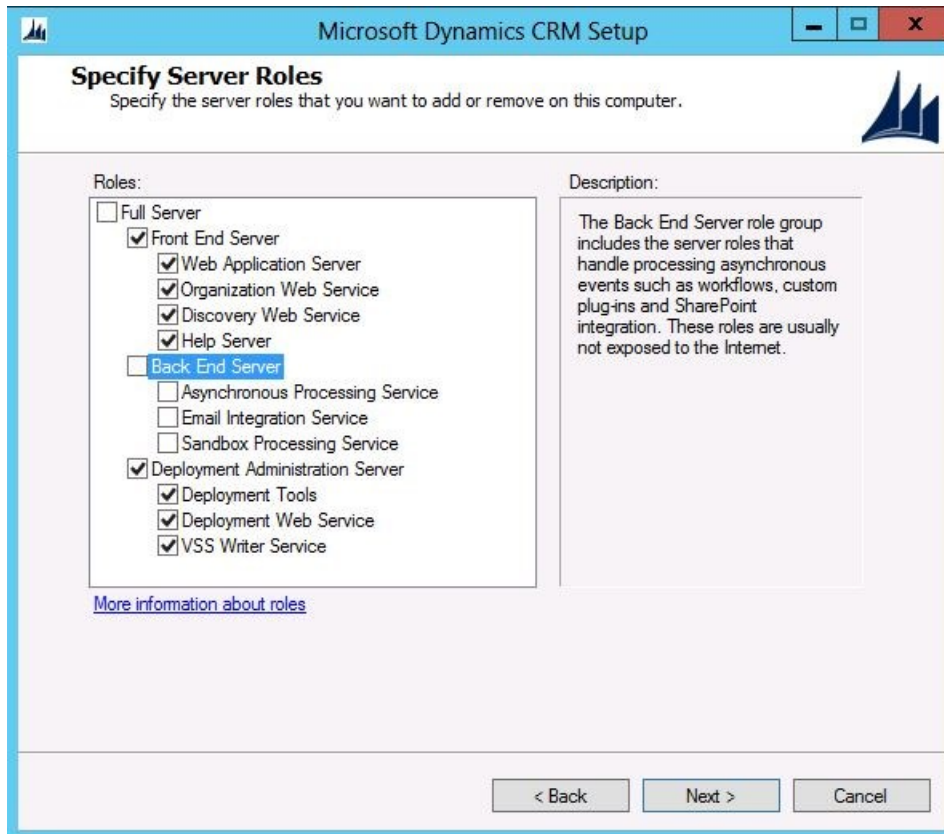
9. On the **Specify Deployment Options** page, click **Connect to, and if necessary, upgrade an existing deployment**, and then in the **Enter or select the name of the computer that is running SQL Server to use with the deployment** box, type or select the instance of SQL Server that you entered previously, and then click **Next**.

10. On the **Select the Organizational Unit** page, click **Browse** to display your Active Directory structure. Select the location where you want the Microsoft Dynamics CRM organizational unit to be installed, click **OK**, and then click **Next**. We recommend that you select the same organization unit that you selected in the previous step.

11. On the **Specify Service Accounts** page, select the security accounts for the Microsoft Dynamics CRM services, and then click **Next**.

    The services are described below. For more information see Minimum permissions required for Microsoft Dynamics CRM Setup and services.

    - **Application Service.** This service runs the Microsoft Dynamics CRM web application that is used to connect users to CRM data.

    - **Deployment Web Service.** Publishes the web service that provides the deployment interface described in the MSDN: Microsoft Dynamics CRM SDK, such as those used to create an organization or manage the list of Deployment Administrators for the Microsoft Dynamics CRM deployment.

      💠 **Important**
      For each service, we recommend that you select a low-privilege domain user

account that is dedicated to running these services and is not used for any other purpose. Additionally, the user account that is used to run a Microsoft Dynamics CRM service cannot be a Microsoft Dynamics CRM user. This domain account must be a member of the Domain Users group.

If you select to run the ASP.NET service under a domain user account that is not a domain administrator or a local administrator, you must set a local security policy after you install Microsoft Dynamics CRM Server for the ASP.NET service to work correctly. Also, depending on the password policies that you have implemented for your organization, the password for the user may expire. More information: How to use the ASP.NET utility to encrypt credentials and session state connection strings.

- **VSS Writer Service.** The Microsoft Dynamics CRM VSS Writer service provides an interface to backup and restore Microsoft Dynamics CRM data by using the Windows Server Volume Shadow Copy Service (VSS) infrastructure.
- **Monitoring Service.** This service will be installed with any Microsoft Dynamics CRM Server role installation to assist in event monitoring.

12. On the **Select a Web Site** page, click **Create a new Web site** or click **Select a Web Site** and select a website from the list. By default, Setup will use the default website.

   ⬥ **Important**
   We strongly recommend that you verify the status of the existing website before you specify Setup to use an existing website. We strongly recommend that the website you select is configured for SSL. For more information see the IIS documentation. During the installation, Setup can bind the Microsoft Dynamics CRM application to the HTTPS website. If you select a network port other than a default port, ensure that the firewall does not block the port.

   When you select the **Create a new Web site** option, Setup creates a new website for Microsoft Dynamics CRM. You can specify the following option:

   - **Port Number**. Type the TCP port number that Microsoft Dynamics CRM clients will use to connect to the Microsoft Dynamics CRM Server. The default port number is 5555.

13. Click **Next**.

14. On the **Specify E-mail Router Settings** page, in the **E-mail Router server name** box, type the name of the computer where the Email Router will be installed. This computer will route Microsoft Dynamics CRM email messages. If you are not going to install the Email Router you can leave this box blank. However, if you install the Email Router later you must add the computer where the Email Router service is running when you use Local System, or if you use a domain user account, the account, to the PrivUserGroup security group. Click **Next**.

15. On the **Select Microsoft Update Preference** page, select whether you want to use Microsoft Update for checking for updates for your Microsoft products, and click **Next**. We recommend that you use Microsoft Update to check for updates because this helps keep your computer up-to-date and secure. For more information about the legal terms and

privacy with Microsoft Update licensing, see [Windows Update FAQ](#).

16. The **System Checks** page appears. This page is a summary of all requirements and recommendations for a successful installation. Errors must be resolved before installation can continue. If no errors, or only warnings appear, you can continue with the installation. To do this, click **Next**.

17. The **Service Disruption Warning** page appears. This page lists all services that will be stopped or restarted during Setup.

18. Review the **Ready to Install Microsoft Dynamics CRM** page, and then click **Back** to make changes. When you are ready to continue, click **Install**.

19. When the Setup program is finished, click **Finish**.

Create the Microsoft Dynamics CRM organization

After Microsoft Dynamics CRM Server Setup program is finished installing the Back End Server, Front End Server, Deployment Administration Server roles, and Microsoft Dynamics CRM Reporting Extensions, you must create at least one organization to make the deployment available for users.

To create an organization, on the computer named *CRMfrontend* where the Deployment Administration Server role is installed, run the New-CrmOrganization Windows PowerShell command. More information: [Administer the deployment using Windows PowerShell](#) Alternatively, you can use Microsoft Dynamics CRM Deployment Manager.

If you have a Microsoft Dynamics CRM 2015 deployment, you can import the organization databases into the new deployment. Imported databases will be upgraded during the operation. To import an organization, on the computer named *CRMfrontend* where the Deployment Administration Server role is installed, run the Import-CrmOrganization Windows PowerShell command. Alternatively, you can use Microsoft Dynamics CRM Deployment Manager.

See Also

[Microsoft Dynamics CRM Server installation](#)

[Install Microsoft Dynamics CRM Full Server role on a server without Microsoft Dynamics CRM installed](#)

Install Microsoft Dynamics CRM Full Server role on a server without Microsoft Dynamics CRM installed

Install the Microsoft Dynamics CRM Server software

▶

1. Meet all requirements specified in [Microsoft Dynamics CRM 2016 system requirements and required technologies](#).

2. Log on to the domain as a user who has administrator-level privileges where Microsoft Dynamics CRM Server will be installed and who is a member of the Administrators group on the local computer. You cannot install the application as a member from a trusted domain.

3. See the [Microsoft Dynamics CRM and Microsoft Dynamics CRM Online Readme](#) file to

determine the location of the Microsoft Dynamics CRM installation files.

4. In the folder where the Microsoft Dynamics CRM files are located, move to the Server\amd64 folder, and then double-click **SetupServer.exe**.

5. On the **Welcome to Microsoft Dynamics CRM Server Setup** page, we recommend that you click **Get updates for Microsoft Dynamics CRM**, to make sure that Setup has the most recent installation files. Click **Next**.

6. On the **Product Key Information** page, type your product key in the **Product key** boxes, and then click **Next**.

7. 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**.

8. If Setup detects that components are missing, the **Install Required Components** page appears.

   - If you have already installed the required components, this page will not appear.

   - If you have not installed the required components listed, you can install them now. Click **Install**. When the components are installed, the status column will change from **Not Installed** to **Installed**, and you can click **Next** to continue.

   📝 **Note**

   If you are prompted to restart the computer, do so, and then start Setup again.

9. On the **Select Installation Location** page, accept the default location or enter a different file installation location, and then click **Next**.

10. If you are installing a version of Microsoft Dynamics CRM Server that supports server roles, the **Specify Server Roles** page appears. By default, Full Server is selected and will install all server roles on the computer. Alternatively, you can select a predefined group of server roles or one or more individual server roles. Notice that all server roles must be deployed on the network in the same Active Directory domain for Microsoft Dynamics CRM to operate correctly. For more information, see [Planning your deployment of Microsoft Dynamics CRM 2016](). Click **Next**.

    💠 **Important**

    When you select a server role other than Full Server, Microsoft Dynamics CRM Server Setup does not create an organization database during the installation. If the deployment does not have an organization database, you must use the Windows PowerShell cmdlet or Deployment Manager to create a new organization. For information about how to create a new organization using Windows PowerShell, see the New-CrmOrganization command in the **CRM 2016 PowerShell Reference**.

11. On the **Specify Deployment Options** page, if Setup detects an existing deployment, you can select whether you want to create a new deployment or connect to an existing deployment. In the **Enter or select the name of the computer that is running SQL Server to use with the deployment** box, type or select the instance of SQL Server that will be used to store the Microsoft Dynamics CRM configuration database (MSCRM_CONFIG).

> ⧫ **Important**
>
> When you select **Create a new deployment**, Setup creates a new organization database using the name that you specified and a configuration database by using the name MSCRM_CONFIG. An error message will appear if an MSCRM_CONFIG database already exists. You must delete this database to create a new MSCRM_CONFIG database. Only one deployment is supported for each instance of SQL Server.
>
> Currently, you can't specify a Microsoft SQL Server 2012 Availability Group listener during Microsoft Dynamics CRM Server Setup. To use SQL Server 2012 Availability Groups for high availability, complete the Microsoft Dynamics CRM Server installation by selecting the SQL Server 2012 primary replica. After Setup is complete, follow the procedure in the Set configuration and organization databases for SQL Server 2012 AlwaysOn failover topic.
>
> When you select **Connect to, and if necessary, upgrade an existing deployment**, Setup requires that a configuration database (MSCRM_CONFIG) already exist on the computer that is running SQL Server. An error message will appear if an MSCRM_CONFIG database does not already exist.

12. On the **Select the Organizational Unit** page, click **Browse** to display your Active Directory structure. Select the organizational unit where you want Microsoft Dynamics CRM to add security groups, click **OK**, and then click **Next**.

13. On the **Specify Service Accounts** page, select the security accounts for the Microsoft Dynamics CRM services, and then click **Next**.

The services are described below. For more information about the service accounts required to run these services, see Minimum permissions required for Microsoft Dynamics CRM Setup, services, and components.

- **Application Service.** This service runs the Microsoft Dynamics CRM web application that is used to connect users to CRM data.

- **Deployment Web Service.** Publishes the web service that provides the deployment interface described in the Microsoft Dynamics CRM SDK, such as create an organization or manage the list of Deployment Administrators for the Microsoft Dynamics CRM deployment.

- **Sandbox Processing Service.** Enables an isolated environment to allow for the execution of custom code, such as plug-ins. This isolated environment reduces the possibility of custom code affecting the operation of the organizations in the Microsoft Dynamics CRM deployment.

- **VSS Writer Service.** The Microsoft Dynamics CRM VSS Writer service provides an interface to backup and restore Microsoft Dynamics CRM data by using the Windows Server Volume Shadow Copy Service (VSS) infrastructure.

- **Asynchronous Processing Service**. Processes queued asynchronous events, such as bulk e-mail or data import.

  > ⧫ **Important**

We strongly recommend that you select a low-privilege domain account that is dedicated to running these services and is not used for any other purpose. Additionally, the user account that is used to run a Microsoft Dynamics CRM service cannot be a Microsoft Dynamics CRM user. This domain account must be a member of the Domain Users group. Additionally, if the Asynchronous Service and Sandbox Processing Service roles are installed, such as in a Full Server or a Back End Server installation, the domain account must a member of the Performance Log Users security group.

If you select to run the ASP.NET service under a domain user account that is not a domain administrator or a local administrator, you must set a local security policy after you install Microsoft Dynamics CRM Server for the ASP.NET service to work correctly. Also, depending on the password policies that you have implemented for your organization, the password for the user may expire. For more information, see the Microsoft Knowledge Base (KB) article 329290, How to use the ASP.NET utility to encrypt credentials and session state connection strings.

- **Monitoring Service.** This service will be installed with any Microsoft Dynamics CRM Server role installation to provide event monitoring on Microsoft Dynamics CRM server roles that are running on the local computer.

14. On the **Select a Web Site** page, click **Create a new Web site** or click **Select a Web Site** and select a website from the list. By default, Setup will use the default website.

   ⧫ **Important**

   We strongly recommend that you verify the status of the existing website before you specify Setup to use an existing website.

   We strongly recommend that the website you select is configured for SSL. For more information, see the IIS documentation. During the installation, Setup will bind the Microsoft Dynamics CRM application to the HTTPS website. If you select a network port other than a default port ensure that your firewall does not block the port.

   When you select the **Create a new Web site** option, Setup creates a new website for Microsoft Dynamics CRM Server. You can specify the following option:

   - **Port Number**. Type the TCP port number that Microsoft Dynamics CRM clients will use to connect to the Microsoft Dynamics CRM Server. The default port number is 5555.

15. Click **Next**.

16. On the **Specify Email Router Settings** page, in the **Email Router server name** box, type the name of the computer where the Email Router will be installed. This computer will route Microsoft Dynamics CRM email messages. If you will not install the Email Router you can leave this box blank. However, if you install the Email Router later you must add the computer where the Email Router service is running when you use Local System, or if you use a domain user account, the account, to the PrivUserGroupP security group. Click **Next**.

17. On the **Specify the Organization Name** page, specify the following information.

 a. In the **Display Name** box, type the name of your organization.

 b. In the **Name** box, you can keep the name that is automatically generated or you can type a unique name that must be limited to 30 characters. Spaces and extended characters are not allowed.

 c. Under **ISO currency code**, click **Browse**, select the ISO currency code that you will use as the base currency for the organization in the list, and then click **OK**.

  You can change the currency's symbol, name, or precision.

 d. In the **Base Language** list, select the base language for the organization.

  With Microsoft Dynamics CRM Server, only the base language of the first organization is tied to the language of the server installation. All other organizations can have different base languages, but you must first install Language Packs for the additional languages. For instructions about how to install Language Packs, see Install or upgrade Language Packs for Microsoft Dynamics CRM.

 e. In the **SQL collation** list, keep the default selection or select a different database collation that the organization database will use to sort and compare data characters.

  The default SQL collation changes based on the base language selection.

  For more information, see Collation and Unicode support.

 f. Click **Next**.

  Important

  After Setup is complete, you cannot change the database collation, base ISO currency code, or the organization unique name. However, you can change the base currency name and base currency symbol.

18. On the **Specify Reporting Services Server** page, type the Report Server URL. Make sure that you use the Report Server URL, not the Report Manager URL. To verify that you are using the correct URL, in a browser, type the Report Server URL as the address. You should see a page titled **<server>/ReportServer - /:** with text that displays the version number: **Microsoft SQL Server Reporting Services Version <version number>**. Click **Next**.

19. On the **Help Us Improve the Customer Experience** page, select whether you want to participate in the Customer Experience Improvement Program, and then click **Next**.

  Note

  For more information, see Microsoft Customer Experience Improvement Program.

20. On the **Select Microsoft Update Preference** page, select whether you want to use Microsoft Update for checking for updates for your Microsoft products, and click **Next**. We recommend that you use Microsoft Update to check for updates because this helps keep your computer up-to-date and secure. For more information about the legal terms and privacy with Microsoft Update licensing see Windows Update FAQ.

21. The **System Checks** page appears. This page is a summary of all requirements and recommendations for a successful installation. Errors must be resolved before installation

can continue. If no errors, or only warnings appear, you can continue with the installation. To do this, click **Next**.

22. The **Service Disruption Warning** page appears. Verify the suitability of the services that will be stopped or restarted, and then click **Next**.

23. Review the **Ready to Install Microsoft Dynamics CRM** page, and then click **Back** to correct any warnings. When you are ready to continue, click **Install**.

    When Setup completes successfully, the **Microsoft Dynamics CRM Server setup completed** page appears. If the Reporting Server instance that you specified during this Setup points to the local computer where Microsoft Dynamics CRM is installed, Setup provides an option to invoke Microsoft Dynamics CRM Reporting Extensions Setup.

24. To install Microsoft Dynamics CRM Reporting Extensions on the computer now, select the **Launch Microsoft Dynamics CRM Reporting Extensions Setup** check box. Click **Finish**.

    ⬥ **Important**
    - After you install Microsoft Dynamics CRM Server, you must install the Microsoft Dynamics CRM Reporting Extensions to create, run, and schedule reports in Microsoft Dynamics CRM. For instructions, see Install Microsoft Dynamics CRM Reporting Extensions.
    - By default, Setup turns on HTTP compression on the server that is running IIS where the Microsoft Dynamics CRM web application is installed. If you use another method to compress HTTP communications, you may want to turn this feature off. To do this, start Internet Information Services (IIS) Manager, click the website, double-click **Compression**, and then clear the compression check boxes.
    - For an IFD deployment, after Microsoft Dynamics CRM Server Setup completes, you must configure claims-based authentication and the relying parties on the STS server. Then, run the Internet-Facing Deployment Configuration Wizard to complete the configuration. For more information about this configuration see Configure IFD for Microsoft Dynamics CRM.

See Also

Microsoft Dynamics CRM Server installation

Install Microsoft Dynamics CRM Reporting Extensions

Install Microsoft Dynamics CRM Server on multiple computers

You can install Microsoft Dynamics CRM Server on multiple computers to balance the processing load across several servers. Deploying Microsoft Dynamics CRM Server in this manner can increase performance and availability.

⬥ **Important**
Installing the Microsoft Dynamics CRM Workgroup Server 2016 edition on multiple servers isn't supported and is a violation of the license agreement.

In This Topic

Multiple-server configuration overview

Multiple-server configuration overview

The base configuration typically uses separate computers that run the components of a Microsoft Dynamics CRM deployment that includes Microsoft SQL Server and an instance of Windows Server functioning as an Active Directory domain controller. A multiple-server configuration of Microsoft Dynamics CRM has multiple computers that are running Microsoft Dynamics CRM Server that access a single server that is running SQL Server.

This topic describes the steps to install Microsoft Dynamics CRM in a two-node failover clustering configuration where all Microsoft Dynamics CRM Server roles are installed on a single computer, using the failover clustering feature in Windows Server. This kind of deployment is called a *Full Server installation*. You can use similar steps to install a particular server group role, such as the Front End Server role, or one or more individual server roles. When you install Microsoft Dynamics CRM, you have the following choices for load balancing the CRM web application, where both servers in the failover cluster must have the following server-group roles or individual server roles installed.

1. Full Server install.
2. Front End Server install.
3. Server role install (by using Microsoft Dynamics CRM Server Setup Wizard or command-line install with an XML configuration file). You'll have to install at least the following two roles on the load-balanced servers in the cluster.

   - Web Application Server role. This Microsoft Dynamics CRM Server role is used to run the web application components that connect users to Microsoft Dynamics CRM data.

   - Organization Web Service role. This Microsoft Dynamics CRM Server role is used to run applications that use the methods described in the Microsoft Dynamics CRM SDK.

   > **Important**
   >
   > If you decide to install only the Front End Server role, you must install the Back End Server group role on another server in the Active Directory domain. Similarly, if you want to install only the required Web Application Server and Organization Web Service roles, you must install the remaining server roles on other servers in the Active Directory domain.

Before getting started with failover clustering, an understanding of Microsoft Dynamics CRM Server multiple-server deployment options are needed. More information: [Microsoft Dynamics CRM multiple-server deployment](#)

This topic assumes the hardware and failover cluster are already established and functioning. For information about procedures for setting up and administering failover clustering on Windows Server, see the Failover Cluster Manager Help on the Windows Server computer. For information

about failover clustering requirements and how to configure failover clustering in Windows Server, see Failover Clustering.

In this example, a two-node cluster will be set up by using two computers that are running Windows Server. The server names are *CRM01* and *CRM02*.

Step 1: Enable network load balancing

Verify that failover clustering is configured correctly and functioning on the network for the servers *CRM01* and *CRM02*. The following port-rule settings are required when you enable the failover cluster.

- **Port range**. Leave the default range, which is from 0 to 65535.
- **Protocols**. Both
- **Affinity**. Single

Step 2: Configure Active Directory

Configure Active Directory by creating an account to run the **CRMAppPool** service and use a service principal name (SPN). This is required when you run IIS in a clustered or a network load-balanced environment. The SPN uniquely identifies an instance of a running service. Active Directory uses the SPN for mutual authentication of a service instance, which enables the service instance to correctly authenticate when a user attempts to access resources that are located on other domain-member computers. For more information, see the MSDN article MSDN: Service Principal Names.

To create SPNs, you use ADSI Edit that is included with Windows Server. You can use this Microsoft Management Console (MMC) snap-in tool to enter SPN values for a specific computer or user account.

▶ **Configure the SPN**

1. If a user account isn't already specified for the CRMAppPool identity, create a user account that will be used to run the CRMAppPool application pool in IIS. To do this, open Active Directory Users and Computers and create a new user account. When you create the user account, we recommend that you use a name that describes what the account will be used for, such as *CRMAppPoolService*.

   ◆ **Important**

   This user account must be member of the Domain Users group. For specific permissions that are required, see Minimum permissions required for Microsoft Dynamics CRM Setup and services.

   Instead of using ADSI Edit to configure the SPN as described here, you can use the setspn command line tool with the –s parameter to verify whether the SPN is already in use, and if not, set it. In this example *CRMAppPoolService* is the name of the account that is used as the identity of the CRMAppPool IIS application pool. `setspn -s http/CRMNLBName.FQDN CRMAppPoolService` More information:Setspn

2. Start **ADSI edit**.

3. Expand the domain, expand the node that begins with **DC=**, and then expand the organizational unit (OU) where the user account is located, such as **CN=Users**.

4. Right-click the user account that you created in the previous step, such as *CRMAppPoolService*, and then click **Properties**.

5. In the **Attribute** list, scroll down, select **servicePrincipalName**, and then click **Edit**.

6. In the **Value to add** box, type HTTP/*CRMNLBName.FQDN* and then click **Add**. (*CRMNLBName*, is the failover cluster name and *FQDN* is the fully qualified domain name.) For example, the CRMNLBName.FQDN name might be *CRMNLBCluster.contoso.com*.

   ⬥ **Important**

   Note this failover cluster name. You must use this name in the following step when you create the failover cluster and when you update the configuration database.

7. In the **Value to add** box, type HTTP/CRMNLBName and then click **Add**.

8. Click **OK** two times.

9. Close ADSI Edit.

Step 3: Install Microsoft Dynamics CRM servers

Each instance of Microsoft Dynamics CRM Server in a multi-server deployment must be installed one at a time. The following steps assume that an instance of a Full Server installation of CRM will be deployed on a computer named *CRM01*, and a second instance will be installed on a computer named *CRM02*.

▶**Install the first instance of Microsoft Dynamics CRM Server on CRM01**

1. Run Microsoft Dynamics CRM Server Setup on server *CRM01*. For step-by-step guidance, see Install Microsoft Dynamics CRM Full Server role on a server without Microsoft Dynamics CRM installed.

2. On the **Specify Deployment Options** page, select the instance of SQL Server that will be used for the Microsoft Dynamics CRM databases. Then, select the **Create a new deployment** option. Click **Next** and continue Setup.

3. On the **Specify Security Account** page, select the domain user account (for example, *CRMAppPoolService*) created previously.

4. Continue to run Setup until the installation is completed.

▶**Install the second instance of Microsoft Dynamics CRM Server on CRM02**

1. Run Microsoft Dynamics CRM Server Setup on server *CRM02*.

2. On the **Specify Deployment Options** page, enter or select the name of the computer that is running SQL Server where the Microsoft Dynamics CRM databases are stored (from the installation of *CRM01*), and then click **Connect to, and if necessary, upgrade an existing deployment**. Click **Next**.

3. On the **Specify Security Account** page, select the domain user account (for example,

CRMAppPoolService) created previously.

4. Continue to run Setup until the installation is completed.

Step 4: Configure failover clustering for the Microsoft Dynamics CRM deployment

After the Microsoft Dynamics CRM Server installations are complete, run the Set-CrmSettings WebAddressSettings Windows PowerShell command to configure failover clustering for the deployment. More information: **CRM PowerShell Reference**

Alternatively, you can use Deployment Manager as described here.

▶**Verify or change the web addresses using Deployment Manager**

1. On the Microsoft Dynamics CRM server, start Deployment Manager.
2. In the console tree, right-click **Microsoft Dynamics CRM**, and then click **Properties**.
3. Click the **Web Address** tab and make sure that the virtual cluster name, such as *crmcluster:5555* appears.

◆ **Important**

Depending on how you deployed the Microsoft Dynamics CRM Server role group (Full or Front End) or individual server role installation, and the configuration of each server in the failover cluster, the Web Application Server, Organization Web Service, Discovery Web Service, or Deployment Web Service web addresses may be different. For example, if you installed the Front End Server role group on a server in an failover cluster that is named *crmcluster1* in the *contoso* domain but installed the Back End Server role group on a different server in a different failover cluster such as *crmcluster2* in the same domain, the name of the Web Application Server, Organization Web Service, Discovery Web Service web addresses will be different from the Deployment Web Service web address.

For a Full Server role deployment, all web addresses will use the same computer name or FQDN of the cluster. If you're using a TCP port other then 80 (non-secure HTTP) or 443 (secure HTTP or SSL), you must specify the port number by appending the FQDN name with :5555, where 5555 is the port number, such as *crmcluster:5555*.

▶**Set failover clustering for the deployment**

1. On the Microsoft Dynamics CRM Server, start Deployment Manager.
2. In the console tree, right-click **Microsoft Dynamics CRM**, and then click **Properties**.
3. Click the **Web Address** tab and then click **Advanced**.
4. To make Microsoft Dynamics CRM aware of the failover cluster, you must select **The deployment uses an NLB** option. Selecting **The deployment uses an NLB** sets Microsoft Dynamics CRM to configure Windows Identity Framework (WIF) to use the encryption certificate to encrypt, decrypt, and sign the Microsoft Dynamics CRM session authentication cookies. The encrypted cookies can then be processed by any server in the failover cluster.

   For information about procedures for loading and administering failover clustering on

Windows Server, see the Failover Cluster Manager Help on the Windows Server computer. For information about how to configure failover clustering in Windows Server, see Create a Failover Cluster.

Note

If you are using a cluster solution that uses Secure Sockets Layer (SSL) offloading hardware, you must specify the SSL header in the **SSL Header** box. Notice that the SSL header is not a URL or domain. It is an agreed upon header value for the HTTP request that is configured on the device that is handling the SSL offloading. Review the SSL offloading device documentation for the header value.

5. Click **OK** and then close Deployment Manager.

Configure domain names for IFD

To configure Microsoft Dynamics CRM for IFD, you must either run the Set-Crmsetting ifdSettings Windows PowerShell command or start Deployment Manager and run the Internet-Facing Deployment Configuration Wizard to add or revise the domain values. Depending on how you deployed the Microsoft Dynamics CRM Server role group or individual server role installation, and the configuration of each server in the failover cluster, the **Web Application Server Domain**, **Organization Web Service Domain**, and **Discovery Web Service Domain** values use the failover virtual cluster domain name. For example, if the Web Application Server is installed on an Internet-facing failover cluster that has the FQDN virtual name *crmcluster.contoso.com*, enter **contoso.com** as the **Web Application Server Domain** value. More information: Configure the Microsoft Dynamics CRM server for IFD

For more information about how to configure internal web address and external domain values using Deployment Manager, see the Deployment Manager Help.

Step 5: Verify and monitor the cluster installation

Verify that Microsoft Dynamics CRM client applications can connect to CRM by using the cluster name, such as *CRMNLBCluster*.

To monitor the cluster, you have the following options.

- **Failover Cluster Manager**. Log entries are displayed in the bottom of Failover Cluster Manager.

- **Event Viewer**. Entries are recorded in the System logs by using the **FailoverClustering** source.

- Run the Failover Clustering Windows PowerShell commands   to view information about the state of the cluster. More information: Failover Clusters Cmdlets in Windows PowerShell

See Also

Microsoft Dynamics CRM Server installation

Install Microsoft Dynamics CRM Reporting Extensions

Install Microsoft Dynamics CRM Reporting Extensions

Microsoft Dynamics CRM Reporting Extensions has the following requirements:

- You must complete Microsoft Dynamics CRM Server Setup before you run CRM Reporting Extensions Setup.
- You must run Microsoft Dynamics CRM Reporting Extensions Setup on a computer that has a supported version of Microsoft SQL Server Reporting Services installed. More information: Microsoft Dynamics CRM reporting requirements.

⚠ **Warning**

Microsoft Dynamics CRM users who use the Report Viewer control included with Microsoft Visual Studio 2008 can view information from the reports that they have access to. By using this control, the user can view additional report and session data that is not displayed when running the report in Microsoft Dynamics CRM. To reduce the risk of exposing confidential data, we recommend that you configure the Microsoft SQL Server Reporting Services website where the Microsoft Dynamics CRM Reporting Extensions is installed to allow only Secure Sockets Layer (SSL), also known as Secure HTTP, connections. More information: Configure SSL Connections on a Native Mode Report Server.

To reduce the risk of certain security vulnerabilities, we strongly recommend that you use different Active Directory accounts for the application pools used to run the Microsoft Dynamics CRM and Microsoft SQL Server Reporting Services websites.

Install the Microsoft Dynamics CRM Reporting Extensions

To install the Microsoft Dynamics CRM Reporting Extensions, locate the Microsoft Dynamics CRM installation files, and follow these steps:

▶

1. In the ..\Server\amd64\SrsDataConnector folder, double-click **SetupSrsDataConnector.exe**.
2. On the **Welcome to Microsoft Dynamics CRM Reporting Extensions Setup** page, select whether you want to update Microsoft Dynamics CRM Reporting Extensions Setup. We recommend that, if updates are available, you let Setup download the latest version. To do this, click **Update installation files**, wait until the update process is complete, and then click **Next**.
3. 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**.
4. If Setup detects that components are missing, the **Install Required Components** page appears.
   a. If you have already installed the required components, this page will not appear.
   b. If you have not installed the required components listed, you can install them now. Click **Install**. When the components are installed, the status column will change from **Missing** to **Installed**, and you can click **Next** to continue.
5. On the **Specify Configuration Database Server** page, if you are using the default instance of the SQL Server, enter the name of the computer that is running SQL Server and contains the Microsoft Dynamics CRM configuration database (MSCRM_CONFIG), and then click **Next**.

Note
If you are not using the default SQL Server instance, enter <machine-name>\<instance-name>.

6. On the **Specify SSRS Instance Name** page, select a Microsoft SQL Server Reporting Services instance that will be used for Microsoft Dynamics CRM reporting, and then click **Next**.

7. On the **Select Microsoft Update OptIn** page, select whether you want to use Microsoft Update for checking for updates for your Microsoft products, and click **Next**. We recommend that you use the Microsoft Update to check for updates because this helps keep your computer up-to-date and secure.

8. On the **Select Installation Location** page, accept the default location or enter a different file installation location where you want to install Microsoft Dynamics CRM Reporting Extensions. Click **Next**.

9. The **System Checks** page appears. This page is a summary of the requirements for a successful CRM Reporting Extensions installation. Errors must be corrected before installation can continue. All errors must be resolved. If no errors or only warnings appear, you can continue with the installation. To do this, click **Next**.

10. The **Service Disruption Warning** page appears. Verify the suitability of the services that will be stopped or restarted, and then click **Next**.

11. Review the **Ready to Install Microsoft Dynamics CRM Reporting Extensions** page, and then click **Back** to correct any errors. When you are ready to continue, click **Install**.

12. When Setup completes successfully, the **Microsoft Dynamics CRM Reporting Extensions Setup Completed** page appears. Click **Finish**.

During Setup, reports will be published for the default organization.

Important
The reports will not be published if:

- The user running CRM Reporting Extensions Setup does not have appropriate permissions on the organization database.

- CRM Reporting Extensions are installed for a Microsoft SQL Server Reporting Services instance that is different from the one that is being used by the organization.

- The base language of the organization is different from the language in which CRM Reporting Extensions are being installed.

See Also

Microsoft Dynamics CRM Server installation

Install Microsoft Dynamics CRM Report Authoring Extension

Set configuration and organization databases for SQL Server 2012 AlwaysOn failover

Microsoft SQL Server 2012 AlwaysOn Failover Cluster Instances (FCI) and AlwaysOn Availability Groups provide a comprehensive high availability and disaster recovery solution. This topic describes how to configure an existing on-premises deployment of Microsoft Dynamics CRM

Server so that the configuration and organization databases are part of a two-node SQL Server 2012 AlwaysOn failover cluster instance that uses availability groups.

⬥ **Important**

If you're upgrading Microsoft Dynamics CRM configuration and organization databases that already have Microsoft SQL Server 2012 AlwaysOn FCI configured, you don't have to perform this procedure again.

For more information about these SQL Server 2012 high availability solutions, see AlwaysOn Failover Cluster Instances and AlwaysOn Availability Groups.

In this Topic

Prerequisites

Enable SQL Server 2012 AlwaysOn

Create the availability group

Create the SQL logins for the Microsoft Dynamics CRM security groups on all secondary replicas

Update the configuration database connection strings in the Windows registry

Update the connection string in the configuration database

Restart IIS and Microsoft Dynamics CRM services

Monitor the availabity group and test for failover

Prerequisites

In this topic, a simple two-server instance failover cluster will be configured that requires the following:

- Two Windows Server 2012 servers running in a two-node failover cluster configuration with shared storage, such as a SAN, NAS, or Windows Storage Server.

- Two servers running SQL Server 2012 on Windows Server 2012 that will be replicas in the SQL Server 2012 AlwaysOn instance failover cluster. The SQL Server primary replica instance has both the configuration (MSCRM_CONFIG) and organization (OrganizationName_MSCRM) databases.

  For more information about what versions of SQL Server 2012 support AlwaysOn, see High Availability (AlwaysOn). For more information about how to create a SQL Server 2012 failover cluster, see, Create a New SQL Server Failover Cluster (Setup).
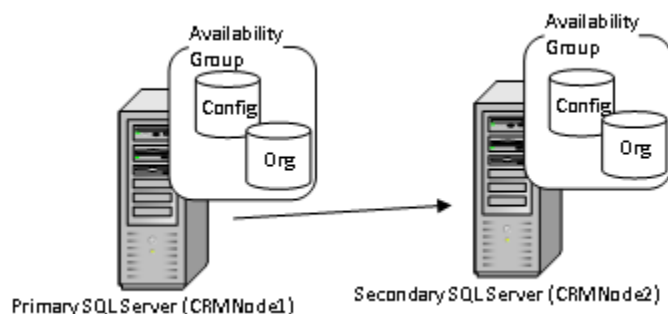
Enable SQL Server 2012 AlwaysOn

The following steps for establishing the AlwaysOn features use Microsoft SQL Server 2012 Management Studio. Alternatively, you can use Transact-SQL or SQL Server PowerShell. More information: Getting Started with AlwaysOn Availability Groups (SQL Server)

1. In SQL Server Configuration Manager, enable AlwaysOn Availability Groups on the primary and secondary replica. For detailed steps, see Enable AlwaysOn Availability Groups.

2. In SQL Server Management Studio, create an availability group; specify the configuration and organization databases, and primary and secondary replica. More information: Creation and Configuration of Availability Groups (SQL Server)

Create the availability group

The following steps create a single SQL Server 2012 availability group that includes a Microsoft Dynamics CRM configuration database and a single organization database. Additionally, a listener will be added to the availability group.

▶**Create the availability group for the configuration and organization databases**

1. On the SQL Server that will be the primary replica, start SQL Server Management Studio.

2. In Object Explorer, right-click **AlwaysOn High Availablility**, and then click **New Availability Group Wizard**.

3. When the wizard appears, click **Next**.

4. On the **Specify Name** page, type a name for the availability group, such as *Dynamics CRM*, and then click **Next**.

5. On the **Select Databases** page, select the MSCRM_CONFIG and *OrganizationName*_MSCRM databases, and then click **Next**.

   💠 **Important**

   Notice the following requirements for adding a database to an availability group:

   - The recovery model must be set to Full. By default, organization databases (OrganizationName_MSCRM), are set to Simple.
   - A full back up of the database is required.

6. On the **Specify Replicas** page, click **Add Replica**, type the name of your replica SQL Server in the **Server name** box (such as *CRMNode2* in this example), and then click **Connect**. The replica server instance appears in the **Server Instance** list.

7. Click the **Endpoints** tab and verify the both replicas are in the list. Scroll right to the **SQL Server Service Account** and make sure a domain user account is specified. A domain user account for the SQL Server service is required for SQL Server failover clustering.

8. Click the **Listener** tab. An availability group listener enables faster client connection failover in multi-subnet scenarios. Enter the following information.

   - **Listener DNS name**: Type a name for the listener.
   - To complete the listener creation, specify a TCP port, and set the **Network Mode** to **Static IP**. Click **Add** to enter the IP address, and click **OK**. For more information about these properties, click Help in the New Availability Group wizard.

     Click **Next**.

9. Determine what, if any, additional changes to make to the replicas, and then click **Next**. For more information, click Help in the New Availability Group wizard.

   a. On the **Select Data Synchronization** page, select the data synchronization method. If you select **Full**, you must add a network share that can be accessed by all replicas. Notice that the SQL Server service account requires read\write permissions to the share. For more information, click Help in the New Availability Group wizard.

      Click **Next**.

10. The **Validation** page appears that runs the validation checks for the new availability group. Errors must be resolved before the availability group can be created. Click **Next**.

11. On the **Summary** page, verify that the choices are correct, and then click **Finish**.

Create the SQL logins for the Microsoft Dynamics CRM security groups on all secondary replicas

Create the SQL logins for the Microsoft Dynamics CRM security groups on the secondary replica. To do this, follow these steps:

1. Start SQL Server Management Studio and connect to the secondary SQL Server replica (CRMNode2).

2. Expand the **Security** node, right-click **Logins** and then click **New Login**.

3. In the **Login** name box, click **Search**, make sure that **Groups** is included in the **Select this object type** (if not click Object Types and add it). Type *DomainName\PrivReportingGroup*, click **Check Names**, and when the name resolves correctly, click **OK**.

   📝 **Note**

   The actual *PrivReportingGroup* name may be different. Verify the name as it exists in Active Directory.

4. Repeat steps 2 and 3 for the following security groups.

   • ReportingGroup
   • SQLAccessGroup

Create the MSCRMSqlClrLogin SQL Login

1. Create the asymmetric key for the MSCRMSqlClrLogin SQL Login

   On all secondary replicas, execute the following SQL statement against the master database to create the asymmetric key, where <path> is the path to the Microsoft.Crm.SqlClr.Helper.dll file that is located on the server where the Deployment Tools server role is installed. For example, specify a UNC path on a share similar to *crmdeploymenttools\CRMshare*\Tools\. By default, Microsoft.Crm.SqlClr.Helper.dll is located on the Deployment Tools server in the C:\Program Files\Microsoft Dynamics CRM\Tools\ folder.

   ```
   IF NOT EXISTS (SELECT * FROM sys.asymmetric_keys WHERE name =
   'MSCRMSqlClrKey') BEGIN CREATE ASYMMETRIC KEY MSCRMSqlClrKey
   FROM EXECUTABLE FILE = '<path>\Microsoft.Crm.SqlClr.Helper.dll';
   END
   ```

2. Create the MSCRMSqlClrLogin SQL login

Execute the following SQL statement against the master database to create the MSCRMSqlClrLogin SQL login.

```
IF NOT EXISTS (SELECT * FROM sys.syslogins WHERE name =
'MSCRMSqlClrLogin') BEGIN CREATE LOGIN MSCRMSqlClrLogin FROM
ASYMMETRIC KEY MSCRMSqlClrKey GRANT UNSAFE ASSEMBLY TO
MSCRMSqlClrLogin END
```

Update the configuration database connection strings in the Windows registry

Update the SQL Server connection string in every Windows registry on all servers that are running a Microsoft Dynamics CRM Server role, including the Microsoft Dynamics CRM Reporting Extensions server. To do this, follow these steps.

⚠ **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.

1. On the computer that is running the Microsoft Dynamics CRM Server role, start Registry Editor and locate the following registry subkey:

   HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\MSCRM\

2. Right-click **configdb**, and then click **Modify**.

   a. If **Failover Partner=MSCRM_Mirror** is present, remove this from the value.

   b. Change the **Data Source** from the SQL Server instance name to the availability group listener name.

      The complete connection string should appear similar to the following example, where *MSCRMAG* is the availability group listener name for the availability group that includes the Microsoft Dynamics CRM configuration database:

      Data Source MSCRMAG;Initial Catalog= MSCRM_CONFIG;Integrated Security=SSPI

      💡 **Tip**

      The listener name can be located under the **Availability Groups** node in in SQL Server Management Studio.

   c. If you are using a listener, add **;multisubnetfailover=true** to the end of the configdb value to form the connection string. More information: [SqlClient Support for High Availability, Disaster Recovery](#)

      A complete configdb value for a multiple subnet should appear as the following:

      Data Source MSCRMAG;Initial Catalog= MSCRM_CONFIG;Integrated Security=SSPI;multisubnetfailover=true

3. Click **OK**, and then close Registry Editor.

4. Repeat the previous steps to add the connection string to the config subkey for each server that is running a Microsoft Dynamics CRM Server role, including the server running Microsoft Dynamics CRM Reporting Extensions.

Update the connection string in the configuration database

Update the organization table in the configuration database to specify the availability group listener name for the client connection string. To do this, run the following update statement against the configuration (MSCRM_CONFIG) database.

⚠ **Warning**

Back up the Microsoft Dynamics CRM configuration database (MSCRM_CONFIG) before you run these update statements.

```
Update Organization set ConnectionString = 'Provider=SQLOLEDB;Data

Source=AG_Listener_Name;Initial Catalog=OrganizationName_MSCRM;Integrated

Security=SSPI';MultiSubnetFailover=True' where DatabaseName = 'OrganizationName_MSCRM'
```

- Replace *AG_Listener_Name* with the availability group listener name where the Microsoft Dynamics CRM organization database is located.
- Replace *OrganizationName*_MSCRM with the name of the organization database.

Additional parameters available

Additionally, if you use a port number other than 1433 for the availability group listener add the following parameter where *Port_Number* is the network port number.

```
Update Organization set ConnectionString = 'Provider=SQLOLEDB;Data

Source=AG_Listener_Name,Port_Number;Initial Catalog=OrganizationName_MSCRM;Integrated

Security=SSPI;multisubnetfailover=true' where DatabaseName = 'OrganizationName_MSCRM'
```

Restart IIS and Microsoft Dynamics CRM services

After you make these changes, reset IIS on the computer that is running the Web Application Server role.

⚠ **Warning**

All active Microsoft Dynamics CRM users will be disconnected.

To do this, click **Start**, and then click **Run**. In the **Open** box, type **iisreset**, and then click **OK**.

Restart all Microsoft Dynamics CRM services in the deployment on all servers where Microsoft Dynamics CRM Server 2013 features are installed.

Monitor the availabity group and test for failover

Microsoft SQL Server 2012 Management Studio includes features that make viewing the availability group status and executing a manual failover easy.

▶ **View the availability group state**

1. Start SQL Server Management Studio and connect to the instance of SQL Server that is the primary replica in the availability group.
2. In SQL Server Management Studio, expand **Availability Groups**, right-click the availability group that you created for Microsoft Dynamics CRM, and then click **Show Dashboard**.

The dashboard displays all replicas and the synchronization state. Notice that you can view the dashboard from any replica in the availability group.

▶ **Test for failover**

1. Verify that a Microsoft Dynamics CRM can connect to the availability group. For example, start Internet Explorer, and connect to the Microsoft Dynamics CRM organization URL.
2. From the dashboard described in the previous procedure, click **Start Failover Wizard** to begin the failover process.
3. Follow the instructions in the wizard to complete the failover.

   After a successful failover, the primary replica becomes the secondary replica and the secondary replica becomes the primary replica.
4. Switch to the web browser connected to the Microsoft Dynamics CRM organization and verify that you can seamlessly connect to the new primary replica by clicking anywhere in the application.

To switch back to the original primary and secondary replicas, perform the manual failover procedure again on the new primary replica.

See Also

Install or upgrade Microsoft Dynamics CRM Server

Failover Cluster Step-by-Step Guide: Configuring a Two-Node File Server Failover Cluster

Upgrade Microsoft Dynamics CRM Server

Upgrade Microsoft Dynamics CRM Server

This section provides best practices guidelines and procedures to install Microsoft Dynamics CRM Server in a deployment that already has the previous version of Microsoft Dynamics CRM Server installed.

Upgrade options

There are three different upgrade options:

- **Migrate by using a new instance of Microsoft SQL Server**. We recommend this option for upgrading Microsoft Dynamics CRM Server. Although this option requires a different computer for the new version of Microsoft Dynamics CRM Server and a different instance of SQL Server, it provides the least amount of potential downtime for Microsoft Dynamics CRM because the previous Microsoft Dynamics CRM deployment can remain functioning until the upgrade is completed and verified.
- **Migrate by using the same instance of SQL Server**. This option requires a different computer for the new version of Microsoft Dynamics CRM Server, but will upgrade in-place the configuration and default organization databases using the same instance of SQL Server. If issues occur during the upgrade, you must roll back to the previous deployment to avoid significant downtime.
- **In-place upgrade**. Although this option doesn't require a different computer for the new version of Microsoft Dynamics CRM Server or a different instance of SQL Server, it poses the

greatest risk if upgrade issues occur because a roll back and reinstall of the previous deployment will be required to avoid potential downtime.

In This Section

Microsoft Dynamics CRM Server upgrade preparations

Upgrade from Microsoft Dynamics CRM 2015 Server

Upgrade from Dynamics CRM Server 2013 or Dynamics Server 2011

Upgrade Microsoft Dynamics CRM Reporting Extensions

After the upgrade

Microsoft Dynamics CRM Server upgrade preparations

To prepare the upgrade, follow the guidelines in this section.

Microsoft Dynamics CRM 2015 roles aren't compatible with a Microsoft Dynamics CRM 2016 deployment. Therefore, after you upgrade the first Microsoft Dynamics CRM Server, other Microsoft Dynamics CRM 2015 servers that are running in the deployment will become disabled. As each server is upgraded, it will be enabled.

💧 **Important**

We recommend that for each organization that you upgrade, the volume have free space that is at least three times the size of the organization database file and four times the size of the log file. Therefore, if a single organization database and log file are located on the same volume and are one gigabyte in total, you should have at least seven gigabytes of available disk space before you perform the upgrade.

Estimate downtime due to upgrade

This section provides best practices for managing Microsoft Dynamics CRM deployment downtime that will be incurred during an upgrade.

- Upgrade in a test environment to estimate the duration of downtime and determine issues that may occur as a result of the upgrade. More information: Upgrade the Microsoft Dynamics CRM Deployment

- Consider a phased approach to upgrade.

  - Microsoft Dynamics CRM Server upgrade only (binary upgrade). To do this, don't specify an organization during the upgrade.

    💧 **Important**

    After the Microsoft Dynamics CRM Server upgrade is complete, all Microsoft Dynamics CRM 2015 organizations are disabled and can't be enabled until they are upgraded.

  - Upgrade organizations. Use the Import-CrmOrganization Windows PowerShell command to upgrade each organization. More information: Administer the deployment using Windows PowerShell

    Alternatively, you can use Deployment Manager to individually upgrade each organization.

Software prerequisites

Before you run the upgrade, we recommend that you install or enable the following components on the computer where you will install Microsoft Dynamics CRM Server or on the computer where Microsoft Dynamics CRM Server will be migrated to:

- .NET Framework 4.5.2
- Microsoft SQL Server Native Client
- Microsoft Application Error Reporting Tool
- Microsoft URL Rewrite Module for IIS

If these components aren't present when you run the upgrade, Setup will install them. However, to reduce the upgrade processing time, consider installing these components in advance. These components can be found in the **redist** folder of the Microsoft Dynamics CRM installation media.

See Also

Upgrade Microsoft Dynamics CRM Server

Upgrade from Microsoft Dynamics CRM 2015 Server

Upgrade from Microsoft Dynamics CRM 2015 Server

This section shows you how to run the actual in-place upgrade on a Microsoft Dynamics CRM server. If you encounter problems during the upgrade, see Troubleshooting installation and upgrade in this guide.

🛑 **Caution**

Following these steps may cause significant application downtime if issues occur during the upgrade. Instead of using an upgrade option that may affect the production deployment, we recommend that you migrate your deployment. More information: Microsoft Dynamics CRM Server upgrade options

🔷 **Important**

We strongly recommend that you back up your existing Microsoft Dynamics CRM data, including all reports and customizations, before you run Setup. In addition, we recommend that you implement the following backup strategy before you run Setup:

1. Configure the existing deployment's Microsoft Dynamics CRM databases by using a simple recovery model.
2. Complete a full backup of all production configuration and organization databases and transaction logs.

   More information: Back up the Microsoft Dynamics CRM System

🔷 **Important**

- Only Microsoft Dynamics CRM 2015 or later versions can be upgraded. For upgrade information from previous versions of Microsoft Dynamics CRM, see Upgrade from Dynamics CRM Server 2013 or Dynamics Server 2011.
- To upgrade an existing Microsoft Dynamics CRM deployment, the user who is running Microsoft Dynamics CRM Server Setup must be a member of the Deployment Administrators group. Additionally, the user must have **db_owner** permission on the existing Microsoft

Dynamics CRM databases and have **sysadmin** permission on the SQL Server. For more information about how to add a member to the Deployment Administrators group, see **the New-CrmDeploymentAdministrator** Windows PowerShell command. More information: Set properties using Powershell cmdlets. Alternatively, you can use Microsoft Dynamics CRM Deployment Manager. For more information about how to grant permission in SQL Server, see the SQL Server Management Studio Help.

Tasks to perform before the upgrade

- We recommend that you apply the latest Microsoft Dynamics CRM updates before you start the upgrade.
- Meet all requirements as specified under Microsoft Dynamics CRM Server hardware requirements and Software requirements for Microsoft Dynamics CRM Server.
- Log on to your domain as a user who has administrator-level permission.
- SQL Server replication isn't supported with Microsoft Dynamics CRM. If you run SQL Server replication, disable it.
- Uninstall Microsoft Dynamics CRM Connector for SQL Server Reporting Services if it's installed on the same computer where Microsoft Dynamics CRM Server is installed. More information: Uninstall or repair Microsoft Dynamics CRM Reporting Extensions
- To determine the location of the Microsoft Dynamics CRM installation files, see the Microsoft Dynamics CRM 2016 and Microsoft Dynamics CRM Online Readme.

Run the upgrade

1. In the folder where the Microsoft Dynamics CRM files are located, go to the Server\amd64 folder, and then double-click **SetupServer.exe**.
2. On the **Welcome to Microsoft Dynamics CRM Server Setup** page, we recommend that you select **Get updates for Microsoft Dynamics CRM** to make sure that Setup has the most recent installation files. Click **Next**. After Setup is done checking for updates, click **Next** again.

   > **Important**
   >
   > For the **Get updates for Microsoft Dynamics CRM** functionality to work you must:

   - Have an Internet connection on the computer where Setup is running.
   - Enable Microsoft Update for "other Microsoft products" on the Windows Server computer where Microsoft Dynamics CRM Server Setup is running.

3. On the **Product Key Information** page, type your product key in the **Product key** boxes, and then click **Next**.

   > **Note**
   >
   > If you purchased Microsoft Dynamics CRM through a Microsoft Volume Licensing program, the license key is provided in the **license.txt** file, which is included in the Microsoft Dynamics CRM installation files.

4. 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**.

5. If Setup detects that components are missing, the **Install Required Components** page appears.

   - If you have already installed the required components, this page won't appear.
   - If you haven't installed the required components listed, you can install them now. Click **Install**. When the components are installed, the status column changes from **Not Installed** to **Installed**, and you can click **Next** to continue.

   📝 **Note**

   If you're prompted to restart the computer, do so, and then start Setup again.

6. On the **Upgrade to Microsoft Dynamics CRM 2016** page, you can select an organization to upgrade or leave the choice **<None>** so that no organizations will be upgraded during Setup. Before you select an organization, consider the following:

   - Notice that any organization not upgraded will become disabled after the upgrade is complete. To upgrade organizations after Setup is complete, use the **Import-CrmOrganization** Windows PowerShell command. Alternatively, you can use Deployment Manager.

   Click **Next** to upgrade Microsoft Dynamics CRM.

7. On the **Specify Service Accounts** page, Setup will add the service accounts used for the Microsoft Dynamics CRM Server services. You can use the existing service accounts or specify new ones. For information about the permissions required to run these services see [Minimum permissions required for Microsoft Dynamics CRM Setup and services](#).

8. If you want to use server-side synchronization and/or Dynamics CRM for Outlook for the deployment, leave this box blank. More information: **ntegrate your email system with Microsoft Dynamics CRM**

   Otherwise, on the **Specify E-mail Router Settings** in the, **Email router server name** box, type the name of the computer where the Email Router will be installed. This computer will route Microsoft Dynamics CRM email messages. If you leave the box blank but decide later you want to use the Email Router, you must add the computer where the Email Router Service is running (part of the Asynchronous Service) when you use Network Service, or if you use a domain user account, the account to the PrivUserGroup security group.

   Click **Next**.

9. On the **Select Microsoft Update Preference** page, select whether you want to use Microsoft Update for checking for updates for your Microsoft products, and click **Next**. We recommend that you use Microsoft Update to check for updates because this helps keep your computer up-to-date and secure. For more information about the legal terms and privacy with Microsoft Update licensing, see [Windows Update FAQ](#).

10. The **System Checks** page appears. This page is a summary of all requirements and recommendations for a successful installation. Errors must be resolved before installation can continue. If no errors, or only warnings appear, you can continue with the installation. To do this, click **Next**.

11. The **Service Disruption Warning** page appears. This page lists all services that will be stopped or restarted during Setup. Verify the suitability of the services that will be stopped or restarted, and then click **Next**.

12. Review the **Ready to Upgrade the Application** page, and click **Back** to correct any errors. When you are ready to continue, click **Upgrade**.

    When Setup completes successfully, the Microsoft Dynamics CRM Server Setup completed page appears. If the Reporting Server instance that you specified during this Setup points to the local computer where Microsoft Dynamics CRM is installed, Setup provides an option to invoke Microsoft Dynamics CRM Reporting Extensions Setup.

13. For a full server deployment running on the Microsoft SQL Server Reporting Services computer, select the **Launch Microsoft Dynamics CRM Reporting Extensions Setup** check box to install Microsoft Dynamics CRM Reporting Extensions. Click **Finish**.

⬥ Important

- After you upgrade, you must install the Microsoft Dynamics CRM Reporting Extensions to create, run, and schedule reports in Microsoft Dynamics CRM. For instructions, see [Install Microsoft Dynamics CRM Reporting Extensions](#) in this guide.

- You can't install the Microsoft Dynamics CRM Reporting Extensions before you install or upgrade Microsoft Dynamics CRM Server.

- If you had Language Packs provisioned in your deployment, to continue to use multiple languages, upgrade each language pack to Microsoft Dynamics CRM 2016, and then provision them. More information: [Upgrade and enable a Language Pack](#)

- Notice that Setup turns on HTTP compression on the server that's running IIS where the web application is installed. If you use another method to compress HTTP communications, you may want to turn this feature off after Setup completes. To do this, start Internet Information Services (IIS) Manager, choose the website, double-click **Compression**, and then clear the compression check boxes.

See Also

[Administer the deployment using Windows PowerShell](#)

[Upgrade Microsoft Dynamics CRM Server](#)

[Upgrade from Dynamics CRM Server 2013 or Dynamics Server 2011](#)

[Microsoft Dynamics CRM Server upgrade preparations](#)

Upgrade from Dynamics CRM Server 2013 or Dynamics Server 2011

You can't directly upgrade from Microsoft Dynamics CRM 2013 or Microsoft Dynamics CRM 2011 to Microsoft Dynamics CRM 2016. However, you can upgrade a Microsoft Dynamics CRM 2013 or Microsoft Dynamics CRM 2011 deployment in-place by using a valid Microsoft Dynamics CRM product key, or migrate by using a Microsoft Dynamics CRM 2013 trial product key, as an interim step in the upgrade process.

In This Topic

[CRM 2016 upgrade best practices](#)

[In-place upgrade: Upgrade a CRM 2013 deployment using a valid CRM 2015 product key](#)

[Migration upgrade: Upgrade a CRM 2013 deployment by using a CRM 2015 trial product key](#)

[Migrating from CRM 2011](#)

CRM 2016 upgrade best practices

- Before you upgrade Microsoft Dynamics CRM Server, make sure all Microsoft Dynamics CRM for Outlook users with go offline capability sync with the Microsoft Dynamics CRM Server to send and receive the most recent data.

- Consider migrating the deployment by using a new instance of SQL Server. Although this option requires a different computer for Microsoft Dynamics CRM Server and a different instance of SQL Server, it provides the least amount of potential downtime for Microsoft Dynamics CRM users since the existing Microsoft Dynamics CRM deployment can remain functioning until the upgrade is completed and verified.

- When you migrate the deployment from Microsoft Dynamics CRM 2013 to Microsoft Dynamics CRM 2016, you can create separate deployments for both CRM 2015 and CRM 2016 at the same time. After the deployments are verified, you can import the Microsoft Dynamics CRM 2013 organizations in to the CRM 2015 deployment and then quickly import them into the Microsoft Dynamics CRM 2016 deployment as described in the [Migration upgrade: Upgrade a CRM 2013 deployment by using a CRM 2015 trial product key](#) topic below. Since the CRM 2015 deployment is only temporary, the CRM 2015 deployment can be created as a virtual machine.

In-place upgrade: Upgrade a CRM 2013 deployment using a valid CRM 2015 product key

Be aware that following these steps may cause significant application downtime if issues occur during the in-place upgrade of a production Microsoft Dynamics CRM Server. Instead of using an upgrade option that may affect the production deployment, consider migrating your deployment. More information: [Upgrade from Microsoft Dynamics CRM 2013](#)

1. Make sure the servers running Microsoft Dynamics CRM 2013 meet the minimum hardware and software requirements. More information: [Microsoft Dynamics CRM Server hardware requirements](#) and [Software requirements for Microsoft Dynamics CRM Server](#)

2. Upgrade the Microsoft Dynamics CRM Server 2013 using a valid product key. To do this, follow the steps in this topic: [Upgrade from Microsoft Dynamics CRM 2013 Server](#)

3. Complete post-upgrade tasks such as install Microsoft Dynamics CRM Reporting Extensions. [After the upgrade: Post-upgrade steps for servers](#)

4. If you have Microsoft Dynamics CRM 2013 for Outlook users, upgrade them to Microsoft Dynamics CRM 2015 for Outlook. More information: [Upgrade to Microsoft Dynamics CRM 2015 for Outlook](#)

5. Upgrade the Microsoft Dynamics CRM Server 2015 to Microsoft Dynamics CRM 2016 Server. More information: [Upgrade from Microsoft Dynamics CRM 2015 Server](#)

    Important

    Microsoft Dynamics CRM 2013 for Outlook is not compatible with Microsoft Dynamics CRM 2016 Server. Microsoft Dynamics CRM 2013 for Outlook users must be upgraded to at least Microsoft Dynamics CRM 2015 for Outlook for compatibility with Microsoft Dynamics CRM 2016 Server. More information: **CRM for Outlook support matrix**

6. For users who require go offline capability, upgrade Dynamics CRM 2015 for Outlook to Microsoft Dynamics CRM 2016 for Outlook. More information: **Upgrade to Microsoft Dynamics CRM 2015 for Outlook**

Migration upgrade: Upgrade a CRM 2013 deployment by using a CRM 2015 trial product key

Notice that when you use a Microsoft Dynamics CRM 2015 trial product key you cannot upgrade Microsoft Dynamics CRM 2013 in-place. Instead, you must create a new deployment of Microsoft Dynamics CRM 2015 and then migrate your Microsoft Dynamics CRM 2013 organizations into the new Microsoft Dynamics CRM 2015 deployment.
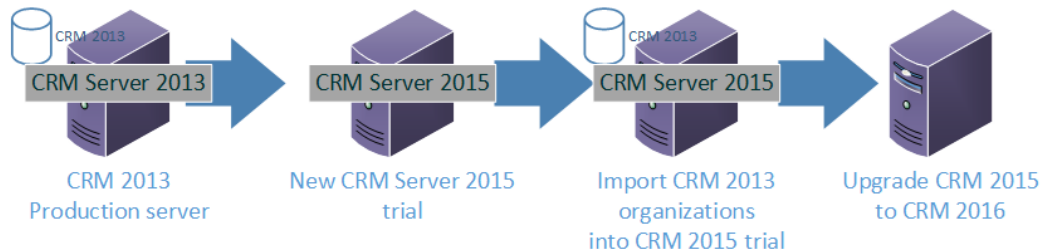
1. Create a new deployment. To do this,
   - At least one Windows Server computer running IIS.
   - Although you can also run SQL Server on the same computer that is running IIS, we recommend at least one dedicated SQL Server to use for the database engine.
   - Microsoft Dynamics CRM Server. Download and install [Microsoft Dynamics CRM Server 2015](#) that is available on the Microsoft Download Center. The trial product keys are included in the download description. More information: [Install Microsoft Dynamics CRM Full Server role on a server without Microsoft Dynamics CRM installed](#)

   ⊕ **Important**
   You cannot in-place upgrade Microsoft Dynamics CRM Server 2013 to Microsoft Dynamics CRM Server 2015 using a trial product key. You must create a new deployment.

   Trial versions of Microsoft Dynamics CRM Server can be used within a 90-day period before you must enter a valid commercial product key to continue use.

   To make sure the latest updates to the Setup program are applied that help ease upgrading, we strongly recommend that you click **Get updates for Microsoft Dynamics CRM** during the installation or upgrade.

2. In the new Microsoft Dynamics CRM Server 2015 trial versioned deployment:
   a. Install Microsoft Dynamics CRM Reporting Extensions.

3. Take the Microsoft Dynamics CRM 2013 production deployment offline. For information about how to disable organizations and servers in Microsoft Dynamics CRM, see [Disable or enable an organization](#) and [Disable or enable a server](#).

4. Import each organization into the new deployment. Organizations will be upgraded during the import. To do this, back up each organization database on the SQL Server that maintains the Microsoft Dynamics CRM 2013 organization databases and restore each database to the

new SQL Server. Then, use the **Update-CrmOrganization** Windows PowerShell command or Deployment Manager to import each organization in to the deployment.

5. Install or upgrade the new trial version to Microsoft Dynamics CRM 2016 Server by following the steps in the [Install or upgrade Microsoft Dynamics CRM Server](#) topics.

   ◆ **Important**

   CRM 2013 for Outlook is not compatible with Microsoft Dynamics CRM 2016 Server. CRM 2013 for Outlook users must be upgraded to at least Dynamics CRM 2015 for Outlook for compatibility with Microsoft Dynamics CRM 2016 Server. More information: **Microsoft Dynamics CRM on-premises editions**

   If you import (migrate) a Microsoft Dynamics CRM 2015 organization in to a new CRM 2016 deployment, make a copy of the encryption key for each Microsoft Dynamics CRM 2015 organization in the deployment. The key will be required when you import a Microsoft Dynamics CRM 2015 organization in to a new CRM 2016 deployment. More information: **Copy your organization data encryption key**

6. In the new CRM 2016 deployment:

   a. Install Microsoft Dynamics CRM Reporting Extensions.

   b. Import each CRM 2015 organization into the new deployment. To do this, use the **Update-CrmOrganization** Windows PowerShell command or Deployment Manager.

   c. Upgrade optional applications to CRM 2016.

      i. In-place upgrade Dynamics CRM 2015 for Outlook. More information: **Upgrade to Microsoft Dynamics CRM 2016 for Outlook**

      ii. Uninstall optional applications that cannot be upgraded in-place, such as Microsoft Dynamics CRM Email Router, and install the CRM 2016 version as necessary.

   d. Update the appropriate records to the DNS server so that Microsoft Dynamics CRM clients will resolve to the new Microsoft Dynamics CRM Server.

7. Upgrade CRM for Outlook.

   a. In-place upgrade CRM 2013 versions of CRM for Outlook to CRM 2015. More information: [Upgrade to Microsoft Dynamics CRM 2015 for Outlook](#).

   ◆ **Important**

   To use Microsoft Dynamics CRM 2016 Server, CRM for Outlook users must have Dynamics CRM 2016 for Outlook or Dynamics CRM 2015 for Outlook. Although Dynamics CRM 2015 for Outlook is compatible with Microsoft Dynamics CRM 2016 Server, CRM 2013 for Outlook is not. More information: **Microsoft Dynamics CRM on-premises editions**

8. For users who require go offline capability, upgrade Dynamics CRM 2015 for Outlook to Dynamics CRM 2016 for Outlook.

Migrating from CRM 2011

You can use similar steps to migrate from CRM 2011 to CRM 2016. To do this, you must include the preliminary task to migrate the CRM 2011 organizations to CRM 2013, and then follow the steps described earlier to migrate the CRM 2013 organizations to CRM 2015 before completing

the upgrade to CRM 2016. For information about how to migrate CRM 2011 to CRM 2013, see [Upgrade from Microsoft Dynamics CRM Server 2011](#).

See Also

[Upgrade from Microsoft Dynamics CRM 2015 Server](#)

[Upgrade Microsoft Dynamics CRM Reporting Extensions](#)

Upgrade Microsoft Dynamics CRM Reporting Extensions

Microsoft Dynamics CRM Reporting Extensions aren't supported for in-place upgrade. To upgrade to the new version, you must first uninstall the existing version.

To upgrade Microsoft Dynamics CRM Reporting Extensions, do the following:

1. Meet all requirements as specified under [Microsoft Dynamics CRM reporting requirements](#).

2. Uninstall the existing version of Microsoft Dynamics CRM Reporting Extensions.

3. Before you run the new version of Microsoft Dynamics CRM Reporting Extensions Setup, upgrade Microsoft Dynamics CRM Server. More information: [Upgrade from Microsoft Dynamics CRM 2015 Server](#)

4. At the computer where Microsoft Dynamics CRM Reporting Extensions was installed, log on to your domain as a user who has administrator-level privileges.

5. In the `..\Server\amd64\SrsDataConnector` folder where the Microsoft Dynamics CRM installation media is located, double-click **SetupSrsDataConnector.exe**.

6. Follow the instructions on the screen. More information: [Install Microsoft Dynamics CRM Reporting Extensions](#)

See Also

[Upgrade Microsoft Dynamics CRM Server](#)

[Upgrade from Dynamics CRM Server 2013 or Dynamics Server 2011](#)

[After the upgrade](#)

[Troubleshooting installation and upgrade](#)

After the upgrade

After Setup completes the upgrade, perform the following tasks.

Post-upgrade steps for servers

▶**Do post-upgrade server steps**

1. If you have additional network load balanced servers or Microsoft Dynamics CRM server roles installed on other computers, upgrade or uninstall and reinstall Microsoft Dynamics CRM on those servers as described in [Install Microsoft Dynamics CRM Front End Server and Back End Server roles](#).

2. Install the Microsoft Dynamics CRM Reporting Extensions. You must install Microsoft Dynamics CRM Reporting Extensions before you can import and upgrade organizations not upgraded during Microsoft Dynamics CRM Server Setup.

3. If you had Language Packs provisioned in the deployment, download and install

Microsoft Dynamics CRM 2016 Language Packs for the languages that you want. More information: Upgrade and enable a Language Pack

4. Install the latest update rollup packages.

5. If needed, import organizations. During import, each organization will be upgraded. To do this, use the Import-CrmOrganization Windows PowerShell command. Alternatively, you can use Microsoft Dynamics CRM Deployment Manager.

6. In Microsoft SQL Server Reporting Services Report Manager, re-create any custom data sources under the *OrganizationName*_MSCRM folders.

7. Some organization data is encrypted using encryption keys. These keys should be copied as part of your failure recovery procedures. More information: **Data Encryption**

8. Verify that the system jobs and workflows are running.

9. Although not required, we recommend that you register Microsoft Dynamics CRM.

Post-upgrade steps for clients

To ease the upgrade process, Microsoft Dynamics CRM 2015 for Outlook is compatible with Microsoft Dynamics CRM 2016 Server.

 Important

To have **Go offline** functionality or to experience new features that are available with this release, you must upgrade to Microsoft Dynamics CRM 2016 for Outlook.

More information: **Microsoft Dynamics CRM on-premises editions**

 Upgrade clients

1. Run Dynamics CRM 2016 for Outlook Setup on every CRM for Outlook user's computer. To distribute the upgrade, use Microsoft System Center or Microsoft Group Policy to push the upgrade to users. For more information about Group Policy distribution, see **Deploy Microsoft Dynamics CRM for Outlook by using Group Policy**.

2. After the upgrade is complete, verify that Dynamics CRM for Outlook has the latest updates.

3. Test the functionality from Microsoft Outlook and from the Microsoft Dynamics CRM web application.

More information: **Upgrade to Microsoft Dynamics CRM 2016 for Outlook**

See Also

Upgrade Microsoft Dynamics CRM Server

Configure IFD for Microsoft Dynamics CRM

Configure IFD for Microsoft Dynamics CRM

Microsoft Dynamics CRM (on-premises) uses claims-based authentication to authenticate internal users and to enable Internet access for external users not using VPN.

In claims-based authentication, an identity provider that contains a security token service (STS) responds to authentication requests and issues SAML security tokens that include any number of

claims about a user, such as a user name and groups the user belongs to. A relying party application receives the SAML token and uses the claims inside to decide whether to grant the client access to the requested resource. Claims-based authentication can be used to authenticate your organization's internal users, external users, and users from partner organizations.

This content provides the steps needed to configure Internet-facing deployment (IFD) using claims-based authentication. Much more conceptual and procedural information is available in the white paper [Configure Claims-based Authentication for Microsoft Dynamics CRM Server](#) available in the Microsoft Download Center.

In This Section

[Implement claims-based authentication: internal access](#)

[Implement claims-based authentication: external access](#)

[CRM for tablets and IFD](#)

[CRM for phones and IFD](#)

[Configure Microsoft Dynamics CRM for Outlook to use claims-based authentication](#)

[Troubleshoot Microsoft Dynamics CRM Server IFD](#)

See Also

[Install or upgrade Microsoft Dynamics CRM Server](#)

Install Email Router for Microsoft Dynamics CRM 2013 and CRM Online

Implement claims-based authentication: internal access

Enabling claims-based authentication for internal access to Microsoft Dynamics CRM Server data involves the following steps:

1. Deploy and configure AD FS.
2. Configure the Microsoft Dynamics CRM server for claims-based authentication.
3. Configure the AD FS server for claims-based authentication.
4. Test internal claims-based authentication.

Claims-based authentication is not a requirement for intranet Microsoft Dynamics CRM Server access. However, claims-based authentication is required for Microsoft Dynamics CRM IFD access.

In This Section

[Deploy and configure AD FS](#)

[Configure the Microsoft Dynamics CRM Server for claims-based authentication](#)

[Configure the AD FS server for claims-based authentication](#)

[Add the AD FS website to the Local intranet security zone](#)

[Test internal claims-based authentication](#)

See Also

[Configure IFD for Microsoft Dynamics CRM](#)

Deploy and configure AD FS

A variety of identity providers can be used with Microsoft Dynamics CRM Server. This document uses Active Directory Federation Services (AD FS) for the security token service. For information on configuring identity federation deployment between AD FS and other identity providers, see: AD FS 2.0 Step-by-Step and How To Guides.

💧 **Important**

> If you are deploying on Windows Server 2012, and you are installing AD FS on the same server as Microsoft Dynamics CRM, AD FS installs on the default website. Before installing AD FS, you must create a new website for Microsoft Dynamics CRM Server.
>
> This does not apply to Windows Server 2012 R2 as AD FS in Windows Server 2012 R2 does not depend on IIS.

Deploy a federation server

For information on deploying an AD FS server, see AD FS Deployment.

Configure AD FS for Windows Server 2012 R2

To configure AD FS as a stand-alone federation server for Microsoft Dynamics CRM Server claims authentication, do the following:

1. Open the Windows Server 2012 R2 **Add Roles and Features Wizard** and add the **Active Directory Federation Services** server role.

2. Proceed through the wizard. Click **Configure the federation service on this server**.

3. On the **Welcome** page in the Active Directory Federation Services Configuration Wizard, choose an option for a federation server, and then click **Next**.

4. Proceed through the wizard. On the **Specify Service Properties** page, select your SSL certificate, enter a **Federation Service Name**, and then enter a **Federation Service Display Name**.

   📝 **Note**

   > You only add the federation service name if you are using a wildcard certificate for the AD FS website.
   >
   > If you install AD FS and Microsoft Dynamics CRM Server on the same server, do not use the same URL for the Federation Service name and internal claims access to Microsoft Dynamics CRM Server. For example, if you use sts1.contoso.com for the Federation Service name, do not use https://sts1.contoso.com for internal Microsoft Dynamics CRM data access.
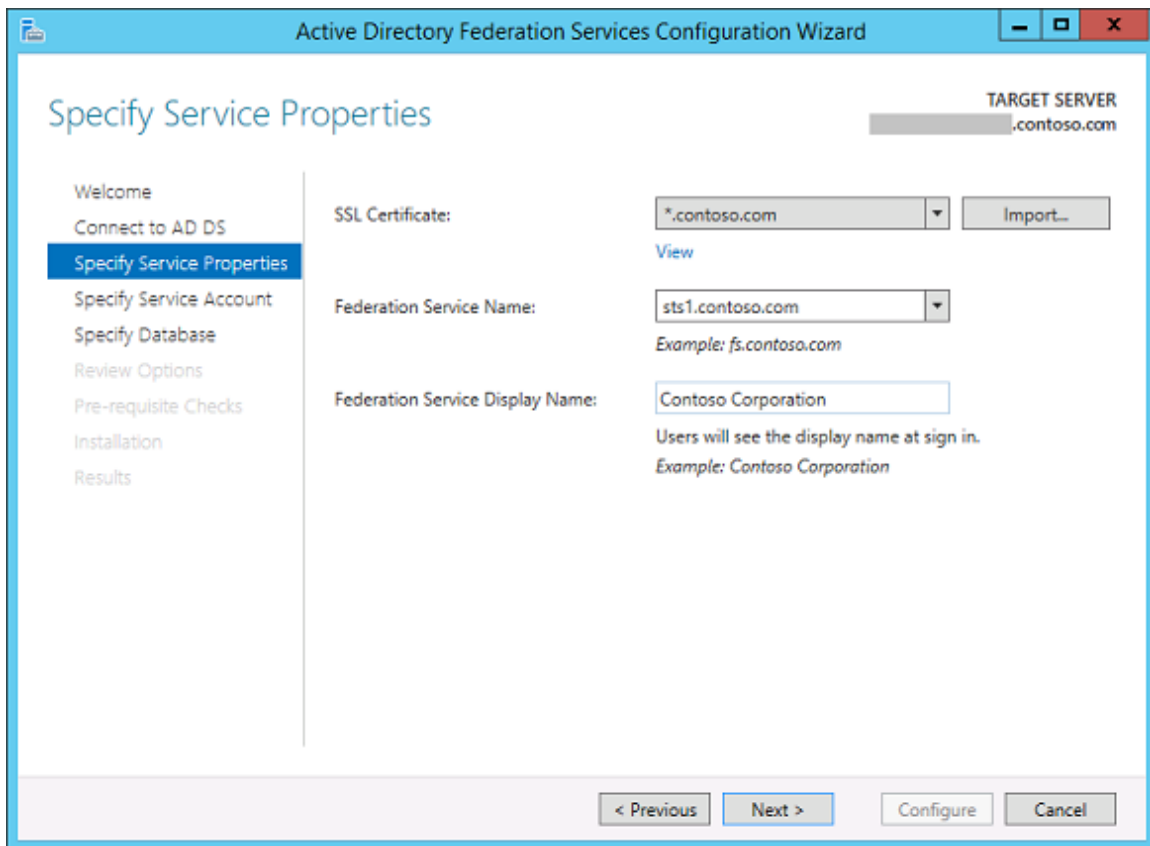
5. Proceed through and complete the **Active Directory Federation Services Configuration Wizard**. Close the **Add Roles and Features Wizard**.

6. If you have not created a host record in DNS for the federation server name you specified in Step 4 previously, do so now.

For more information, see Configure a Federation Server.

Verifying AD FS installation

Use the following steps to verify the AD FS installation:

1. On the AD FS server, open Internet Explorer.

2. Browse to the URL of the federation metadata. For example, https://sts1.contoso.com/federationmetadata/2007-06/federationmetadata.xml

   You may need to turn on **Compatibility View** in Internet Explorer.

3. Verify that no certificate-related warnings appear. If necessary, check your certificate and DNS settings.

See Also

Implement claims-based authentication: internal access

Configure the Microsoft Dynamics CRM Server for claims-based authentication

After you have installed AD FS, you need to set the Microsoft Dynamics CRM Server binding type and root domains before you enable claims-based authentication.

In This Topic

Set Microsoft Dynamics CRM Server binding to HTTPS and configure the root domain web addresses

The CRMAppPool account and the Microsoft Dynamics CRM encryption certificate

Configuring claims-based authentication using the Configure Claims-Based Authentication Wizard

Configuring claims-based authentication using Windows PowerShell

Set Read permissions for the ADFSAppPool account

Set Microsoft Dynamics CRM Server binding to HTTPS and configure the root domain web addresses

▷

1. On the Microsoft Dynamics CRM server, start the Deployment Manager.
2. In the **Actions** pane, click **Properties**.
3. Click the **Web Address** tab.

4. Under **Binding Type**, select **HTTPS**.

5. Verify that the web addresses are valid for your SSL certificate and the SSL port bound to the Microsoft Dynamics CRM website. Because you are configuring Microsoft Dynamics CRM Server to use claims authentication for internal access, use the host name for the root domain web addresses.

    For example, for a *.contoso.com wildcard certificate, you would use internalcrm.contoso.com for the web addresses.

    If you install AD FS and Microsoft Dynamics CRM Server on separate servers, do not specify port 443 for the Web Application Server, Organization Web Service, or Discovery Web Service.
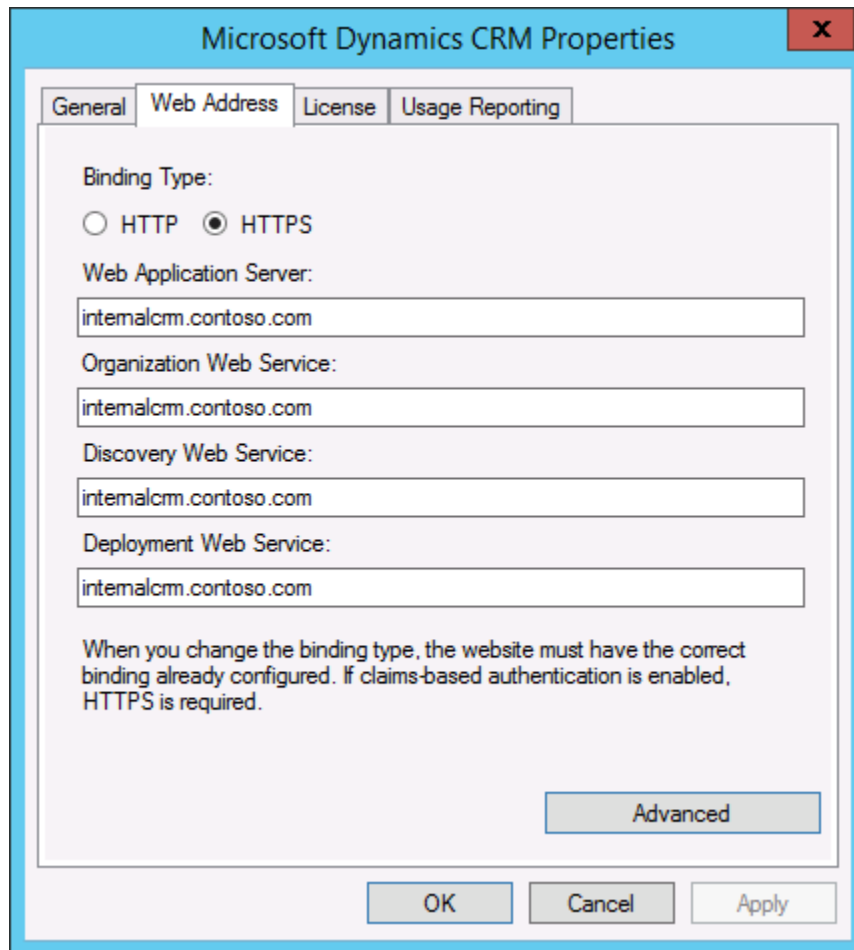
6. Click **OK**.

    ⚠️ **Warning**

    If Dynamics CRM for Outlook clients were configured using the old binding values, these clients will need to be configured with the new values.

The CRMAppPool account and the Microsoft Dynamics CRM encryption certificate

The certificate you specify in the Configure Claims-Based Authentication Wizard is used by AD FS to encrypt security tokens issued to the Microsoft Dynamics CRM Server client. The CRMAppPool account of each Microsoft Dynamics CRM web application must have read permission to the private key of the encryption certificate.

1. On the Microsoft Dynamics CRM server, create a Microsoft Management Console (MMC) with the **Certificates** snap-in console that targets the **Local computer** certificate store.

2. In the console tree, expand the **Certificates (Local Computer)** node, expand the **Personal** store, and then click **Certificates**.

3. In the details pane, right-click the encryption certificate specified in the Configure Claims-Based Authentication Wizard, point to **All Tasks**, and then click **Manage Private Keys**.

4. Click **Add**, (or select the Network Service account if that is the account you used during Setup) add the **CRMAppPool** account, and then grant **Read** permissions.

   📝 **Note**

   You can use IIS Manager to determine what account was used during setup for the CRMAppPool account. In the Connections pane, click Application Pools, and then check the Identity value for CRMAppPool.
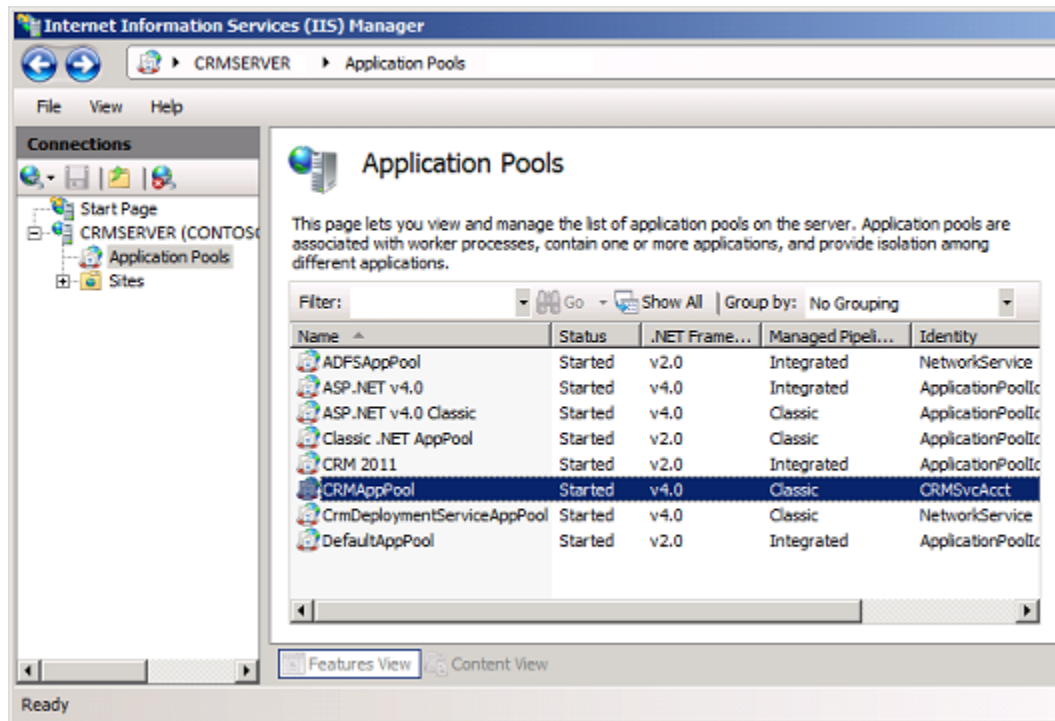
5. Click **OK**.

Configuring claims-based authentication using the Configure Claims-Based Authentication Wizard

Run the Configure Claims-Based Authentication Wizard to enable claims authentication on your Microsoft Dynamics CRM Server.

▶

1. On the Microsoft Dynamics CRM server, start the Deployment Manager.
2. In the **Deployment Manager** console tree, right-click **Microsoft Dynamics CRM**, and then click **Configure Claims-Based Authentication**.
3. Review the contents of the page, and then click **Next**.
4. On the **Specify the security token service** page, enter the federation metadata URL, such as https://sts1.contoso.com/federationmetadata/2007-06/federationmetadata.xml.

   This data is typically located on the website where Active Directory Federation Services is running. To verify the correct URL, open an Internet browser and view the federation metadata URL. Verify that no certificate-related warnings appear.

   You may need to turn on **Compatibility View** in Internet Explorer.
5. Click **Next**.
6. On the **Specify the encryption certificate** page, specify the encryption certificate in one of two ways:
   - In the **Certificate** box, type the complete common name (CN) of the certificate by using the format CN=certificate_subject_name.
   - Under **Certificate**, click **Select**, and then select a certificate.

   This certificate is used by AD FS to encrypt authentication security tokens that are issued to the Microsoft Dynamics CRM client.

   📝 **Note**
   The Microsoft Dynamics CRM service account must have Read permissions for the private key of the encryption certificate. For more information, see "The CRMAppPool account and the Microsoft Dynamics CRM encryption certificate" above.
7. Click **Next**.

   The Configure Claims-Based Authentication Wizard verifies the token and certificate that you specified.
8. On the **System Checks** page, review the results, perform any steps required to fix problems, and then click **Next**.
9. On the **Review your selections and then click Apply** page, verify your selections, and then click **Apply**.
10. Note the URL you must use to add the relying party to the security token service. View and save the log file for later reference.
11. Click **Finish**.

Configuring claims-based authentication using Windows PowerShell

▶

1. On the Microsoft Dynamics CRM server, open a Windows PowerShell prompt.

2. Add the Microsoft Dynamics CRM Windows PowerShell snap-in:

```
PS > Add-PSSnapin Microsoft.Crm.PowerShell
```

3. Get the claims-based authentication settings:

```
PS > $claims = Get-CrmSetting -SettingType "ClaimsSettings"
```

4. Configure the claims-based authentication object:

```
PS > $claims.Enabled = 1 (or $true) PS >
$claims.EncryptionCertificate = certificate_namePS >
$claims.FederationMetadataUrl = federation_metadata_URL
```

Where:

- 1 = "true".
- **certificate_name** is the name of the encryption certificate.
- **federation_metadata_URL** is the federation metadata URL for the security token service. (For example, https://sts1.contoso.com/federationmetadata/2007-06/federationmetadata.xml.)

5. Set the claims-based authentication values:

```
PS > Set-CrmSetting $claims
```

Set Read permissions for the ADFSAppPool account

If you are installing AD FS on a separate server, verify the account used for the ADFSAppPool application pool has **Read** permissions. See the preceding topic "The CRMAppPool account and the Microsoft Dynamics CRM encryption certificate" for the process steps.

See Also

[Implement claims-based authentication: internal access](#)

Configure the AD FS server for claims-based authentication

After enabling claims-based authentication, the next step is to add and configure the claims provider and relying party trusts in AD FS.

Configure the claims provider trust

You need to add a claims rule to retrieve the user principal name (UPN) attribute from Active Directory and send it to Microsoft Dynamics CRM as a UPN.

▶**Configure AD FS to send the UPN LDAP attribute as a claim to a relying party**

1. On the server running AD FS, start AD FS Management.
2. In the **Navigation Pane**, expand **Trust Relationships**, and then click **Claims Provider Trusts**.
3. Under **Claims Provider Trusts**, right-click **Active Directory**, and then click **Edit Claims Rules**.
4. In the Rules Editor, click **Add Rule**.
5. In the **Claim rule template** list, select the **Send LDAP Attributes as Claims** template,

and then click **Next**.

6. Create the following rule:

   - Claim rule name: *UPN Claim Rule* (or something descriptive)
   - Add the following mapping:
     - i. Attribute store: **Active Directory**
     - ii. LDAP Attribute: **User Principal Name**
     - iii. Outgoing Claim Type: **UPN**

7. Click **Finish**, and then click **OK** to close the Rules Editor.

Configure a relying party trust

After you enable claims-based authentication, you must configure Microsoft Dynamics CRM
Server as a relying party to consume claims from AD FS for authenticating internal claims access.

▶

1. On the server running AD FS, start AD FS Management.
2. In the **Navigation Pane**, expand **Trust Relationships**, and then click **Relying Party Trusts**.
3. On the **Actions** menu located in the right column, click **Add Relying Party Trust**.
4. In the **Add Relying Party Trust Wizard**, click **Start**.
5. On the **Select Data Source** page, click **Import data about the relying party published online or on a local network**, and then type the URL to locate the federationmetadata.xml file.

   This federation metadata is created during claims setup. Use the URL listed on the last page of the Configure Claims-Based Authentication Wizard (before you click **Finish**), for example, https://internalcrm.contoso.com/FederationMetadata/2007-06/FederationMetadata.xml. Verify that no certificate-related warnings appear.

6. Click **Next**.
7. On the **Specify Display Name** page, type a display name, such as CRM Claims Relying Party, and then click **Next**.
8. On the **Configure Multi-factor Authentication Now** page, make your selection and click **Next**.
9. On the **Choose Issuance Authorization Rules** page, click **Permit all users to access this relying party**, and then click **Next**.
10. On the **Ready to Add Trust** page, on the **Identifiers** tab, verify that **Relying party identifiers** has a single identifier such as the following:

    - https://internalcrm.contoso.com

    If your identifier differs from the above example, click **Previous** in the **Add Relying Party Trust Wizard** and check the Federation metadata address.

11. Click **Next**, and then click **Close**.
12. If the Rules Editor appears, click **Add Rule**. Otherwise, in the **Relying Party Trusts** list, right-click the relying party object that you created, click **Edit Claims Rules**, and then

click **Add Rule**.

> 🔵 **Important**
>
> Be sure the **Issuance Transform Rules** tab is selected.

13. In the **Claim rule template** list, select the **Pass Through or Filter an Incoming Claim** template, and then click **Next**.
14. Create the following rule:
    - Claim rule name: *Pass Through UPN* (or something descriptive)
    - Add the following mapping:
        i. Incoming claim type: **UPN**
        ii. **Pass through all claim values**
15. Click **Finish**.
16. In the **Rules Editor**, click **Add Rule**, in the **Claim rule template** list, select the **Pass Through or Filter an Incoming Claim** template, and then click **Next**.
17. Create the following rule:
    - Claim rule name: *Pass Through Primary SID* (or something descriptive)
    - Add the following mapping:
        i. Incoming claim type: **Primary SID**
        ii. **Pass through all claim values**
18. Click **Finish**.
19. In the **Rules Editor**, click **Add Rule**.
20. In the **Claim rule template** list, select the **Transform an Incoming Claim** template, and then click **Next**.
21. Create the following rule:
    - Claim rule name: *Transform Windows Account Name to Name* (or something descriptive)
    - Add the following mapping:
        i. Incoming claiming type: **Windows account name**
        ii. Outgoing claim type: **Name**
        iii. **Pass through all claim values**
22. Click **Finish**, and when you have created all three rules, click **OK** to close the Rules Editor.

The following transform rules specify the claims that will be sent to the relying party.

Order	Rule Name	Issued Claims
1	Pass Through or Filter and Incoming Claim	UPN
2	Pass Through Primary SID	Primary SID
3	Transform Windows Account Name to N...	Name
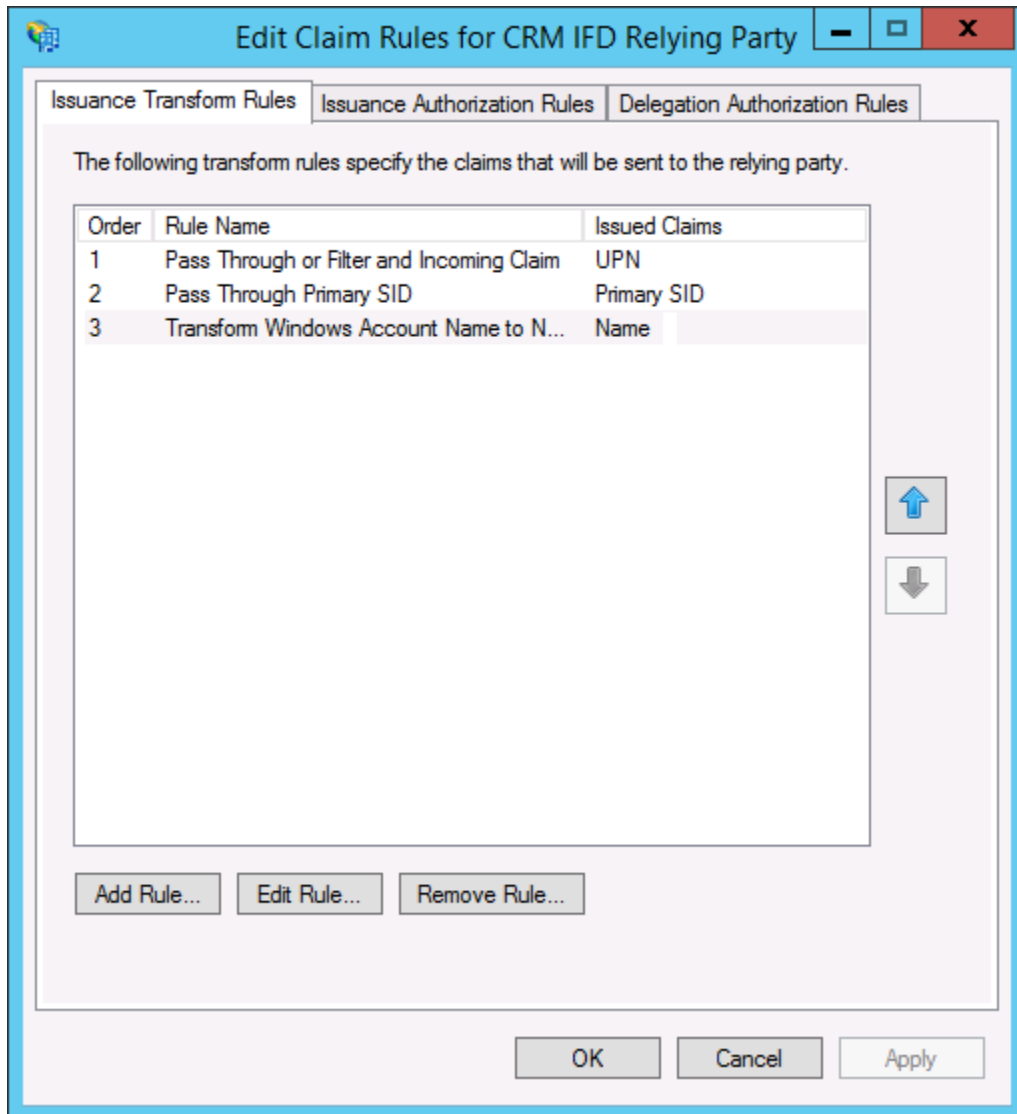
This illustration shows the three relying party trust rules you create.

The relying party trust you created defines how AD FS Federation Service recognizes the Microsoft Dynamics CRM relying party and issues claims to it.

Enable Forms Authentication

In AD FS in Windows Server 2012 R2, forms authentication is not enabled by default.

▶

1. Log on to the AD FS server as an administrator.
2. Open the AD FS management console and click **Authentication Policies**.
3. Under **Primary Authentication**, **Global Settings**, **Authentication Methods**, click **Edit**.
4. Under **Intranet**, enable (check) **Forms Authentication** and then click **OK**.
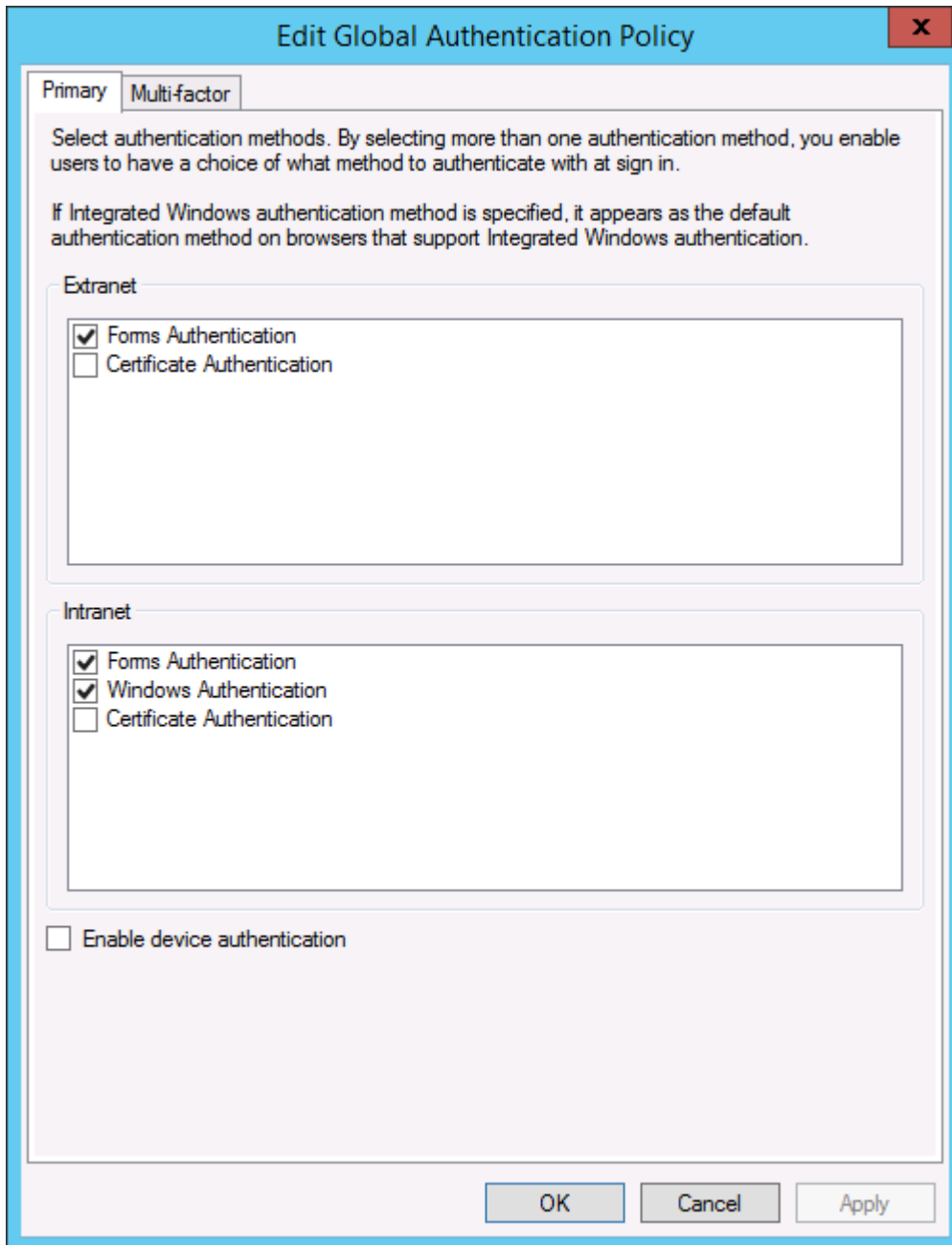
See Also

[Implement claims-based authentication: internal access](#)

Add the AD FS website to the Local intranet security zone

Because the AD FS website is loaded as a FQDN, Internet Explorer places it in the **Internet** zone. By default, Internet Explorer clients do not pass Kerberos tickets to websites in the **Internet**

zone. You must add the AD FS website to the **Intranet** zone in Internet Explorer on each client computer accessing Microsoft Dynamics CRM data internally.

▶ **Add the AD FS server to the Local intranet zone**

1. In Internet Explorer, click **Tools**, and then click **Internet Options**.
2. Click the **Security** tab, click the **Local intranet** zone, and then click **Sites**.
3. Click **Advanced**.
4. In **Add this website to the zone**, type the URL for your AD FS server, for example, https://sts1.contoso.com.
5. Click **Add**, click **Close**, and then click **OK**.
6. Select the **Advanced** tab. Scroll down and verify that under Security **Enable Integrated Windows Authentication** is checked.
7. Click **OK** to close the Internet Options dialog box.

You will need to update the Local intranet zone on each client computer accessing Microsoft Dynamics CRM data internally. To use Group Policy to push this setting to all domain-joined internal client computers do the following.

See Also

[Implement claims-based authentication: internal access](#)

Test internal claims-based authentication

You should now be able to access Microsoft Dynamics CRM Server internally using claims authentication. Browse to the internal Microsoft Dynamics CRM webpage (for example, https://internalcrm.contoso.com).

You will be required to log on several times to the Microsoft Dynamics CRM webpage. Subsequent visits to the Microsoft Dynamics CRM website will only require one log on. In the browser, notice that the AD FS URL is loaded and then directed back to the Microsoft Dynamics CRM server.

Troubleshooting

If the Microsoft Dynamics CRM website does not display, at a command prompt, run the **iisreset** command, and then try browsing to the Microsoft Dynamics CRM website again.

Try adding the following sites to your Trusted sites in your browser:

- https://sts1.contoso.com – change to what use in DNS
- https://internalcrm.contoso.com – change to what you use in DNS

See Also

[Implement claims-based authentication: internal access](#)

Implement claims-based authentication: external access

To enable claims-based authentication for external access to Microsoft Dynamics CRM Server data, do the following:

1. Complete the steps in the previous section, Implementing Claims-based Authentication - Internal Access.
2. Configure the Microsoft Dynamics CRM Server server for IFD.
3. Configure the AD FS for IFD.
4. Test external claims-based authentication.

In This Section

[Configure the Microsoft Dynamics CRM server for IFD](#)

[Configure the AD FS server for IFD](#)

[Test external claims-based authentication](#)

See Also

[Implement claims-based authentication: internal access](#)

[CRM for tablets and IFD](#)

Configure the Microsoft Dynamics CRM server for IFD

With internal claims authentication access enabled on Microsoft Dynamics CRM Server, you can now enable external claims access through IFD.

Configure an Internet-facing deployment using the Configure Internet-Facing Deployment Wizard

▶

1. Start the Deployment Manager.
2. In the Deployment Manager console tree, right-click **Microsoft Dynamics CRM**, and then click **Configure Internet-Facing Deployment**.
3. Click **Next**.
4. On the **Make Microsoft Dynamics CRM available to users who connect through the Internet** page, type the domains for the specified Microsoft Dynamics CRM Server roles, and then click **Next**.

   ◆ **Important**
   - Specify domains, not servers.
   - If your deployment is on a single server or on servers that are in the same domain, the Web Application Server domain and Organization Web Service domain will be identical.
   - The Discovery Web Service domain must be a resolvable host name and not a root domain. For example: dev.contoso.com.
   - The Discovery Web Service domain must not match an organization's Fully Qualified Domain Name (FQDN). For example, the Discovery Web Service domain should not be: orgname.contoso.com.
   - The domains must be valid for the SSL certificate's common name or names.
   - The domains must be set to resolve correctly in DNS to your Microsoft Dynamics CRM servers holding the server roles.

- The domains can be in a different domain than the domain which the Microsoft Dynamics CRM servers reside.

  Example domains:
- Web Application Server domain: **contoso.com**
- Organization Web Service domain: **contoso.com**
- Discovery Web Service domain: **dev.contoso.com**

With the example settings above, if your organization name was "orgname", clients would access your Microsoft Dynamics CRM website with the following URL: **https://orgname.contoso.com**.

5. In the **Enter the external domain where your Internet-facing servers are located** box, type the external domain information where your Internet-facing Microsoft Dynamics CRM Server servers are located, and then click **Next**.

   The domain you specify must be a sub-domain of the Web Application Server domain specified in the previous step. By default, "auth." is pre-pended to the Web Application Server domain.

⬥ **Important**

- The external domain is used by the AD FS server when retrieving the Microsoft Dynamics CRM IFD federationmetadata.xml file.

- The external domain must not contain an organization name.

- The external domain must not contain an underscore character ("_").

- The external domain must be valid for the SSL certificate's common name or names.

- The external domain must be set to resolve correctly in DNS to your Microsoft Dynamics CRM server holding the Web Application Server role.

Example domain:

- External domain: **auth.contoso.com**

6. On the **System Checks** page, review the results, fix any problems, and then click **Next**.

7. On the **Review your selections and then click Apply** page, verify your selections, and then click **Apply**.

8. Click **Finish**.

9. Run the following command at a command prompt: *iisreset*

10. If you have not already done so, add host records in DNS for the IFD endpoints (for example: orgname.contoso.com, auth.contoso.com, dev.contoso.com)

▶ **To Configure an Internet-facing deployment using Windows PowerShell**

1. Open a Windows PowerShell prompt.

2. Add the Microsoft Dynamics CRM Windows PowerShell snap-in:

   ```
   PS > Add-PSSnapin Microsoft.Crm.PowerShell
   ```

3. Get the IFD settings:

   ```
   PS > $ifd = Get-CrmSetting -SettingType "IfdSettings"
   ```

4. Configure the IFD object:

   ```
   PS > $ifd.Enabled = 1 (or $true) PS >
   $ifd.DiscoveryWebServiceRootDomain =
   Discovery_Web_Service_DomainPS > $ifd.ExternalDomain =
   External_Server_DomainPS >
   $ifd.OrganizationWebServiceRootDomain=
   Organization_Web_Service_DomainPS >
   $ifd.WebApplicationRootDomain = Web_Application_Server_Domain
   ```

   where:

   - 1 = "true".
   - Discovery_Web_Service_Domain is the Discovery Web Service domain.
   - External_Server_Domain is the external server domain.
   - Organization_Web_Service_Domain is the Organization Web Service domain.
   - Web_Application_Server_Domain is the Web Application Server domain.

   For the domain paths, the values for the paths must be in the form:

   server:port

   or

   server.domain.tld:port,

   where:

   - *server* is the computer name
   - *domain* is the complete sub domain path where the computer is located
   - *tld* is the top level domain, such as com or org
   - The *:port* designation is required if you are not using the standard http port (80) or https port (443).

   Typically, in a Full Server or Front-end Server role deployment, the path values are the same. However, if you deploy Microsoft Dynamics CRM on multiple servers with separate server roles, that is, where the Web Application Server, Organization Web Service, or Discovery Web Service server roles are located on different servers, these path values will be different:

- Web Application Server. WebApplicationServerName.domain.tld:port
- Organization Web Service. OrganizationWebServiceServerName.domain.tld:port
- Discovery Web Service. DiscoveryWebServiceServerName.domain.tld:port

5. Set the Internet-facing deployment object.

```
PS > Set-CrmSetting $ifd
```

See Also

[Implement claims-based authentication: external access](#)

Configure the AD FS server for IFD

After you have enabled IFD on the Microsoft Dynamics CRM Server you will need to create a relying party for the IFD endpoint on the AD FS server.

Configure relying party trusts

1. On the computer that is running Windows Server where the AD FS federation server is installed, start AD FS Management.
2. In the **Navigation Pane**, expand **Trust Relationships**, and then click **Relying Party Trusts**.
3. On the **Actions** menu located in the right column, click **Add Relying Party Trust**.
4. In the **Add Relying Party Trust Wizard**, click **Start**.
5. On the **Select Data Source** page, **click Import data about the relying party published online or on a local network**, and then type the URL to locate the federationmetadata.xml file.

   This federation metadata is created during IFD Setup, for example, https://auth.contoso.com/FederationMetadata/2007-06/FederationMetadata.xml.

   Type this URL in your browser and verify that no certificate-related warnings appear.
6. Click **Next**.
7. On the **Specify Display Name** page, type a display name, such as **CRM IFD Relying Party**, and then click **Next**.
8. On the **Configure Multi-factor Authentication Now** page, make your selection and click **Next**.
9. On the **Choose Issuance Authorization Rules** page, click **Permit all users to access this relying party**, and then click **Next**.
10. On the **Ready to Add Trust** page, on the **Identifiers** tab, verify that **Relying party identifiers** has three identifiers such as the following:

   - https://auth.contoso.com
   - https://orgname.contoso.com
   - https://dev.contoso.com

   If your identifiers differ from the above example, click **Previous** in the **Add Relying Party Trust Wizard** and check the Federation metadata address.

11. Click **Next**, and then click **Close**.

12. If the Rules Editor appears, click **Add Rule**. Otherwise, in the **Relying Party Trusts** list, right-click the relying party object that you created, click **Edit Claims Rules**, and then click **Add Rule**.

    > **Important**
    >
    > Be sure the **Issuance Transform Rules** tab is selected.

13. In the **Claim rule template** list, select the **Pass Through or Filter an Incoming Claim** template, and then click **Next**.

14. Create the following rule:

    - Claim rule name: **Pass Through UPN** (or something descriptive)
    - Add the following mapping:
        i. Incoming claim type: **UPN**
        ii. **Pass through all claim values**

15. Click **Finish**.

16. In the **Rules Editor**, click **Add Rule**, and in the **Claim rule template** list, select the **Pass Through or Filter an Incoming Claim** template, and then click **Next**.

    - Claim rule name: **Pass Through Primary SID** (or something descriptive)
    - Add the following mapping:
        i. Incoming claim type: **Primary SID**
        ii. **Pass through all claim values**

17. Click **Finish**.

18. In the **Rules Editor**, click **Add Rule**,

19. In the **Claim rule template** list, select the **Transform an Incoming Claim** template, and then click **Next**.

20. Create the following rule:

    - Claim rule name: **Transform Windows Account Name to Name** (or something descriptive)
    - Add the following mapping:
        i. Incoming claim type: **Windows account name**
        ii. Outgoing claim type: **Name**
        iii. **Pass through all claim values**

21. Click **Finish**, and, when you have created all three rules, click **OK** to close the Rules Editor.

See Also

Implement claims-based authentication: external access

Test external claims-based authentication

You should now be able to access Microsoft Dynamics CRM Server externally using claims authentication. Browse to your Microsoft Dynamics CRM website's external address (for example: https://orgname.contoso.com). You should see a screen like the following:
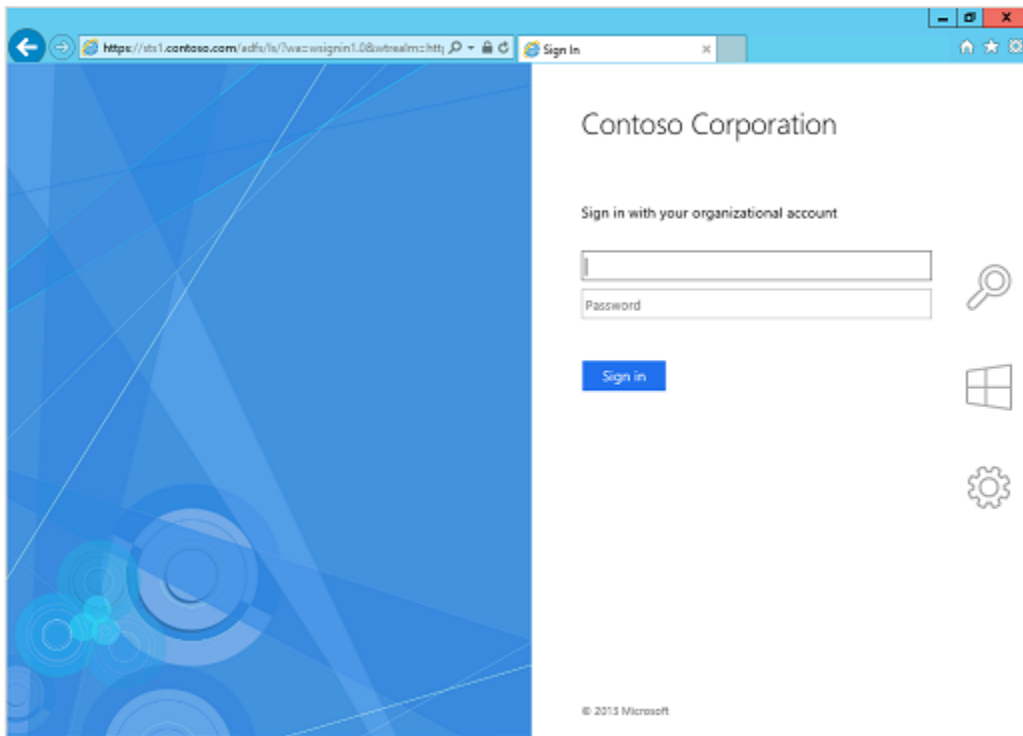
Sign in and verify that you have external access to Microsoft Dynamics CRM Server.

📝 **Note**

> You might need to add the external access website as a trusted site. Use the wild card designator (for example: https://*.contoso.com).

See Also

[Implement claims-based authentication: external access](#)

CRM for tablets and IFD

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 are enabled.
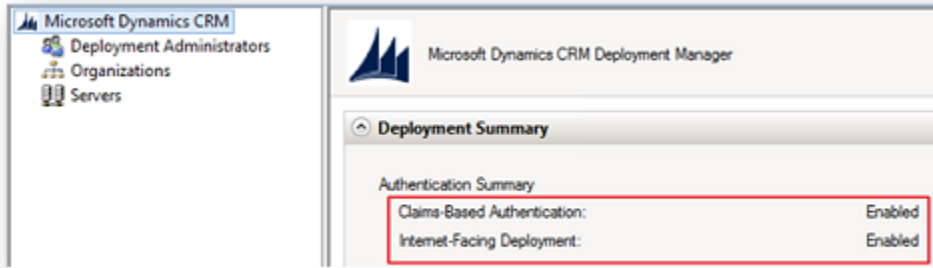
Important

For Microsoft Dynamics CRM for tablets to successfully connect to a new deployment of Microsoft Dynamics CRM, you must run a Repair of Microsoft Dynamics CRM on the server running IIS where the Web Application Server role is installed *after* the Internet-Facing Deployment Configuration Wizard is successfully completed. More information: Uninstall, change, or repair Microsoft Dynamics CRM Server.

See Also

Set up CRM for phones and CRM for tablets

Configure IFD for Microsoft Dynamics CRM

CRM for phones and IFD

By default, Windows Integrated Authentication (WIA) is enabled in Active Directory Federation Services (AD FS) in Windows Server 2012 R2. WIA is used for authentication requests that occur within the organization's internal network (intranet) for any application that uses a browser for its authentication.

WIA is not supported for Microsoft Dynamics CRM for phones running on Windows Phone 8.1. If you have deployed Microsoft Dynamics CRM (on-premises) with Internet-facing deployment (IFD), you will need to run a Windows PowerShell script on your AD FS server to fall back to forms-based authentication for CRM for phones on Windows Phone 8.1. For the script and more information on this issue, see Configuring intranet forms-based authentication for devices that do not support WIA.

See Also

Set up CRM for phones

Configure IFD for Microsoft Dynamics CRM

Configure Microsoft Dynamics CRM for Outlook to use claims-based authentication

In an environment that supports claims-based authentication, a client (such as Dynamics CRM for Outlook) can use federated AD FS to connect to the Microsoft Dynamics CRM Server. The client obtains credentials through federated AD FS and uses these credentials to be authenticated on the same or a different Active Directory domain to connect to the Microsoft Dynamics CRM Server.

You can connect Dynamics CRM for Outlook on one Active Directory domain to a Microsoft Dynamics CRM server in a different Active Directory domain. You can do this when the credentials that Dynamics CRM for Outlook uses on its own domain are authenticated by a server on the other domain. To make this work, use AD FS.

After federation is established, the client can use either its current domain credentials or different domain credentials when attempting to connect to the Microsoft Dynamics CRM Server. You specify which domain and which Active Directory to use through the home realm - an identity provider that authenticates the user.

📝 **Note**

For external claims-based authentication deployments, use the Microsoft Dynamics CRM Server website's external address (for example: https://orgname.contoso.com) for the **Server URL** connection setting.

Set up a client for claims-based authentication

In the following procedure, you create a registry key on a single client computer. You may also want to consider using group policy so that you can make this registry change on multiple client computers.

▶

1. Make sure that a web browser on the client can reach the Microsoft Dynamics CRM Server URL with no certificate errors. If you use a self-signed certificate, you will need to import it to avoid certificate errors. After you import any needed certificates, you should be able to connect to the organization by using non-federated credentials.

2. To use federated credentials, specify HomeRealmUrl in the Windows registry, as shown here:

   📝 **Note**

   This registry key is only needed if the claims provider server is different from the claims provider server used by Microsoft Dynamics CRM Server; for example, the Microsoft Dynamics CRM client authenticates across realms to a different domain.

   a. With Administrator privileges, open the Registry Editor.

   b. Open the registry key **HKEY_LOCAL_MACHINE\Software\Policies\Microsoft\MSCRMClient**.

   c. Create the registry string **HomeRealmUrl**.

   d. Enter the value data of the federated AD FS. This URL will end in /adfs/services/trust/mex. For example, https://adfs.contoso.com/adfs/services/trust/mex.

   e. Close the Registry Editor.

   f. Configure Dynamics CRM for Outlook. More information: **Set up CRM for Outlook**

You should now be able to connect Dynamics CRM for Outlook to Microsoft Dynamics CRM Server by using claims-based authentication.

Use an administrative template (.adm) file

Modify the following sample data to create an .adm file to use group policy to publish the HomeRealmUrl registry setting.

```
CLASS MACHINECATEGORY "Microsoft Dynamics CRM"    KEYNAME
"Software\Policies\Microsoft\MSCRMClient"   POLICY "Home Realm URL"    EXPLAIN "Allow
Administrator to specify the Home Realm URL for federated domains."    PART "Specify
Home Realm URL (example: https://adfs.contoso.com/adfs/services/trust/mex" EDITTEXT
REQUIREDVALUENAME "HomeRealmUrl"    END PART   END POLICYEND CATEGORY
```

For more information, see Administrative Template File Format.

See Also

Install CRM for Outlook

Configure IFD for Microsoft Dynamics CRM

Troubleshoot Microsoft Dynamics CRM Server IFD

A quick checklist

Did you…	Reference
Configure DNS records?	See "DNS configuration" in the downloadable document
Install and bind your certificate on the Microsoft Dynamics CRM website?	See "Certificate selection and requirements" in the downloadable document
Add an AD FS signing certificate as a trusted certificate under the CRMAppPool account profile?	See "Enable AD FS token signing" in the downloadable document
Change the binding type for Microsoft Dynamics CRM websites to HTTPS and use the correct web addresses in Deployment Manager?	Configure the Microsoft Dynamics CRM server for IFD
Give the CRMAppPool account the rights to use an existing certificate used by Microsoft Dynamics CRM as signing certificate? This could be the wildcard certificate installed on the Microsoft Dynamics CRM server.	Configure the Microsoft Dynamics CRM Server for claims-based authentication
Run the Configure Claims-Based Authentication Wizard from Microsoft Dynamics CRM Deployment Manager? Have you specified the correct URL in this wizard? Have you selected the appropriate encryption	Configure the Microsoft Dynamics CRM Server for claims-based authentication

Did you…	Reference
certificate?	
Configure relying party trust in AD FS for Microsoft Dynamics CRM internal claims endpoint? Have you provided the correct URL for the Microsoft Dynamics CRM IFD claims endpoint? Have you setup the correct rules for the relying party trusts?	[Configure the AD FS server for claims-based authentication](#) [Configure the AD FS server for IFD](#)

AD FS

Use the following to verify your AD FS settings.

▶ **Review AD FS events**

1. Open Event Viewer.

2. Expand **Applications and Services Logs**. Expand **AD FS**. Click **Admin**.

3. Review the events looking for errors.

Events such as Event ID 184 describing an unknown relying party trust could indicate missing host records in DNS or incorrect path configuration for the relying party's federation metadata URL.

▶ **Verify relying party trust identifiers**

1. Open the AD FS Management console.

2. Under **Trust Relationships**, click **Relying Party Trusts**. Verify the relying party trusts are enabled and not displaying an alert.

3. Right-click the relying party trust and click **Properties**. Click the **Identifiers** tab. You should see identifiers like the following.

   Relying party trust for claims: internalcrm.contoso.com

CRM Claims Relying Party Properties

Organization	Endpoints	Proxy Endpoints	Notes	Advanced
Monitoring	Identifiers	Encryption	Signature	Accepted Claims

Specify the display name and identifiers for this relying party trust. Some fields are disabled because automatic overwrites are enabled on the Monitoring tab for this relying party trust.

Display name:

CRM Claims Relying Party

Relying party identifier:

[   ]   [Add]

Example: https://fs.contoso.com/adfs/services/trust

Relying party identifiers:

https://internalcrm.contoso.com/   [Remove]

[OK]   [Cancel]   [Apply]

Relying party trust for IFD: auth.contoso.com
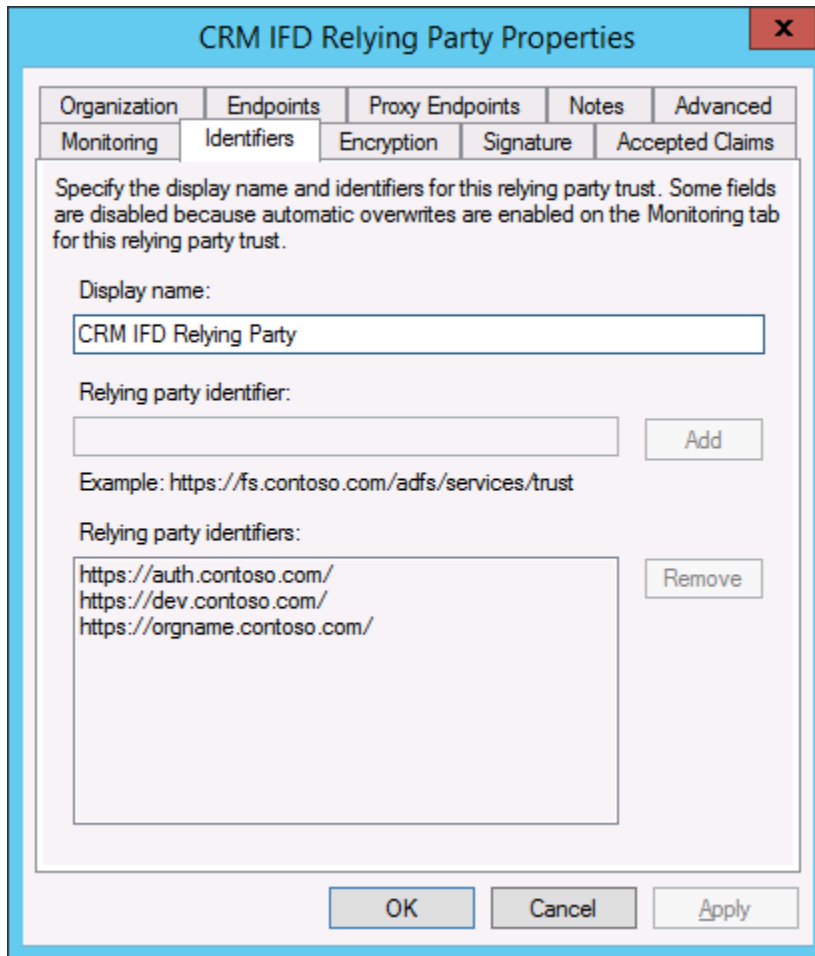
If your identifiers aren't similar to the above examples, check the path entered for the relying party's federation metadata URL on the **Monitoring** tab and check your DNS records.

When attempting an internal claims-based authentication connection, you might receive prompt for your credentials. Try the following steps.

▶ **Resolve prompt for credentials**

1. Add the add website address for the AD FS server (for example, https://sts1.contoso.com) to the Trusted Intranet Zone in Internet Explorer.

2. Turn off Extended Protection. On the server running IIS for the Microsoft Dynamics CRM website:

   Turn off extended protection on the Microsoft Dynamics CRM website.

   a. Open IIS.

   b. Select the Microsoft Dynamics CRM website.

   c. Under IIS, double-click **Authentication**.

    d.   Right-click **Windows Authentication**, and then click **Advanced Settings**.

    e.   Set **Extended Protection** to **Off**.

▶**For more AD FS troubleshooting information**

    1.   See the following: Troubleshoot AD FS 2.0

HTTP Error 401.1 - Unauthorized: Access is denied

If the Microsoft Dynamics CRM website fails to display or produces the following error: HTTP Error 401.1 - Unauthorized: Access is denied, there are two steps to try to resolve this issue:

1. You might need to update the Federation metadata URLs and do an IIs reset. See KB2686840.

2. You might need to register the AD FS server as a service principal name (SPN). See "Register the AD FS server as a service principal name (SPN)" in the downloadable document.

Time differs between two servers

An authentication error can occur if the time between the AD FS and the Microsoft Dynamics CRM server differs by more than 5 minutes. See Windows Time Service Technical Reference for information on how to configure time synchronization on your servers.

See Also

Configure IFD for Microsoft Dynamics CRM

Troubleshooting installation and upgrade

This section describes how to troubleshoot installation and known issues.

Log files

Setup creates log files that can be reviewed and used for troubleshooting. The log files are produced in clear unstructured text or xml and can be viewed by a basic text editor, such as Notepad. By default, the location of the log files, where *User* is the account of the user who ran Setup, is as follows:

SystemDrive:\Users*User*\AppData\Roaming\Microsoft\MSCRM\Logs\

💧 **Important**

By default, Windows Server hides the folders where the log files are located. To view these folders, go to **Folder Options** in Control Panel to change the setting so you can view these folders.

Microsoft Dynamics CRM Server Setup generates several distinct log files, depending on whether the installation is for a new deployment or an upgrade from a previous version.

- Crmserversetup.log. The file that contains most of the Microsoft Dynamics CRM Server installation or upgrade activity.

- Crmsetup.log. The file that contains Setup update (self-healing Setup) activity.

- LegacyFeatureCheck.xml. During Microsoft Dynamics CRM Server upgrade, Setup analyzes the deployment for outdated (legacy) customization and extensibility features, such as Microsoft Dynamics CRM 4.0 plug-ins or solutions that use the 2007 web services endpoint. This file contains the results.
- SrsDataConnectorSetup.log. The file that contains most of the Microsoft Dynamics CRM Reporting Extensions installation activity.

See Also

Install or upgrade Microsoft Dynamics CRM Server

Install or upgrade Language Packs for Microsoft Dynamics CRM

Install or upgrade Language Packs for Microsoft Dynamics CRM

The Microsoft Dynamics CRM Language Pack enables users to change the language of the user interface or Help that is displayed in the application. For example, your multinational organization might have standardized on an English user interface to simplify internal training and troubleshooting, but if you prefer to read Help in your native language, you can specify that Microsoft Dynamics CRM display Help in that language.

Language Pack overview

The basic steps to install and provision one or more Language Packs are described here.

1. Download the Language Packs that you want. Language Packs are not included with other Microsoft Dynamics CRM applications and are only available through the Microsoft Download Center. Each language pack installation (.msi) file includes the locale id (LCID) that represents that language. Download a Microsoft Dynamics CRM 2016 Language Pack.

   📝 **Note**

   For a list of locale IDs and the associated language, see MSDN: Locale IDs assigned by Microsoft.

   You can't install a Language Pack that is the same locale ID as the Microsoft Dynamics CRM base language.

2. Install the Language Pack .msi package on the Microsoft Dynamics CRM Server. If you have deployed server roles, install it on the Front End Server or the servers that are running the Web Application Server role.

3. Sign-in to the organizations that you want to provide language support for and enable each Language Pack. More information: Install and enable a Language Pack

4. For Microsoft Dynamics CRM for Outlook users, the same language packs must also be installed on the users' PCs.

After installing and enabling a Language Pack, its capabilities and corresponding options are available for users to select in Microsoft Dynamics CRM client applications from personal **Settings** > **Options**.

For more detailed installation and enabling instructions, see the following topics.

In This Section

See Also

Install and enable a Language Pack

Follow the procedures in this topic to install a Microsoft Dynamics CRM Language Pack.

Install the Language Pack (on-premises only)

If you have users who are running Microsoft Dynamics CRM for Outlook, in addition to installing Language Pack on the computer running Microsoft Dynamics CRM Server, you must also install the same Language Packs on the computer where Dynamics CRM for Outlook is installed.

▶

1. Log on to the computer where Microsoft Dynamics CRM Server or Dynamics CRM for Outlook is installed.

2. Verify that you have local Administrator permission on the computer and System Administrator security role or equivalent privileges on Microsoft Dynamics CRM.

3. Microsoft Dynamics CRM 2016 Language Pack.

4. Where the Language Pack files are located, double-click the file MUISetup_<loc_code>_<proc_type>.msi file,

   where:

   <loc_ code> is the locale code for the Language Pack that you're installing. (For example, "1031" for German or "1041" for Japanese.)

   <proc_type> specifies the application processor version. (For example, amd64 for Microsoft Dynamics CRM Server and 64-bit versions of Dynamics CRM for Outlook or i386 for 32-bit versions of Dynamics CRM for Outlook.)

5. On the **License Agreement** page, review the information and, if you accept the terms of the agreement, click **I accept the terms in the License Agreement**, and then click **Install**.

   Setup copies the Language Pack files to the correct locations in Microsoft Dynamics CRM. By default, the Language Pack files are copied to drive:\Program Files\Microsoft CRM\LangPacks\<loc_ code>, where <loc_ code> is the locale code for the Language Pack that you are installing.

6. To complete the installation, click **Finish**.

   Repeat the previous steps for each Language Pack that you want to make available to your Microsoft Dynamics CRM (on-premises) Deployment.

7. Enable the language packs that you want to make available to users. More information: **Enable languages**

See Also

Install or upgrade Language Packs for Microsoft Dynamics CRM

Upgrade and enable a Language Pack

Upgrade and enable a Language Pack

After you upgrade Microsoft Dynamics CRM Server, if you had Microsoft Dynamics CRM Language Packs installed you should install new Language Packs that correspond to the new version of Microsoft Dynamics CRM Server. Then, enable the Language Packs so they are available to users after the upgrade.

▶ **Upgrade and provision a Language Pack**

1. On each Microsoft Dynamics CRM Server that was upgraded, download the new Language Packs. More information: Download: Microsoft Dynamics CRM 2016 Language Pack

2. Follow the steps to install each Language Pack. More information: Step1: Install the Language Pack

    ◆ **Important**
    After you install a new language pack, enable it to load the new language pack files into Microsoft Dynamics CRM Server. More information: **Enable languages**

3. After you install and provision all the new Language Packs, uninstall the previous version of each Language Packs. More information: Uninstall or repair a Microsoft Dynamics CRM Language Pack.

See Also

Install or upgrade Language Packs for Microsoft Dynamics CRM

Uninstall, repair, and change Microsoft Dynamics CRM 2016

Install Microsoft Dynamics CRM Report Authoring Extension

Microsoft Dynamics CRM Report Authoring Extension is required to create and customize fetch-based reports by using SQL Server Data Tools - Business Intelligence, an authoring environment for Microsoft Visual Studio. More information: Microsoft Dynamics CRM Reporting Extensions requirements

If not already installed, the following components are installed during Microsoft Dynamics CRM Report Authoring Extension Setup:

- .NET Framework
- Microsoft Application Error Reporting Tool
- Windows Live ID Sign-in Assistant 6.5

⚠ **Warning**

Microsoft Dynamics CRM users who use the Report Viewer control included with Microsoft Visual Studio can view information from the reports that they have access to. By using this control, the user can view additional report and session data that is not displayed when running the report in Microsoft Dynamics CRM. To reduce the risk of exposing confidential data, we recommend that you configure the Microsoft SQL Server Reporting Services URL where the Microsoft Dynamics CRM Reporting Extensions is installed to allow only Secure Sockets Layer (SSL), also known as Secure HTTP, connections. More information: MSDN: Configure SSL Connections on a Native Mode Report Server.

◆ **Important**

If your organization uses Microsoft Office 365, the computer on which the Microsoft Dynamics CRM Report Authoring Extension is installed must have the Microsoft Online Services Sign-in Assistant installed on it. 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.

Install the plug-in

Microsoft Dynamics CRM Report Authoring Extension is a plug-in that obtains the metadata and data from Microsoft Dynamics CRM. This metadata is required to design and preview Fetch-based reports inSQL Server Data Tools.

▶

1. In the /BIDSExtensions/ folder, double-click **SetupBIDSExtensions.exe**. Download from the Microsoft Download Center.

2. On the **Welcome to Microsoft Dynamics CRM Report Authoring Extension Setup** page, we recommend that you choose **Get updates for Microsoft Dynamics CRM**, to make sure that Setup has the most recent installation files. Click **Next**.

3. On the **License Agreement** page, review the information, and if you accept the license agreement, select the **I accept this license agreement** check box, and then click **I Accept**.

4. If Setup detects that some required components are missing, the **Install Required Components** page appears. To install them, click **Install**. When the components are installed, the status column changes from **Not Installed** to **Installed**. Click **Next** to continue.

   📝 **Note**
   - These components are required before Microsoft Dynamics CRM Report Authoring Extension 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.
   - Installing these components may require you to restart the computer. If you are

prompted to restart the computer, do so, and then start Setup again.

5. On the **Select Microsoft Update Preference** page, we recommend that you select the **Use Microsoft Update when I check for updates (recommended)** option. Microsoft Update makes sure that your computer has the latest technology, which can help to reduce the risk of vulnerabilities and security issues.

6. On the **Select Installation Location** page, accept the default location or enter a different file installation location, and then click **Next**.

7. On the **System Checks** page, a summary of all requirements and recommendations for a successful installation is shown. Errors must be corrected before installation can continue. If no errors, or only warnings appear, you can continue with the installation. To do this, click **Next**.

8. Review the **Ready to Install Microsoft Dynamics CRM Report Authoring Extension** page, and then click **Back** to correct any errors. When you are ready to continue, click **Install**.

9. When Setup successfully completes, the **Microsoft Dynamics CRM Report Authoring Extension Completed** page appears. Click **Finish**.

See Also

Download: Microsoft Online Services Sign-In Assistant for IT Professionals RTW

Microsoft Dynamics CRM Server installation

Upgrade Microsoft Dynamics CRM Server

Uninstall, repair, and change Microsoft Dynamics CRM 2016

This section describes how to uninstall, repair, or change Microsoft Dynamics CRM. Uninstalling Microsoft Dynamics CRM, purging the computer system of CRM data, and making system changes involves a series of automated and manual procedures. These procedures involve working in the following areas:

- Microsoft Dynamics CRM
- Internet Information Services (IIS)
- Microsoft SQL Server
- Microsoft SQL Server Reporting Services
- Active Directory

In This Section

- Uninstall, change, or repair Microsoft Dynamics CRM Server
- Uninstall or repair Microsoft Dynamics CRM Reporting Extensions
- Uninstall or repair Microsoft Dynamics CRM Report Authoring Extension
- **Uninstall, change, or repair E-mail Router**
- **Uninstall or repair Microsoft Dynamics CRM for Outlook**
- Uninstall or repair a Microsoft Dynamics CRM Language Pack

See Also

Uninstall, change, or repair Microsoft Dynamics CRM Server

To perform Microsoft Dynamics CRM Server maintenance, select from the following options that are available. Before selecting an option, you must start **Programs and Features** in Control Panel.

1. Log on to the computer where the Microsoft Dynamics CRM Server application is installed. Then, start **Programs and Features** in **Control Panel**.

2. Select from the following options.

   - **Uninstall**. Selecting this option will remove Microsoft Dynamics CRM Server from the computer. To do this, right-click **Microsoft Dynamics CRM Server**, click **Uninstall/Change**, select **Uninstall** to remove Microsoft Dynamics CRM Server, and then click **Uninstall**. Follow the instructions that are on the screen.

     ### ◆ Important

     The Microsoft Dynamics CRM uninstall process does not remove some components, such as the SQL Server databases, Active Directory groups, or the Microsoft Dynamics CRM website (when the website is not created by Microsoft Dynamics CRM Server Setup). Those components must be removed manually. Additionally, some components installed during Microsoft Dynamics CRM Server Setup are not removed during an uninstall. More information: Components not removed during a Microsoft Dynamics CRM Server uninstall

   - **Configure**. To add or remove one or more Microsoft Dynamics CRM server roles, right-click **Microsoft Dynamics CRM Server**, click **Uninstall/Change**, select **Configure**, and then click **Next**. Follow the instructions that are on the screen to select or clear one or more server roles. More information: Microsoft Dynamics CRM server roles

   - **Repair**. To repair a Microsoft Dynamics CRM Server installation, right-click **Microsoft Dynamics CRM Server**, click **Uninstall/Change**, select **Repair**, and then click **Next**. Follow the instructions that are on the screen.

     ### 📝 Note

     Repairing a Microsoft Dynamics CRM Server installation reinstalls the program files. It has no effect on the databases. To recover from Microsoft Dynamics CRM database problems, you must restore the MSCRM_CONFIG and *OrganizationName*_MSCRM databases. For information about database backup and failure recovery, see Backing up SQL Server, including Reporting Services.

Components not removed during a Microsoft Dynamics CRM Server uninstall

The following system components, although installed during Microsoft Dynamics CRM Server Setup, aren't removed when you uninstall Microsoft Dynamics CRM Server.

Windows role services:

- Web Server Role Services

- Static Content
- Default Document
- Directory Browsing
- HTTP Errors
- ASP.NET
- Microsoft .NET Framework Extensibility
- ISAPI Extensions
- ISAPI Filters
- HTTP Logging
- Request Monitor
- Windows Authentication
- Request Filtering
- Static Content Compression
- Dynamic Content Compression
- IIS Management Console
- IIS Metabase Compatibility
- File services role services:
  - Windows Search
- Windows features:
  - Microsoft .NET Framework
  - HTTP Activation
  - Windows PowerShell
  - Windows Process Activation

See Also

Uninstall, repair, and change Microsoft Dynamics CRM 2016

Uninstall or repair Microsoft Dynamics CRM Reporting Extensions

Uninstall or repair Microsoft Dynamics CRM Reporting Extensions

To perform Microsoft Dynamics CRM Reporting Extensions maintenance, sign in to the computer where Microsoft Dynamics CRM Reporting Extensions is installed. Then, start **Programs and Features** in Control Panel and select from the following options.

- **Uninstall**. To remove (uninstall) the Microsoft Dynamics CRM Reporting Extensions, right-click **Microsoft Dynamics CRM Reporting Extensions**, click **Uninstall/Change**, select **Uninstall**, and then click **Uninstall**. Follow the instructions on the screen.
- **Repair**. To repair the Microsoft Dynamics CRM Reporting Extensions, right-click **Microsoft Dynamics CRM Reporting Extensions**, click **Uninstall/Change**, select **Repair**, and then click **Next**. Follow the instructions on the screen.

Uninstall or repair Microsoft Dynamics CRM Report Authoring Extension

To perform Microsoft Dynamics CRM Report Authoring Extension maintenance, select from the following options. Before you select an option, you must start **Programs and Features** in Control Panel.

Sign in to the computer where Microsoft Dynamics CRM Report Authoring Extension is installed.

- **Uninstall**. To remove (uninstall) Microsoft Dynamics CRM Report Authoring Extension, right-click **Microsoft Dynamics CRM Report Authoring Extension**, click **Uninstall/Change**, select **Uninstall**, and then click **Uninstall**. Follow the instructions on the screen.

- **Repair**. To repair Microsoft Dynamics CRM Report Authoring Extension, right-click **Microsoft Dynamics CRM Report Authoring Extension**, click **Uninstall/Change**, select **Repair**, and then click **Next**. Follow the instructions on the screen.

See Also

Uninstall, repair, and change Microsoft Dynamics CRM 2016

Uninstall or repair a Microsoft Dynamics CRM Language Pack

Uninstall or repair a Microsoft Dynamics CRM Language Pack

To perform Language Pack maintenance, select from the following options that are available. Before you select an option, you must start **Programs and Features** in Control Panel.

> ⬥ **Important**
>
> Rather than uninstall a Language Pack that is installed on the Microsoft Dynamics CRM server, you can disable a Language Pack in the organization. After you do this, users will no longer be able to see the Microsoft Dynamics CRM user interface and Help in the language that you disabled. Later, you can enable the Language Pack by clicking the language in the **Language Settings** list.

When a Language Pack is removed or disabled, users who have that Language Pack language selected on the **Personal Preferences** form will have to use the base language. For example, consider the following scenario. A Microsoft Dynamics CRM deployment has English as the base language, but the Spanish Language Pack was used in the organization. Then, when the system administrator disables (or uninstalls) the Spanish Language Pack, users who selected the user interface to be in Spanish will see it in English.

To disable a Language Pack, see **Enable languages**.

Uninstall. Selecting this option will remove the selected Language Pack from the computer. If you uninstall a Language Pack, you must reinstall and then enable it before it is available to users again.

► **Uninstall a Language Pack**

1. Right-click the Language Pack, such as **Microsoft Dynamics CRM German Language Pack**, and then click **Uninstall**.

2. If other users are logged on to the computer, you will receive a warning message. Click **Continue** if you want to continue and remove the Language Pack.

3. To confirm that you want to remove the Language Pack, click **Yes**, and then follow the instructions that are on your screen.

Repair. To repair a damaged Language Pack installation, right-click the Language Pack, click **Repair**, and then follow the instructions that are on your screen.

See Also

Uninstall, repair, and change Microsoft Dynamics CRM 2016

Use the command prompt to install Microsoft Dynamics CRM Server 2016

Use the command prompt to install Microsoft Dynamics CRM Server 2016

You can install Microsoft Dynamics CRM Server, Microsoft Dynamics CRM Reporting Extensions, and Microsoft Dynamics CRM for Outlook from their respective installation disks or file download locations by using the command prompt. The required setup information is provided to the Setup program both as command-line parameters and as an XML configuration file that the Setup program references.

One advantage of using the command prompt to install Microsoft Dynamics CRM is that you don't have to attend to the installation. Attended installation requires you to make decisions and provide information so the installation can run successfully. Unattended installation, by using the command prompt, requires you to provide installation information as command-line parameters and an XML configuration file. No other action is required until the Setup program is finished. Warnings and installation progress can be logged to a file you can view and analyze later.

💡 **Tip**

    To help troubleshoot invalid XML error messages, open the XML configuration file by using Internet Explorer to help indicate where the problem occurs in the file.

General procedures

The general procedures for running the Setup program from a command prompt are described here. For more detailed instructions, see the In This Section topics. The prerequisites for each of the Microsoft Dynamics CRM system features as discussed in previous sections also apply.

► **To run the Setup program from a command prompt, follow these steps:**

1. Provide a customized Setup configuration file. Examples are in the topics that follow.

2. Sign in as a member of the Domain Users Active Directory directory service group and

administrators group on the local computer. If you're installing Microsoft Dynamics CRM Server using the Full Server role, the user running Setup must be a member of the local administrators group on the computer that has Microsoft SQL Server installed, and permissions on the organizational unit to create or modify Active Directory groups in the domain where Microsoft Dynamics CRM Server is installed. If you're using pre-created groups, you must have read and write permission to each group.

3. If you're installing from an installation disk, insert the Microsoft Dynamics CRM Server or the Microsoft Dynamics CRM for Outlook installation disk into the CD/DVD drive. The **Autorun** screen appears. Close the **Autorun** screen.

4. Open a Command Prompt window.

5. At the command prompt, change to the CD/DVD drive or change to the location where the Microsoft Dynamics CRM installation files are located:

   - **SetupServer.exe** for Microsoft Dynamics CRM Server is located in the Server folder of the Microsoft Dynamics CRM Server installation disk or file download location.

   - **SetupSrsDataConnector.exe** for the Microsoft Dynamics CRM Reporting Extensions is located in the \SrsDataConnector folder of the Microsoft Dynamics CRM Server installation disk or file download location.

   - **Setupclient.exe** for Dynamics CRM for Outlook is located in the **Client** folder of the Dynamics CRM for Outlook installation disk or file download location.

6. Run the Setup command using the following syntax:

   SetupServer.exe /Q /config c:\CRMSetupconfig.xml

Known issues

Error message "Setup failed to validate specified Reporting Services Report Server http://ServerName/ReportServer" when you install Dynamics CRM Server on Server Core

You may see this error message when the following conditions are true:

- You run Microsoft Dynamics CRM Server Setup on a Windows Server running Server Core.

- The Microsoft SQL Server Reporting Services server that is specified in the Setup XML configuration file is running Microsoft SQL Server 2012 Reporting Services that is configured for an authentication type that is not only NTLM authentication.

To work around this problem, on the Windows Server where you are installing Microsoft Dynamics CRM Server, modify the RSServer.config file to remove all authentication types so that the only authentication type is RSWindowsNTLM.

```
<AuthenticationTypes>

    <RSWindowsNTLM/>

</AuthenticationTypes>
```

More information: RSReportServer Configuration File

After you make the RSServer.config file change, run Microsoft Dynamics CRM Server Setup again.

This issue does not occur when you specify later versions of SQL Server Reporting Services.

In This Section

Install Microsoft Dynamics CRM Server by using a command prompt

Microsoft Dynamics CRM Server XML configuration file

Install Microsoft Dynamics CRM Server roles using the command prompt

Install Microsoft Dynamics CRM Reporting Extensions using a command prompt

See Also

Install Microsoft Dynamics CRM for Outlook using a command prompt

Install Microsoft Dynamics CRM Email Router using a command prompt

Installing on-premises CRM 2016

Post-installation and configuration guidelines for Microsoft Dynamics CRM

Install Microsoft Dynamics CRM Server by using a command prompt

The following command will install Microsoft Dynamics CRM Server:

SetupServer.exe [**/Q**] [/InstallAlways] [**/L** [drive:][[path] logfilename.log]] [**/config** [drive:] [[path] configfilename.xml]]

Parameters

None

Used without parameters, Setup will run with all display screens.

/Q

Quiet mode installation. This parameter requires a configuration file in XML format. The */config* parameter contains the name of the XML configuration file. No dialog boxes or error messages will appear on the display screen.

/InstallAlways

This parameter forces Setup to ignore the installation state and operate in install mode. When you use this parameter, Setup will try to install on a server where Microsoft Dynamics CRM is already installed.

/QR

Requires a configuration file in XML format specified by the /config parameter. Similar to the */Q* parameter, but displays installation progress bars and all error messages.

/L [drive:][[path] logfilename.log]]

Specifies the location and name of the log file to record installation activity. Additional log files may be created during prerequisites installation and will be located in the path specified. The path value cannot be a relative path, such as ..\..\crmlog.txt. If you do not specify a name or location, a log file will be created in the drive:\Documents and Settings*UserName*\Application Data\Microsoft\MSCRM\Logs folder, where *UserName* is the account name of the user running Setup.

/config [drive:] [[path] configfilename.xml]]

The */config* parameter uses the specified XML configuration file to provide Setup with the additional information to complete installation successfully. An example XML configuration file is discussed in the following section. Notice that when you specify a configuration file without the */Q* or */QR* parameter, Setup screens appear filled with the information from the configuration file.

See Also

Use the command prompt to install Microsoft Dynamics CRM Server 2016

Microsoft Dynamics CRM Server XML configuration file

Microsoft Dynamics CRM Server XML configuration file

The /config [drive:] [[path] configfilename.xml]] command-line parameter provides Microsoft Dynamics CRM Server Setup with required information. The information supplied by the XML configuration file is required by each installation screen.

 Important

The XML elements must be in English (US). An XML configuration file that has localized XML elements won't work correctly. For example, if you have a German version of Microsoft Dynamics CRM Server, the XML file elements must still be English (US).

By default, Setup will use UTF-8 encoding for the Setup XML configuration file. Setup can't load an XML configuration file when there are extended characters in the file. You'll receive an error message from Setup that the XML file is invalid. If the XML configuration file contains extended characters, you can work around this issue by saving the XML configuration file by using **Unicode** encoding. To do this, open the XML configuration file in Notepad, click **Save As**, in the **Encoding** list select **Unicode**, and then click **Save**.

An explanation of each XML element and a sample XML file for a Full Server installation follows. For information about how to install separate server roles by using the command prompt, see Install Microsoft Dynamics CRM Server roles using the command prompt in this guide.

Configuration file reference

<CRMSetup> </CRMSetup>

The configuration file must be a valid XML file that uses **<CRMSetup>** as the root element.

<Server> </Server>

Specifies a Microsoft Dynamics CRM Server installation. All the Microsoft Dynamics CRM Server entries that follow must be inside the **<Server>** elements.

<InstallType>Uninstall/Repair/Configure</InstallType>

Specifies the type of installation that Setup will perform. The following options are available:

Uninstall. Uninstalls Microsoft Dynamics CRM Server.

Repair. Starts Setup in repair mode.

Configure. Starts Setup in configuration mode.

<Patch update="true"/"false">\\ServerName\ShareName\Patch_Location</Patch>

Determines the behavior of the update Microsoft Dynamics CRM Server Setup technology. This feature lets Setup perform a one-time search for, and if applicable, download and apply the latest installation files for Microsoft Dynamics CRM.

By default, this element doesn't specify a location, which configures Setup to search for available updates by using Microsoft Update. If you want Setup to install updates from another location, such as a share on your network, add the file paths to the .msp file in the element, as shown in the following topic.

update

Specifies whether Setup will look for, download, and apply updates for Microsoft Dynamics CRM Server Setup. We recommend that you let Setup download the latest version by specifying **true**. By default, this value is set to **false**. If the value is set to **false**, Setup ignores this step and continues with the installation. However, if you run Setup by using the */Q* or */QR* parameter, you must specify this element.

<SqlServer>SQLServername\InstanceName</SqlServer>

Specifies the name of the instance of Microsoft SQL Server that will manage the Microsoft Dynamics CRM Server database files. If you use the default instance, you can provide the name of the computer where SQL Server is installed. If SQL Server is running on the computer where you're installing Microsoft Dynamics CRM Server, you can specify ". " or "localhost".

<Database create="true"/"false" update="true"/"false"/>

create

Values for this parameter are either **true** or **false**. **True** causes Setup to create a new Microsoft Dynamics CRM configuration database. **False** causes Setup to connect to an

existing Microsoft Dynamics CRM configuration database.

update

Values for this parameter are either **true** or **false**. When you select **true**, Setup writes the appropriate server deployment information to the configuration database (MSCRM_CONFIG). Select **false** only when you are using a pre-existing configuration database and you don't want Setup to update the server deployment information. When you select **false**, the appropriate server deployment information for the computer where Microsoft Dynamics CRM Server is being installed must already exist in the configuration database for Setup to complete successfully. The default value is **true**.

<Organization>Organization friendly or long name</Organization>

Specifies the long name of your organization. The name can be up to 250 characters long and extended characters are supported.

<OrganizationUniqueName>Unique name</OrganizationUniqueName>

UniqueName

Specifies the name of your organization in the URL that users will use to access the deployment. There is a 30 character limit. Extended characters or spaces are not allowed. If you don't specify this element or leave the value blank, Setup will generate a short name based on the **<Organization>** element value.

 Important

The unique organization name will be used to construct the URL for users to sign-in to the application. Therefore, we recommend that you limit the length of the unique organization name to reduce the overall length of the URL.

<muoptin optin="true"/"false" />

Specifies whether to use Microsoft Update to download and install updates to Microsoft Dynamics CRM Server and other installed applications. 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.

<OU> OU=value,DC=value,DC=value,DC=value,DC=value</OU>

The <OU> element specifies the Active Directory organizational unit (OU) where the security groups will be created, for example, <OU> OU=CRM, DC=MySubDomain, DC=MyDomain, DC=com</OU>.

💧 **Important**

You can't use the <Groups> element with the <OU> element. Setup won't continue if you specify both elements together.

<PreferredDC>servername.domain.com</PreferredDC>

Specifies the domain controller to contact when performing operations that require Active Directory. If not specified, Setup will use the first domain controller available. This setting is only available when you use a configuration file.

<LicenseKey>KeyValue</LicenseKey>

Specifies the product key for this deployment. The configuration file can contain only one Microsoft Dynamics CRM product key. For example:

<licenseKey>XXXXX-XXXXX-XXXXX-XXXXX-XXXXX</licenseKey>

📝 **Note**

If you purchase Microsoft Dynamics CRM through a Microsoft Volume Licensing program, the product key is provided in the license.txt file. The license.txt file is included in the Microsoft Dynamics CRM installation files.

<WebsiteUrl Create="true"/"false" port="TCPportnumber">path</WebsiteUrl>

Specifies the website to be used for Microsoft Dynamics CRM Server. Use **Create="true"** to create a new Microsoft Dynamics CRM website and leave the value between the element tags blank. Use **port**="*TCPportnumber*", where *TCPportnumber* is a valid and available TCP port number, to specify the port for connecting to the Microsoft Dynamics CRM Server application. If left blank, the port number that will be used is 5555.

Specify **Create="false"** to use an existing website and then you must type the website path in the element tags by using one of the following formats. When you use the **Create="false"** attribute, the port attribute is ignored.

For example:

- http://*server:port*/ or http:// *server.contoso.com*
- /LM/W3SVC/*n*, where *n* is the website ID. 1 is the default website.

\<Help anonymous="true"/"false">http://host/Help\</Help>

Optional element to specify a different URL where Microsoft Dynamics CRM Help is located. This setting is typically used in a multiserver deployment or to replace the default URL such as when using a host header. If you select **false** to disable anonymous access, it may produce repeated logon prompts for users who access Microsoft Dynamics CRM Help. This setting is only available when you use a configuration file.

\<InstallDir>c:\program files\Microsoft Dynamics CRM\</InstallDir>

Specifies the folder in which application files will be installed. By default, Setup will use the folder C:\Program Files\Microsoft Dynamics CRM.

\<basecurrency isocurrencycode="CurrencyCode" currencyname="CurrencyName" currencysymbol="CurrencySymbol" currencyprecision="2"/"3"/"4"/>

isocurrencycode

Specifies the ISO three-letter currency-code, display name, and symbol to use for the base currency. For example, if you want to use U.S. dollars as the base currency, use **isocurrencycode="USD"**. You must use a valid ISO currency description for the **isocurrencycode** attribute.

currencyname and *currencysymbol*

You must also specify the currency-name and currency-symbol display names for the ISO base currency. For example, if the ISO currency code is USD, the currency name should be "US Dollar" and the currency symbol should be "$". However, you can use any string that you want for these attributes.

🔷 **Important**

After Setup is complete, you cannot change the base ISO currency code. However, you can change the base-currency name, base-currency symbol, and base-currency precision.

The currency codes are provided from Microsoft .NET Framework and may change.

currencyprecision

You must specify the precision for the base currency that you specified in the **currencycode** attribute. Valid values depend on the type of currency that you specify. For example, USD valid values are 1 – 9 and the default value is 2.

\<OrganizationCollation>CollationName\</OrganizationCollation>

This optional element specifies the SQL Server database collation name to use for the organization database. The default collation depends on the language of Microsoft Dynamics CRM Server that you're installing, for example, Latin1_General_CI_AI, which is the default collation for English (US) language deployments. For more information about database collation, see the Microsoft MSDN Library website MSDN: Using SQL

<CrmServiceAccount type="DomainUser"/"NetworkService">   <ServiceAccountLogin>Domain\User</ServiceAccountLogin>   <ServiceAccountPassword>password</ServiceAccountPassword> </CrmServiceAccount>

Specifies the service account used to run the Microsoft Dynamics CRM Unzip Service and ASP.NET AppPool application pool identity.

Accepted values are DomainUser, which will use the specified domain user provided in the *<prefixServiceAccount>* element or *NetworkService*, which uses the Network Service system account. However, using the Network Service system account isn't recommended because it may limit some database operations such as organization create, import, upgrade, or update. By default, Setup will use the *DomainUser* option. If *DomainUser* or no type is specified, <**ServiceAccountLogin**> and <**ServiceAccountPassword**> are required. When you run Setup by using the */Q* or */QR* parameter, if this element isn't specified, the Network Service account will be used.

⚠️ **Warning**

Maintaining the configuration file that has <**ServiceAccountLogin**> and <**ServiceAccountPassword**> values specified is a security risk because you're storing a password in plain text. Delete these elements as soon as the configuration file is used to install Microsoft Dynamics CRM Server.

We strongly recommend that you select a low-privilege domain account that is dedicated to running these services and isn't used for any other purpose. Additionally, the user account that is used to run a Microsoft Dynamics CRM service can't be a Microsoft Dynamics CRM user. This domain account must be a member of the Domain Users group. Additionally, if the Asynchronous Service and Sandbox Processing Service roles are installed, such as in a Full Server or a Back End Server installation, the domain account must a member of the Performance Log Users security group.

<SandboxServiceAccount type="DomainUser"/"NetworkService"> <ServiceAccountLogin>Domain\User</ServiceAccountLogin> <ServiceAccountPassword>password</ServiceAccountPassword></SandboxServiceAccount>

Specifies the service account to use for the Sandbox Processing Service.

Accepted values are *DomainUser*, which will use the specified domain user provided in the *<prefixServiceAccount>* element or *NetworkService*, which uses the Network Service system account. By default, Setup will use the *DomainUser* option. If *DomainUser* or no type is specified, <**ServiceAccountLogin**> and <**ServiceAccountPassword**> are required. When you run Setup by using the */Q* or */QR* parameter, if this element isn't specified, the Network Service account will be used.

⚠️ **Warning**

Maintaining the configuration file that has <**ServiceAccountLogin**> and <**ServiceAccountPassword**> values specified is a security risk because you're storing a password in plain text. Delete these elements as soon as the configuration file is used to install Microsoft Dynamics CRM Server.

If you don't specify this element, Setup will use the account specified in the <**CrmServiceAccount**> element to run this service. Therefore, we recommend that you specify a different low-privilege user account for each of the Microsoft Dynamics CRM service accounts.

<**DeploymentServiceAccount type="DomainUser"/"NetworkService"><ServiceAccountLogin>Domain\User</ServiceAccountLogin><ServiceAccountPassword>password</ServiceAccountPassword><DeploymentServiceAccount>**

Specifies the service account to use for the Deployment Web Service.

Accepted values are *DomainUser*, which will use the specified domain user provided in the <*prefixServiceAccount*> element or *NetworkService*, which uses the Network Service system account. However, using the Network Service system account isn't recommended because it may limit some database operations such as organization create, import, upgrade, or update. By default, Setup will use the DomainUser option. If DomainUser or no type is specified, <**ServiceAccountLogin**> and <**ServiceAccountPassword**> are required. When you run Setup by using the */Q* or */QR* parameter, if this element is not specified the Network Service account will be used.

⚠️ **Caution**

Maintaining the configuration file that has <**ServiceAccountLogin**> and <**ServiceAccountPassword**> values specified is a security risk because you're storing a password in plain text. Delete these elements as soon as the configuration file is used to install Microsoft Dynamics CRM Server. If you don't specify this element, Setup will use the account specified in the <**CrmServiceAccount**> element to run this service. Therefore, we recommend that you specify a different low-privilege user account for each of the Microsoft Dynamics CRM service accounts. In addition to the permissions required by the other Microsoft Dynamics CRM service accounts, the Deployment Web Service account requires system administrator permission on the SQL Server, and must be a member of the local administrator group where SQL Server is running to be able to create or import organizations.

🔵 **Important**

To perform organization operations through the Deployment Web Service or Windows PowerShell, the Deployment Service account must have system administrator permissions on the computer that is running SQL Server and must be a member of the local administrators group where SQL Server is installed. Additionally, the user that is performing the organization operations should be a Deployment Administrator.

The Deployment Administrator role in Microsoft Dynamics CRM is set in Deployment Manager.

<AsyncServiceAccount type="DomainUser"/"NetworkService"><ServiceAccountLogin>Domain\User</ServiceAccountLogin><ServiceAccountPassword>password</ServiceAccountPassword><AsyncServiceAccount>

Specifies the service account to use for the asynchronous processing services.

Accepted values are *DomainUser*, which will use the specified domain user provided in the *<prefixServiceAccount>* element or *NetworkService*, which uses the Network Service system account. However, using the Network Service system account isn't recommended because it may limit some database operations such as organization create, import, upgrade, or update. By default, Setup will use the *DomainUser* option. If *DomainUser* or no type is specified, <**ServiceAccountLogin**> and <**ServiceAccountPassword**> are required.

⚠️ **Warning**

Maintaining the configuration file that has <**ServiceAccountLogin**> and <**ServiceAccountPassword**> values specified is a security risk because you're storing a password in plain text. Delete these elements as soon as the configuration file is used to install Microsoft Dynamics CRM Server.

If you don't specify this element, Setup will use the account specified in the <**CrmServiceAccount**> element to run this service. Therefore, we recommend that you specify a different low-privilege user account for each of the Microsoft Dynamics CRM service accounts.

<VSSWriterServiceAccount type="DomainUser"/"NetworkService"> <ServiceAccountLogin>="DomainUser"/"NetworkService"</ServiceAccountLogin> <ServiceAccountPassword>password</ServiceAccountPassword> </VSSWriterServiceAccount>

Specifies the service account to use for the Microsoft Dynamics CRM VSS Writer service.

Accepted values are *DomainUser*, which will use the specified domain user provided in the *<prefixServiceAccount>* element or *NetworkService*, which uses the Network Service system account. By default, Setup will use the *DomainUser* option. If *DomainUser* or no type is specified, <**ServiceAccountLogin**> and <**ServiceAccountPassword**> are required.

⚠️ **Warning**

Maintaining the configuration file that has <**ServiceAccountLogin**> and <**ServiceAccountPassword**> values specified is a security risk because you're storing a password in plain text. Delete these elements as soon as the configuration file is used to install Microsoft Dynamics CRM Server.

We recommend that you specify a different low-privilege user account for each of the Microsoft Dynamics CRM service accounts.

\<MonitoringServiceAccount type="DomainUser"/"NetworkService">
\<ServiceAccountLogin>="DomainUser"/"NetworkService"\</ServiceAccountLogin>
\<ServiceAccountPassword>password\</ServiceAccountPassword>
\</MonitoringServiceAccount>

Specifies the service account to use for the Microsoft Dynamics CRM Monitoring service.

Accepted values are *DomainUser*, which will use the specified domain user provided in the *\<prefixServiceAccount>* element or *NetworkService*, which uses the Network Service system account. By default, Setup will use the *DomainUser* option. If *DomainUser* or no type is specified, **\<ServiceAccountLogin>** and **\<ServiceAccountPassword>** are required.

⚠️ **Warning**

Maintaining the configuration file that has **\<ServiceAccountLogin>** and **\<ServiceAccountPassword>** values specified is a security risk because you're storing a password in plain text. Delete these elements as soon as the configuration file is used to install Microsoft Dynamics CRM Server.

We recommend that you specify a different low-privilege user account for each of the Microsoft Dynamics CRM service accounts.

For information about Microsoft Dynamics CRM services, see Microsoft Dynamics CRM server roles. For information about the permissions required for Microsoft Dynamics CRM services and what type of account to use, see Security considerations for Microsoft Dynamics CRM 2016.

\<SQM optin=" true / false"/>

Specifies whether you will participate in the Customer Experience Improvement Program. If you specify **true**, you'll participate in the program.

📝 **Note**

For more information, see Microsoft Customer Experience Improvement Program.

\<Reporting URL="http://srsserver1/ReportServer"/>

URL

Specifies the URL of the Report Server.

<Groups autogroupmanagementoff="true/false"><PrivUserGroup>CN=value,OU=value,DC=value,DC=value,DC=value</PrivUserGroup><SQLAccessGroup>CN=value,OU=value,DC=value,DC=value,DC=value</SQLAccessGroup><ReportingGroup>CN=value,OU=value,DC=value,DC=value,DC=value</ReportingGroup> <PrivReportingGroup>CN=value,OU=value,DC=value,DC=value,DC=value</PrivReportingGroup></Groups>

When specified, Setup will use the existing groups in Active Directory instead of creating them during installation. If <**automanagegroupsoff**> is **true**, Setup will not add or remove any members to those groups. If you specify <**automanagegroupsoff**> as **true**, you must manually create and add the appropriate membership to these groups for users to be able to run the application, and you must continue to do so as new members are added or removed from Microsoft Dynamics CRM.

> **Important**

- You can't use the **<Groups>** element with the **<OU>** element. Setup won't continue if you specify both elements together.

- Direct user account membership in the Microsoft Dynamics CRM privusergroup security group is required and group membership nesting under privusergroup currently is not supported. Granting membership to privusergroup through another security group can cause system-wide failures in the CRM web application and reporting features. For example, if you add a security group named mycrmprivgroupusers to privusergroup, members of mycrmprivgroupusers will not resolve as privusergroup members. This includes the CRMAppPool or the SQL Server Reporting Services service identities.

This setting is only available when you use a configuration file.

<Reboot>"true" / "false"</Reboot>

If this option is not specified, the default is **false**. This means that the server won't automatically restart at the end of Setup. Also, this option applies only to a final install restart, and not previous restarts that may be required for other components.

> **Note**

The installation of Microsoft .NET Framework may require you to restart your computer before you can continue to run Microsoft Dynamics CRM Setup.

<Email><IncomingExchangeServer name="ServerName"/>

This optional element specifies the Microsoft Exchange Server computer or POP3 that will be used by the Email Router to route incoming email messages. If not specified and later the Email Router is used in the deployment, the computer must be added to the **PrivUserGroup** security group.

</Email>

Specifies the email server that will be used for email routing.

<configdb>

This is the parent for the following encryption key elements:

⚠️ **Warning**

By default, encryption keys aren't stored in the configuration database in an encrypted format. We strongly recommend that you specify encryption when you run Setup by using the following entries.

<encryptionkeys certificate="CrmEncryptionCertificate" generate="true"/"False" password="SCpassword" keysource="uniqueID">

The <**encryptionkeys**> element specifies how, and whether, to encrypt the keys that are stored in the Microsoft Dynamics CRM system. Use **generate="true"** to enable the system-generated keys that are encrypted. The **keysource** may be any value, but must be different from other **keysource** values. **SCpassword** is the password that will be used to create the symmetric certificate. This setting is only available when you use a configuration file.

⚠️ **Warning**

Maintaining a configuration file that has **password** and **keysource** values specified is a security risk because you are storing a password and key information in plain text. We recommend that you save the password in a secure location from where it can be retrieved later for recovery. For more information about best practices for password storage, see the MSDN article [Passwords](#) [Best practices](#). Then, delete these elements as soon as the configuration file is used to install Microsoft Dynamics CRM.

<encryptionkey physicalname="CrmSymmetricKey" virtualname="CrmKeyEncryptionKey"/>

Each <**encryptionkeys**> element specifies a mapping between a symmetric key store in the Microsoft SQL Server database to a virtual key name, hard-coded in Microsoft Dynamics CRM for encrypting data in the configuration database. This setting is only available when you use a configuration file.

</encryptionkeys></configdb>

<LaunchReportingExtensionsSetup>"false" / "true"</LaunchReportingExtensionsSetup>

Optional element that specifies whether to start Microsoft Dynamics CRM Reporting

Extensions Setup immediately after Microsoft Dynamics CRM Server Setup completes.
By default, the value for this element is false and Microsoft Dynamics CRM Reporting
Extensions Setup won't start after Microsoft Dynamics CRM Server Setup completes.
Additionally, Microsoft Dynamics CRM Reporting Extensions Setup will only start when
the following conditions are true:

- Microsoft Dynamics CRM Server Setup will be creating or upgrading the first
  organization in the deployment
- The specified Report Server computer is the local computer where Setup is running

See Also

Use the command prompt to install Microsoft Dynamics CRM Server 2016

Sample server XML configuration file

Sample server XML configuration file for installing with pre-created groups

Sample server XML configuration file

The following configuration file installs an update file that is located on an internal share, installs a
Full Server with all Microsoft Dynamics CRM Server features, and creates new databases on the
default instance of a SQL Server that is named **SQLServer**.

```
<CRMSetup>

<Server>

<Patch update="true">\\ServerName\ShareName\patchfile.msp</Patch>

<LicenseKey>XXXXX-XXXXX-XXXXX-XXXXX-XXXXX</LicenseKey>

<SqlServer>SQLServer</SqlServer>

<Database create="true"/>

<Reporting URL="http://MyReportingServer/ReportServer"/>

<OrganizationCollation>Latin1_General_CI_AI</OrganizationCollation>

<basecurrency isocurrencycode="USD" currencyname="US Dollar" currencysymbol="$"
currencyprecision="2"/>

<Organization>Organization Display Name</Organization>

<OrganizationUniqueName>Organization-Name</OrganizationUniqueName>

<OU>OU=value,DC=subdomain,DC=subdomain,DC=subdomain,DC=com</OU>

<WebsiteUrl create="true" port="5555"> </WebsiteUrl>

<InstallDir>c:\Program Files\Microsoft Dynamics CRM</InstallDir>


<CrmServiceAccount type="DomainUser">

  <ServiceAccountLogin>Contoso\CRMAppService</ServiceAccountLogin>
```

```
    <ServiceAccountPassword>password</ServiceAccountPassword>

</CrmServiceAccount>


<SandboxServiceAccount type="DomainUser">

  <ServiceAccountLogin>Contoso\CRMSandboxService</ServiceAccountLogin>

  <ServiceAccountPassword>password</ServiceAccountPassword>

</SandboxServiceAccount>


<DeploymentServiceAccount type="DomainUser">

  <ServiceAccountLogin>Contoso\CRMDeploymentService</ServiceAccountLogin>

  <ServiceAccountPassword>password</ServiceAccountPassword>

</DeploymentServiceAccount>


<AsyncServiceAccount type="DomainUser">

  <ServiceAccountLogin>Contoso\CRMAsyncService</ServiceAccountLogin>

  <ServiceAccountPassword>password</ServiceAccountPassword>

</AsyncServiceAccount>


<VSSWriterServiceAccount type="DomainUser">

  <ServiceAccountLogin>Contoso\CRMVSSWriterService</ServiceAccountLogin>

  <ServiceAccountPassword>password</ServiceAccountPassword>

</VSSWriterServiceAccount>


<MonitoringServiceAccount type="DomainUser">

  <ServiceAccountLogin>Contoso\CRMMonitoringService</ServiceAccountLogin>

  <ServiceAccountPassword>password</ServiceAccountPassword>

</MonitoringServiceAccount>


  <SQM optin="true"/>

 <muoptin optin="true"/>


<!-- Settings for IFD installation. May be skipped for intranet-only deployment or to
configure IFD later. -->

 <ifdsettings enabled="false">
```

```
        <!-- Define what address considered internal, required only if enabled=true -->

        <internalnetworkaddress>10.0.0.1-255.0.0.0</internalnetworkaddress>

        <!-- Define URLs with IFD authentication, required only if enabled=true -->

        <rootdomainscheme>http</rootdomainscheme>

        <sdkrootdomain>api.contoso.com</sdkrootdomain>

        <webapplicationrootdomain>app.contoso.com</webapplicationrootdomain>

        <discoveryrootdomain>disc.contoso.com</discoveryrootdomain>

 </ifdsettings>


<Email>

 <IncomingExchangeServer name="ExchangeServerName"/>

</Email>


 </Server>

</CRMSetup>
```

⚠ **Caution**

Maintaining the configuration file that has <**ServiceAccountLogin**> and
<**ServiceAccountPassword**> values specified is a security risk because you are storing
a password in plain text. Delete these elements as soon as the configuration file is used
to install Microsoft Dynamics CRM Server.

See Also

Microsoft Dynamics CRM Server XML configuration file

Sample server XML configuration file for installing with pre-created groups

Sample server XML configuration file for installing with pre-created groups

By default, Setup creates four Active Directory security groups that are used by Microsoft
Dynamics CRM. You can create these groups in advance and then provide the information for the
groups in the Setup configuration file.

To use the pre-created Active Directory directory service security groups, create an XML
configuration file that uses the LDAP distinguished name syntax that is similar to the following
example. Modify the variables as appropriate.

For example, the following sample would be used when the Organizational unit (OU) where the
pre-created groups (PrivUserGroup, SQLAccessGroup, ReportingGroup, and
PrivReportingGroup) are located is named *CRM* and the full domain name where the *CRM* OU is
located is *sales.contoso.com*.

⬥ **Important**

The user who runs Microsoft Dynamics CRM Server Setup must have **Add User or Group** permission to these Active Directory groups. For more information about how to assign user rights to a group in Active Directory Domain Services (AD DS), see the Active Directory Users and Computers Help.

Because the organizational unit will be specified when you use the Active Directory groups <GROUPS> element, you cannot specify the organizational unit again using the <OU> element.

The <Groups> element must be inside the <Server> and <CRMSetup> elements. For syntax structure, see Microsoft Dynamics CRM Server XML configuration file.

```
<Groups AutoGroupManagementOff="false">

    <PrivUserGroup>CN=PrivUserGroup,OU=CRM,DC=sales,DC=contoso,DC=com</PrivUserGroup>

    <SQLAccessGroup>CN=SQLAccessGroup,OU=CRM,DC=sales,DC=contoso,DC=com</SQLAccessGroup>

    <ReportingGroup>CN=ReportingGroup,OU=CRM,DC=sales,DC=contoso,DC=com</ReportingGroup>

    <PrivReportingGroup>CN=PrivReportingGroup,OU=
CRM,DC=sales,DC=contoso,DC=com</PrivReportingGroup>

</Groups>
```

See Also

Microsoft Dynamics CRM Server XML configuration file

Install Microsoft Dynamics CRM Server roles using the command prompt

Install Microsoft Dynamics CRM Server roles using the command prompt

By default, Setup installs all Microsoft Dynamics CRM Server roles on the local computer. However, when you are installing Microsoft Dynamics CRM Server, you can select to install one or more server roles. Additionally, you can install the same server role or roles on two or more computers, which can provide load balancing benefits. To do this, you can either select the roles that you want by running the Microsoft Dynamics CRM Server Setup Wizard or you can configure an XML configuration file and then run Setup at a command prompt on the computer where you want the role installed.

📝 **Note**

You can run Setup at a command prompt or from Programs and Features in the Control Panel to add or remove server roles to a computer that already has one or more server roles installed.

For more information about server roles, see Microsoft Dynamics CRM server roles.

Parameters

The supported command prompt parameters are the same as those previously described under Install Microsoft Dynamics CRM Server by using a command prompt in this guide.

Server role XML configuration file

The **/config** [*drive*:] [[*path*] *configfilename.xml*]] command-line parameter provides Microsoft Dynamics CRM Server Setup with required information. The information supplied by the XML configuration file is what is required by each installation screen.

⬥ **Important**

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:

<Roles><Role Name="RoleName1" Action="Add" / "Remove"/><Role Name="RoleName2" Action="Add" / "Remove"/>

Name. The name of the Microsoft Dynamics CRM Server role. For available server role names, see Microsoft Dynamics CRM Server role names used in the XML configuration file.

Action. This attribute is only required when you reconfigure an existing deployment by adding or removing server roles.

</Roles>

Microsoft Dynamics CRM Server role names used in the XML configuration file

WebApplicationServer

Installs the components that are needed to run the Web application server.

OrganizationWebService

Installs the Organization Web Service components that are needed to run applications that use the methods described in the Microsoft Dynamics CRM SDK.

DiscoveryWebService

Installs the Discovery Web Service component users need to find the organization that they are a member of in a multi-tenant deployment.

HelpServer

Installs the components that are needed to make Microsoft Dynamics CRM Help available to users.

AsynchronousProcessingService

Installs the Asynchronous Service. This service is used to process queued asynchronous events, such as bulk email or data import.

EmailConnector

Installs the service and related files that handle sending and receiving of email messages by connecting to an external email server.

SandboxProcessingService

Installs the components that are needed to provide custom code execution isolation.

DeploymentTools

Installs Deployment Manager and Windows PowerShell cmdlets that you can use to automate deployment tasks. Deployment Manager is a Microsoft Management Console (MMC) snap-in that system administrators can use to manage organizations, servers, and licenses for deployments of Microsoft Dynamics CRM.

DeploymentWebService

Installs the Deployment Web Service component that is required to manage the deployment by using the methods described in the Microsoft Dynamics CRM SDK, such as create an organization or remove a Deployment Administrator role from a user.

VSSWriter

Installs the interface that can be used to back up and restore Microsoft Dynamics CRM data by using the Windows Server Volume Shadow Copy Service (VSS) infrastructure.

Important

Although you cannot specify a group of server roles (Front End Server, Back End Server or Deployment Administration Server), you can specify all server roles in the server role group, such as the following XML sample snippet that installs all Front End Server roles.

```
<Roles>
<Role Name="WebApplicationServer" />
<Role Name="OrganizationWebService" />
<Role Name="DiscoveryWebService" />
<Role Name="HelpServer" />
</Roles>
```

See Also

Sample XML configuration file that installs only the WebApplicationServer and OrganizationWebService roles

The following example installs only the Web Application Server and Organization Web Service server roles on the local computer. In order to use this configuration file the configuration database must already exist on the Microsoft SQL Server that is named *SQLServer*. The feature will be installed in the default IIS website. To specify a different website, use the **<WebsiteUrl>** element. For more information, see Microsoft Dynamics CRM Server XML configuration file.

📝 **Note**

> The Web Application Server requires the Organization Web Service. Therefore, even when you specify only the WebApplicationServer role name, the Organization Web Service (OrganizationWebService) will automatically be installed.

```xml
<CRMSetup>

<Server>

<Patch update="true">\\server\share\patchfile.msp</Patch>

<LicenseKey>XXXXX-XXXXX-XXXXX-XXXXX-XXXXX</LicenseKey>

<SqlServer>SQLServer</SqlServer>

<Database create="false" />

<InstallDir>c:\Program Files\Microsoft CRM</InstallDir>

<WebsiteUrl create="true" port="5555"> </WebsiteUrl>

<Roles>

   <Role name="WebApplicationServer"/>

</Roles>

<SQM optin="true" />

<MUoptin optin="true" />

<CrmServiceAccount type="DomainUser">

   <ServiceAccountLogin>contoso\user1</ServiceAccountLogin>

   <ServiceAccountPassword>password</ServiceAccountPassword>

</CrmServiceAccount>

<MonitoringServiceAccount type="DomainUser">

<ServiceAccountLogin>Contoso\CRMMonitoringService</ServiceAccountLogin>

<ServiceAccountPassword>password</ServiceAccountPassword>

</MonitoringServiceAccount>
```

```
</Server>

</CRMSetup>
```

⚠ Caution

Maintaining the configuration file that has <**ServiceAccountLogin**> and <**ServiceAccountPassword**> values specified is a security risk because you are storing a password in plain text. Delete these elements as soon as the configuration file is used to install Microsoft Dynamics CRM Server.

See Also

Install Microsoft Dynamics CRM Server roles using the command prompt

Sample XML configuration file that installs only the HelpServer role

Sample XML configuration file that installs only the HelpServer role

The following example installs only the Help Server role on the local computer.

```
<CRMSetup>

<Server>

<Patch update="true"/>

<LicenseKey>XXXXX-XXXXX-XXXXX-XXXXX-XXXXX</LicenseKey>

 <SqlServer>SQLServerName</SqlServer>

<Database create="false"/>

<WebsiteUrl create="true" port="5555">LM/W3SVC/1</WebsiteUrl>

<Help anonymous="true">http://LocalHost/Help</Help>

<InstallDir>c:\Program Files\Microsoft CRM</InstallDir>

<Roles>

 <Role name="HelpServer"/>

</Roles>

<SQM optin="true"/>

<MUoptin optin="true"/>

<CrmServiceAccount type="DomainUser">

 <ServiceAccountLogin>contoso\CRMHelpservice</ServiceAccountLogin>

 <ServiceAccountPassword>password</ServiceAccountPassword>

</CrmServiceAccount>

<MonitoringServiceAccount type="DomainUser">

 <ServiceAccountLogin>Contoso\CRMMonitoringService</ServiceAccountLogin>

 <ServiceAccountPassword>password</ServiceAccountPassword>
```

```
</MonitoringServiceAccount>

</Server>

</CRMSetup>
```

💠 **Important**

> Unless you use **<Help anonymous="true">**, the Help Server contents in IIS will not be configured for anonymous access. If the Help Server application isn't configured for anonymous access, users may be prompted repeatedly for authentication credentials when they access Microsoft Dynamics CRM Help.
>
> By default, the Help Server uses the Web Application Server web address that appears in Deployment Manager. Additionally, Microsoft Dynamics CRM Server Setup does not update the URL when you install the Help Server on a separate computer. You must change the URL manually. To change the URL, run the following Windows PowerShell commands in the following topic on the computer that is running the Deployment Tools server role.

Change the Microsoft Dynamics CRM HelpServer URL

The following Windows PowerShell cmdlets change the Microsoft Dynamics CRM Help Server URL to https://crmhelpserver.contoso.com, an Internet-facing Help Server configured for SSL. Before you can run the Microsoft Dynamics CRM Help Server cmdlets, you must register them first. For more information, see [Configure the Microsoft Dynamics CRM PowerShell cmdlets](#).

View existing web address settings. Notice that, if the Helpserverurl web address setting appears blank when you run the following Windows PowerShell command, the Help Server is using the same web address as the Web Application Server (WebAppRootDomain).

```
Get-CrmSetting WebAddressSettings
```

Set the Help Server url.

```
$websetting = Get-CrmSetting WebAddressSettings

$websetting.HelpServerUrl = "https://crmhelpserver.contoso.com"

Set-CrmSetting $websetting
```

Verify the new URL by viewing the web address settings again.

```
Get-CrmSetting WebAddressSettings
```

See Also

[Sample XML configuration file that installs only the WebApplicationServer and OrganizationWebService roles](#)

[Install Microsoft Dynamics CRM Server roles using the command prompt](#)

[Install Microsoft Dynamics CRM Reporting Extensions using a command prompt](#)

Install Microsoft Dynamics CRM Reporting Extensions using a command prompt

Microsoft Dynamics CRM Reporting Extensions are data processing extensions that are installed on the Microsoft SQL Server Reporting Services server. Microsoft Dynamics CRM Reporting Extensions accept the authentication information from Microsoft Dynamics CRM Server and pass it to the Microsoft SQL Server Reporting Services server.

Installing Microsoft Dynamics CRM Reporting Extensions installs two data processing extensions: Microsoft Dynamics CRM Fetch data processing extension and SQL data processing extension. The Fetch data processing extension is required to create, run, and schedule Fetch-based reports in Microsoft Dynamics CRM. The SQL data processing extension is required to schedule SQL-based reports in Microsoft Dynamics CRM.

Microsoft Dynamics CRM Reporting Extensions requirements

Microsoft Dynamics CRM Reporting Extensions has the following requirements:

- You must have all Microsoft Dynamics CRM Server roles installed before you run Microsoft Dynamics CRM Reporting Extensions Setup.

- You must run Microsoft Dynamics CRM Reporting Extensions Setup on a computer that has Microsoft SQL Server Reporting Services installed.

- You can run Microsoft Dynamics CRM Reporting Extensions with any supported version of Microsoft SQL Server Reporting Services. For detailed information about the versions of Microsoft SQL Server Reporting Services supported, see Microsoft Dynamics CRM reporting requirements.

- Microsoft Dynamics CRM Reporting Extensions for SQL Server Reporting Services can't be installed on a server running a Server Core installation of Windows Server. This is because Microsoft SQL Server Reporting Services, which is required by Microsoft Dynamics CRM Reporting Extensions for SQL Server Reporting Services, can't be installed on a server running a Server Core installation of Windows Server.

- For smaller data sets and fewer users, it may be suitable to use a single-server deployment where SQL Server database engine and Microsoft SQL Server Reporting Services run on the same server. However, with larger datasets or more users, performance will decrease quickly when complex reports are run, so we recommend that you use a multi-server deployment with one computer running SQL Server for the Microsoft Dynamics CRM databases, and another server for Microsoft SQL Server Reporting Services.

Command example

Microsoft Dynamics CRM Reporting Extensions accepts the same command-line parameters as Microsoft Dynamics CRM Server. To install Microsoft Dynamics CRM Reporting Extensions in quiet mode, which uses an XML configuration file named **install-config.xml**, and creates a log file named **log.txt**, run the Setup program that is located in the **SrsDataConnector** folder from the Microsoft Dynamics CRM installation files as follows:

SetupSrsDataConnector /Q /CONFIG folderpath\install-config.xml /L c:\logfiles\crm\log.txt

See Also

Install Microsoft Dynamics CRM for Outlook using a Command Prompt

Microsoft Dynamics CRM Reporting Extensions XML configuration file

Microsoft Dynamics CRM Reporting Extensions XML configuration file

Before you run Microsoft Dynamics CRM Reporting Extensions Setup at a command prompt, you must modify the XML configuration file to include information, such as the name of the computer where the configuration database is located. A sample Microsoft Dynamics CRM Reporting Extensions configuration file named **install-config.xml** is located in the SrsDataConnector folder on the installation media or download location of the Microsoft Dynamics CRM Server installation files.

The **/config** [drive:] [[path] configfilename.xml]] command-line parameter provides the Microsoft Dynamics CRM Reporting Extensions Setup with required information. The information this configuration file supplies is the same that each installation screen requires. The XML elements must be in English (US); special or extended characters cannot 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:

<CRMSetup> </CRMSetup>

   The configuration file must be a valid XML file that uses <**CRMSetup**> as the root element.

<srsdataconnector>

   The configuration file must be a valid XML file that uses <**srsdataconnector**> as the primary element. All the Microsoft Dynamics CRM Reporting Extensions entries that follow must be within the <**srsdataconnector**> tags.

<InstallType>Uninstall/Repair</InstallType>

   Specifies the type of installation that Setup will perform. The following options are available:

   Uninstall. Uninstalls Microsoft Dynamics CRM Reporting Extensions.

   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 Reporting Extensions 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 Server 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.

<configdbserver>SQLServerName\Instancename</configdbserver>

Specifies the instance of SQL Server that stores the configuration database. If you specify the default instance, use *SQLServerName*, or if you use a named instance use *SQLServerName\InstanceName*.

<muoptin optin="true"/"false" />

Specifies whether to use Microsoft Update to download and install updates for Microsoft Dynamics CRM Reporting Extensions. 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 Dynamics CRM Reporting Extensions</InstallDir>

Specifies the folder in which the Microsoft Dynamics CRM Reporting Extensions files will be copied. The default location is c:\program files\Microsoft Dynamics CRM Reporting Extensions.

<autogroupmanagementoff>1/0</autogroupmanagementoff>

If <**automanagegroupsoff**> is **1** (true), Setup will not add or remove any members to the security group in Active Directory directory service. Therefore, you must manually add the Microsoft SQL Server Reporting Services service account for the associated instance of SQL Server to the **PrivReportingGroup** security group.

See Also

Install Microsoft Dynamics CRM Reporting Extensions using a command prompt

Sample Microsoft Dynamics CRM Reporting Extensions XML configuration file

The following XML configuration sample will search, and if found download and apply, updates to Setup. It will optin to Microsoft Update, then look for the Microsoft Dynamics CRM configuration database on a Microsoft SQL Server named **SQLServer** and install the Microsoft Dynamics CRM Reporting Extensions on on the local SQL Server instance that is named **SQLReportServerInstance**. Additionally, Setup will add or remove any members to the Microsoft Dynamics CRM related security groups in Active Directory directory service as needed and install the monitoring service configured for an existing domain user account named *CRMMonitoringService*.

```
<crmsetup>

<srsdataconnector>

<configdbserver>SQLServer</configdbserver>

<autogroupmanagementoff>0</autogroupmanagementoff>

<instancename>SQLReportServerInstance</instancename>

<patch update="true" />

<muoptin optin="true" />

<MonitoringServiceAccount type="DomainUser">

  <ServiceAccountLogin>Contoso\CRMMonitoringService</ServiceAccountLogin>

  <ServiceAccountPassword>password</ServiceAccountPassword>

</MonitoringServiceAccount>

</srsdataconnector>

</crmsetup>
```

Logging

By default, Setup creates a file that is named **SrsDataConnectorSetup.log** in the %appdata%\Microsoft\MSCRM\Logs folder on the computer where Setup is run.

See Also

Microsoft Dynamics CRM Reporting Extensions XML configuration file

Install Microsoft Dynamics CRM Report Authoring Extension using a command prompt

Install Microsoft Dynamics CRM Report Authoring Extension using a command prompt

From a command prompt, you can use the following command to install Microsoft Dynamics CRM Report Authoring Extension:

```
SetupBIDSExtensions.exe [/Q] [/config configfile.xml]
```

Microsoft Dynamics CRM Report Authoring Extension command-line parameters

/Q

Quiet mode installation. This parameter requires an XML configuration file. The **/config**

parameter contains the name of the configuration file. No dialog boxes or error messages will appear on the display screen.

/config [drive:] [[path] configfilename.xml]]

The **/config** parameter uses the specified XML configuration file to provide Setup with the additional information to complete the installation. An example XML configuration file is shown in [Microsoft Dynamics CRM Report Authoring Extension XML configuration file](#). Notice that if you specify a configuration file without the /Q parameter, you'll see Setup screens displayed with the information from the configuration file.

/uninstall

Uninstalls Microsoft Dynamics CRM Reporting Extensions. This is a maintenance mode option that is only available after the application is installed.

See Also

[Install Microsoft Dynamics CRM Reporting Extensions using a command prompt](#)

[Microsoft Dynamics CRM Report Authoring Extension XML configuration file](#)

Microsoft Dynamics CRM Report Authoring Extension XML configuration file

The following is an explanation of each XML element and a sample XML file for installing Microsoft Dynamics CRM Report Authoring Extension:

<CRMSetup> </CRMSetup>

The configuration file must be a valid XML file that uses <**CRMSetup**> as the root element.

<bidsextensions> </bidsextensions>

The configuration file must be a valid XML file that uses **<bidsextensions>** as the primary element. All the Report Authoring Extension entries that follow must be within the **<bidsextensions>** tags

<patch update="true" / "false" />

Determines the behavior of the update Setup technology. When you specify **True** this feature lets Setup perform a one-time search for, and if applicable, download to apply the latest installation files for Microsoft Dynamics CRM. If you specify **False**, updates will not be applied to Setup.

<muoptin optin="true" / "false" />

Specifies whether to use Microsoft Update to download and install updates for Microsoft Dynamics CRM Report Authoring Extension. 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 will not change the existing Windows automatic update settings. If the computer is not 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 Microsoft Windows Update Services (WSUS). If left blank, a value of *false* will be selected.

<InstallDir>c:\program files\Microsoft Dynamics CRM</InstallDir>

Specifies the folder in which application files will be installed. By default, Setup uses the folder C:\Program Files (x86)\Microsoft Dynamics CRM.

<InstallType>uninstall/repair</InstallType>

Uninstalls or repairs Microsoft Dynamics CRM Report Authoring Extension. This is a maintenance mode option that is only available when the application is already installed.

<InstanceName>InstanceName</InstanceName>

Specifies a named instance of Microsoft SQL Server where to install Microsoft Dynamics CRM Report Authoring Extension. If left blank or not used, Setup uses the default instance of SQL Server.

<MonitoringServiceAccount type="DomainUser"/"NetworkService">
<ServiceAccountLogin>="DomainUser"/"NetworkService"</ServiceAccountLogin>
<ServiceAccountPassword>password</ServiceAccountPassword>
</MonitoringServiceAccount>

Specifies the service account to use for the Microsoft Dynamics CRM Monitoring service.

Accepted values are *DomainUser*, which will use the specified domain user provided in the *<prefixServiceAccount>* element or *NetworkService*, which uses the Network Service system account. By default, Setup will use the *DomainUser* option. If *DomainUser* or no type is specified, **<ServiceAccountLogin>** and **<ServiceAccountPassword>** are required.

⚠️ **Warning**

Maintaining the configuration file that has <**ServiceAccountLogin**> and <**ServiceAccountPassword**> values specified is a security risk because you're storing a password in plain text. Delete these elements as soon as the configuration file is used to install the application.

We recommend that you specify a different low-privilege user account for each of the Microsoft Dynamics CRM service accounts.

For information about Microsoft Dynamics CRM services, see [Microsoft Dynamics CRM server roles](#). For information about the permissions required for Microsoft Dynamics CRM services and what type of account to use, see [Security considerations for Microsoft Dynamics CRM 2016](#).

📝 **Note**

Microsoft Dynamics CRM Report Authoring Extension is only available in 32-bit.

Microsoft Dynamics CRM Report Authoring Extension requires SQL Server Data Tools (SSDT). For more information about the system requirements, see [Microsoft Dynamics CRM Reporting Authoring Extension General Requirements](#).

See Also

[Install Microsoft Dynamics CRM Report Authoring Extension using a command prompt](#)

[Install Microsoft Dynamics CRM Reporting Extensions using a command prompt](#)

[Sample Microsoft Dynamics CRM Reporting Extensions XML configuration file](#)

Sample Microsoft Dynamics CRM Report Authoring Extension XML configuration file

The following XML configuration contents will install Microsoft Dynamics CRM Report Authoring Extension that will opt-in to use Microsoft Update, search and apply existing updates, and install Microsoft Dynamics CRM Report Authoring Extension in the C:\Program Files (x86)\Not default CRM Report Authoring Extension folder. By default, Setup installs in the `<drive>:\Program Files (x86)\Microsoft Dynamics CRM Report Authoring Extension` folder.

```
<crmsetup>

<bidsextensions>

  <patch update="true" />

  <muoptin optin="true" />

  <installdir>C:\Program Files (x86)\Not default CRM Report Authoring
Extension</installdir>

</bidsextensions>

</crmsetup>
```

See Also

[Microsoft Dynamics CRM Report Authoring Extension XML configuration file](#)

Install Microsoft Dynamics CRM for Outlook using a Command Prompt

Deploy Microsoft Dynamics CRM on Azure FAQ

The following Microsoft Dynamics CRM on-premises versions can be deployed on Microsoft Azure virtual machines.

- Microsoft Dynamics CRM 2016 (when available with Microsoft Dynamics Lifecycle Services (LCS))
- Microsoft Dynamics CRM 2015
- Microsoft Dynamics CRM 2013 Service Pack 1 (SP1)

This article presents the frequently asked questions about Microsoft Dynamics CRM and Azure.

Overview

What is supported?

Support for Microsoft Dynamics CRM deployment on Microsoft Azure infrastructure as a service (IaaS):

- To support a new deployment choice for customers, we will now be supporting production deployments of Dynamics CRM on-premises in a customer's Microsoft Azure subscription using the IaaS capability with Azure Premium Storage. Introducing this deployment option offers our customers all the benefits of using Microsoft cloud services while continuing to meet their requirement for in-house IT.

Support for Dynamics CRM on Azure using Microsoft Dynamics Lifecycle Services (LCS):

- LCS, a cloud-based application life cycle management tool for Microsoft Dynamics customers, provides cloud deployment services for Dynamics CRM into a customer's Azure subscription. Although not required, LCS is the preferred method for the deployment of Dynamics CRM onto Azure IaaS. The LCS deployment service will markedly reduce manual deployment efforts, expended time and costs and create a running Dynamics CRM in Azure IaaS environment in a few hours.

What are the support considerations?

- Dynamics CRM deployed on Azure IaaS qualifies for production support using the Microsoft Dynamics Partner or customer support offerings, including Microsoft Software Assurance for all Dynamics CRM issues. Azure support must be acquired through the Azure support portal for all support issues. To learn more about the Azure support options, visit Azure support plans.
- Dynamics CRM deployed on Azure IaaS production support requires that Azure Premium storage services be used. Be sure to check if Azure Premium Storage services are available in the Azure data center you are considering. Visit Azure Regions for the latest information.
- Microsoft Dynamics Lifecycle Services (LCS) is the preferred deployment service for Dynamics CRM on Azure IaaS. Support for specific issues concerning LCS is available. For

more information, visit Lifecycle Services. All other support issues are to be directed to Dynamics CRM support or Azure support services.

What does "Dynamics CRM is supported for production use on Azure" really entail?

- Dynamics CRM on Azure is supported in Azure using IaaS. This is another deployment capability for Dynamics CRM on Azure along with the previously supported deployment types: on-premises, on-premises virtual machines, and Microsoft Dynamics partner-hosted virtual machines.

- You will require a Dynamics CRM subscription that can be acquired at Microsoft Azure to deploy into Dynamics CRM.

When is the official date that Dynamics CRM will be supported on Azure?

- Support was officially made available in July, 2015.

Are there different Dynamics CRM on Azure versions?

No. Dynamics CRM on Azure is simply a deployment of Microsoft Dynamics CRM (on-premises) to Azure IaaS.

How do I buy Dynamics CRM on Azure for Azure?

- First, there is no Dynamics CRM on Azure "for" Azure. As stated previously, there is only one product version, namely Microsoft Dynamics CRM (on-premises).

- There is nothing different from buying the product for Microsoft Dynamics CRM (on-premises) or Azure deployment. You will continue to buy the product as you have in the past or buy other Microsoft products using Microsoft Sales or authorized Microsoft Dynamics Partners.

Do I need different Dynamics CRM licenses to deploy to Azure?

- No. Software Assurance comes with a mobility option allowing for deployment to Azure IaaS using your Microsoft Dynamics CRM (on-premises) software license.

Will my existing Dynamics CRM on-premises license allow for an on Azure deployment?

- Yes, your existing Microsoft Dynamics CRM on-premises licenses can be used. Keep in mind, that when you deploy to Azure, the server license goes with that deployed server. If there are additional servers in your architecture, each will need to be licensed accordingly.

What do I need to know to deploy CRM on Azure?

- First, Dynamics CRM on Azure is the same release of Microsoft Dynamics CRM on-premises with no new or different capabilities.

- Use the available readiness resources as a first step to learn about Dynamics CRM. in general. Also, you can use the existing installation guides.

- Architecturally, the same basic considerations are in view whether deploying on-premises or in Azure, namely the number of simultaneous users, workloads, and so on.

- Finally, most IT staffs might not be familiar with Azure. In those cases, Azure has extensive readiness resources that should be used. For more information, you can download the Azure Readiness Content.

Who do I call when things aren't working as expected?

- All current means with which to get support from Microsoft will continue to be available. If you have a support agreement with Dynamics CRM already, there will be nothing new introduced if you decide to deploy to Azure.

- However, if the issue in question is about Azure or its functionality and issues, those questions will need to be addressed by Azure support. We recommend that you add an Azure support agreement.

- Dynamics CRM support resources will continue to be available as in the past for Dynamics CRM questions, issues, and problems.

Are there performance considerations when using IaaS in Azure?

- Azure IaaS provides a range of compute models that vary around number of cores and amount of memory. The compute model of each virtual machine that supports your Dynamics CRM on Azure deployment can be "tuned" and adjusted in minutes to accommodate variations in workloads.

- Azure IaaS provides support for connectivity using virtual networks. While the bandwidth allocated here is quite adequate, it can vary at bit. Planning for this architecturally is important.

- For production use of Dynamics CRM on Azure – Premium Storage is required.

Will there be authorized Dynamics Partners who can assist in an Azure deployment?

- While there's no "official list" at this time, many Microsoft Dynamics Partners are very excited about this new deployment option and are pursuing readiness and experience as fast as possible.

If I decide to deploy Dynamics CRM on Azure, what resources are available to assist?

- Microsoft Dynamics Lifecycle Services (LCS) will be the preferred way to deploy Dynamics CRM on Azure IaaS. More information: Lifecycle Services

Microsoft Dynamics Lifecycle Services (LCS)

Do I need to use LCS to deploy Dynamics CRM on Azure IaaS?

- No. However we highly recommend that you use LCS as it will eliminate many hours to possibly weeks of installation time and effort.

What is LCS?

LCS is a Azure-based collaboration portal that provides a unifying, collaborative environment along with a set of regularly updated services that help you manage the application lifecycle of your Microsoft Dynamics implementations. More information: Lifecycle Services

What do I need to use LCS?

- You will need a PartnerSource (formerly VOICE) account to sign in to the service.

- If you're an existing Microsoft Dynamics customer or partner, you should already have a VOICE account.

What else does LCS provide to help with my Azure deployment?

- At this time, development and test environments are available to deploy Dynamics CRM on Azure. This three-box environment is a great way to start and learn about Azure, LCS, and running a Dynamics CRM deployment in the cloud.

- In the very near future, Dynamics CRM customers and partners will be able to deploy a production environment. This production environment will be configured for high availability.

- Additional capabilities, such as implementation sizing, cloud-powered support, and more will be available to assist you in maintaining your Dynamics CRM on Azure deployment.

What does LCS cost?

- LCS is Azure-based software as a service (SaaS) that's free to Microsoft Dynamics customers.

Technical details

What is Azure Premium Storage?

- A Microsoft Azure Premium Storage account is locally redundant storage (LRS) and keeps three copies of the data in a single region. For considerations regarding geo replication when using Premium Storage, see the Snapshots and Copy Blob when using the Premium Storage section in Azure: Premium Storage: High-Performance Storage for Azure Virtual Machine Workloads.

- Premium Storage is currently available in the following regions: West US, East US 2, West Europe, East China, Southeast Asia, West Japan, and Australia East.

- Premium Storage supports only Azure page blobs, which are used to hold persistent disks for Azure Virtual Machines. For information about Azure page blobs, see MSDN: Understanding Block Blobs and Page Blobs. Premium Storage doesn't support the Azure Block Blobs, Azure Files, Azure Tables, or Azure Queues.

When is Premium Storage required?

- Premium Storage must be used for production deployments in Azure IaaS to be supported.

- Premium Storage isn't required for non-production environments.

What virtual machine compute models are required, if any?

- To use a Premium Storage account for your virtual machine disks, you need to use the DS-series of virtual machines. You can use both Standard and Premium storage disks with the DS-series of virtual machines. But you can't use Premium Storage disks with non-DS-series of virtual machines. For information on available Azure virtual machine disk types and sizes, see Azure: Sizes for Virtual Machines and Azure: Sizes for Cloud Services.

Are there any special considerations for Premium Storage?

- The process for setting up Premium Storage disks for a virtual machine is similar to Standard Storage disks. You need to choose the most appropriate Premium Storage option for your Azure disks and virtual machine. The virtual machine size should be suitable for your workload based on the performance characteristics of the Premium offerings. For more information, visit Scalability and Performance Targets when using Premium Storage.

Where do I go to learn more about creating an Azure virtual machine using Premium Storage via the Azure Preview Portal?

- Compete information can be found at Microsoft Azure.
- You'll need to sign in to the Azure Preview Portal to create a Premium Storage account.

What is IaaS?

- Infrastructure as a service, or IaaS, is a service in Azure that basically provides virtualized hardware. In essence, the hardware normally required for an on-premises deployment is now virtualized. This is the basic concept though there are additional considerations for an Azure deployment such as, for example, the network virtualization.
- For more information, see Microsoft Support Lifecycle.

Can I keep my on-premises Dynamics CRM installation?

Yes, but if you're deploying net new servers, new licenses for these servers are required.

Can I keep my on-premises installation and deploy a new Dynamics CRM on Azure environment and network the two together?

- Yes. We recommend that the two environments use Azure ExpressRoute as the means to network them together. More information: Azure ExpressRoute.

Why do I need to run SQL Server in a virtual machine and not simply use Azure SQL Database?

Microsoft Azure SQL Database, while a capable offering, doesn't include several capabilities that are in SQL Server Enterprise edition, such as business intelligence (BI) and AlwaysON.

What is AlwaysON?

- AlwaysOn Availability Groups is a feature in the SQL Server 2014 Enterprise edition for Azure deployments. A high-availability and disaster-recovery solution that provides comprehensive data protection.

What's the recommended configuration?

- Your configuration will completely depend on your planned workload and number of concurrent users. Any and all considerations in this area are the same for Azure IaaS deployment as it would be for on-premises.

What's the minimum number of servers required?

- A minimum installation involves three servers, one each for Active Directory, Microsoft Dynamics CRM Server, and SQL Server.
- LCS deploys a three-server environment for non-production purposes.

Is a high availability configuration required?

- Though not required, we recommend high availability for production deployments. Azure will perform virtual machine maintenance from time to time and this could make a non-high availability environment unavailable for hours or days.

- A minimum configuration in this case requires seven servers: two Active Directory servers, two Microsoft Dynamics CRM servers, two SQL Server servers, and a SQL Server high availability witness server.

What if my database runs out of disk space?

- Normal database maintenance and practices continue to be required. If a data disk attached to the virtual machine running the database becomes full, adding an additional data disk is straightforward. Moving parts of the database to this new data disk are handled just as if it was an actual physical hard drive.

Are there performant configurations recommended for SQL Server databases in IaaS?

- Yes. For more information, download the white paper: [Performance Guidance for SQL Server in Microsoft Azure Virtual Machines](#)

  [Test](#)

What if one of my virtual machines runs out of memory?

- Changing the compute model of that virtual machine is a simple portal or LCS operation. Several compute model sizes are available with new ones planned. For more details, visit [Microsoft Azure](#).

I read that Office isn't supported in Azure. Is that true?

- That was the case in the past. Microsoft Office 365 is available to users of Microsoft Dynamics on Azure.

- Locally installed Microsoft Office can also be used, though there will be configuration requirements of the local PC installation to access the services running in the cloud.

Other considerations

What does an Azure deployment cost?

- This depends on the deployed experience, which differ in the number of compute units used by each unit. One compute unit per hour (known as an A1) is approximately $.08 per hour. There is also an additional cost for storage and bandwidth usage. For pricing information, visit [Microsoft Azure](#).

Why does LCS provisioning take several hours?

- The provisioning starts by creating a storage account in your subscription that software is deployed and configured to. Azure storage only allows this to occur so fast.

- There is variability in the length of time the copy takes and depends on the Azure region your storage account is created in. This is a structural limit internally to Azure Storage and as more details and information becomes available, we'll certainly forward it along.

How long does it take to start up my LCS provisioned experience?

- It starts immediately after everything is copied, created and configured. Depending on how many virtual machines are being created and started (depends on the deployment experience you've chosen) it can take 10 minutes to an hour or more.

Can I have multiple LCS deployments in my Azure account?

- Yes. Keep in mind that you'll incur the time to provision each deployment.
- There will be an upper limit to the number of compute cores assigned to your subscription, which by default is 20. Contact the Azure Business desk and ask for this limit to be raised.

Will Mobile Apps work with my demo?

- Yes. There will be a little manual setup required which will be clearly documented on how to set up and configure. This is a one-time only setup.

Will I be able to invite others, like partners or customers to use my LCS project?

Yes, simply add them to the LCS project from which you've deployed the Dynamics CRM on Azure environment.

How is Azure architecturally being used by LCS?

- LCS runs as a software as a service (SaaS) in Azure. After GA, LCS will provide support for the deployment of IaaS-based virtual machines to support three initial environments: demo, dev/test, and production.

Can I deploy CRM on Azure's government cloud?

- Yes. However, LCS isn't available to assist you because it isn't available in the Microsoft Azure Government cloud at this time.
- For more information, visit Microsoft Azure Government.

See Also

Use the command prompt to install Microsoft Dynamics CRM Server 2016

Post-installation and configuration guidelines for Microsoft Dynamics CRM

Post-installation and configuration guidelines for Microsoft Dynamics CRM

This section describes several of the tasks that the Microsoft Dynamics CRM administrator should consider after the Microsoft Dynamics CRM Server application is installed. This section isn't meant to be an exhaustive resource used to configure deployments. Instead, use this section as a guideline to determine what best practices to implement and features to configure, based on your organization's needs.

In This Topic

Copy your organization encryption key

Copy your organization encryption key

All new and upgraded organizations use data encryption that uses an encryption key to secure data such as user passwords for email mailboxes and Yammer accounts. This encryption key may be required to use Microsoft Dynamics CRM after a redeployment or failure recovery. We strongly recommend that you make a copy of the encryption key and save it to a secure location. More information: **Copy your organization data encryption key**

Make CRM client-to-server network communications more secure

With any network design, it is important to consider the security of your organization's client-to-server communications. When making necessary decisions that can help protect data, we recommend that you understand the following information about Microsoft Dynamics CRM network communication and about the technology options that are available that provide more secure data transmissions.

If you installed Microsoft Dynamics CRM or upgraded a Microsoft Dynamics CRM Server that isn't already configured for HTTPS, Microsoft Dynamics CRM client-to-server communications are not encrypted. When using a website that supports only HTTP, information from CRM clients is transmitted in clear text and, therefore, possibly vulnerable to malicious intent, such as "man-in-the-middle" type attacks that could compromise content by adding scripts to perform harmful actions.

Configuring CRM for HTTPS

Configuring a site for HTTPS will cause a disruption in the Microsoft Dynamics CRM application so plan the configuration when there will be minimal disruption to users. The high-level steps for configuring Microsoft Dynamics CRM for HTTPS are as follows:

1. In Microsoft Dynamics CRM Deployment Manager, disable the server where the Web Application Server, Organization Web Service, Discovery Web Service, and Deployment Web Service roles are running. If this is a Full Server deployment, all server roles are running on the same computer. For information about how to disable a server, see Microsoft Dynamics CRM Deployment Manager Help.

2. Configure the website where the Web Application Server role is installed to use HTTPS. For more information about how to do this, see Internet Information Services (IIS) Help.

3. Set the binding in Deployment Manager. This is done on the **Web Address** tab of the **Properties** page for the deployment. For more information about how change the bindings see Microsoft Dynamics CRM deployment properties.

4. If you want to make other CRM services more secure and Microsoft Dynamics CRM is installed by using separate server roles, repeat the previous steps for the additional server roles.

Configure a CRM Internet-facing deployment

After all Microsoft Dynamics CRM Server roles are installed, you can configure the deployment so that remote users can connect to the application through the Internet. To do this, start Rule Deployment Manager and complete the Configure Claims-Based Authentication Wizard followed by the Internet-Facing Deployment Configuration Wizard. Alternatively, you can complete these tasks using Windows PowerShell. More information: Administer the deployment using Windows PowerShell

Important

For Microsoft Dynamics CRM for tablets to successfully connect to a new deployment of Microsoft Dynamics CRM Server, you must run a Repair of the Microsoft Dynamics CRM Server application on the server running IIS where the Web Application Server role is installed *after* the Internet-Facing Deployment Configuration Wizard is successfully completed. More information: Uninstall, change, or repair Microsoft Dynamics CRM Server

For more information about configuring Microsoft Dynamics CRM for claims-based authentication, see Configure IFD for Microsoft Dynamics CRM.

Add or remove sample data

Sample data is available to help you become familiar with how Microsoft Dynamics CRM works. By using sample data, work with records and see how they relate to each other, how data displays in charts, and see what information is in reports.

Sample data can be added or removed from within the CRM application. More information: Add or remove sample data

Complete the configuration tasks for new organizations

After you've completed installing Microsoft Dynamics CRM, but before the business users in your organization start using it, there are some basic tasks that you, as the CRM administrator, should complete. These tasks include defining business units and security roles, adding users, and importing data.

More information: **Set up a CRM organization**

Import a solution from the Microsoft Dynamics Marketplace

Use solutions to extend functionality and the user interface. Customizers and developers distribute their work as solutions. Organizations use Microsoft Dynamics CRM to import the solution. Find a solution in the Microsoft Dynamics Marketplace.

⬥ **Important**

Importing a solution or publishing customizations can interfere with normal system operation. We recommend that you schedule solution imports when it's least disruptive to users.

For more information about how to import a solution, see Import a solution.

How can I disable the Navigation Tour video?

By default, the Navigation Tour video prompt appears the first time a user signs in to Microsoft Dynamics CRM Online or Microsoft Dynamics CRM (on-premises) using a web browser. The video prompt won't appear on subsequent sign-ins after the user clicks **Don't show me this again**. Notice that, if the user clears the browser cache or signs in from a different computer's web browser, the video prompt will display again.

For the typical deployment the Navigation Tour video can be a valuable learning tool for users new to Microsoft Dynamics CRM. However, for some Microsoft Dynamics CRM (on-premises) deployments that use Remote Desktop Services or are highly customized, you may want to disable the video. To disable the video prompt, follow these steps from the Microsoft Dynamics CRM Server, where the Front End Server role is running.

You can disable the navigation tour for the entire organization by setting the **Display navigation tour to users when they sign in** in **Settings** > **Administration** > **System Settings** > **General** tab to **No**. If disabled, users aren't presented with the welcome tour screen every time they sign in to Microsoft Dynamics CRM.

📝 **Note**

You can run the Navigation Tour video at any time from a web browser running Microsoft Dynamics CRM. To do this click or tap **Settings** and then click or tap **Open Navigation Tour**.

Configure Windows Server 2012 R2 for CRM applications that use OAuth

The following information describes how to configure Windows Server 2012 R2 with Active Directory Federation Services (AD FS) 2.2 to support CRM applications such as CRM for phones, Microsoft Dynamics CRM for tablets, Dynamics CRM for Outlook, Microsoft Social Engagement, or other Dynamics CRM applications that need OAuth support.

📝 **Note**

There are a few issues that were present when configuring AD FS 2.0 and 2.1 that are no longer needed for AD FS 2.2. For example, with 2.0/2.1 you had to configure the MEX endpoint using a script or obtain a hotfix. This isn't needed with AD FS 2.2. In addition,

AD FS 2.2 adds the rule "Pass through all UPN Claims" in the Active Directory claim provider trust by default, so the extra step to add the rule is no longer required.

Enable forms authentication

By default, forms authentication is disabled in the intranet zone. You must enable forms authentication by following these steps.

▶

1. Log on to the AD FS server as an administrator.
2. Open the ADFS management wizard.
3. Click **Authentication Policies** > **Primary Authentication** > **Global Settings** > **Authentication Methods** > **Edit**.
4. Click (check) **Form Based Authentication** on the **Intranet** tab.

Configure the

Follow these steps to configure the OAuth provider in Microsoft Dynamics CRM.

▶

1. Log on to the Microsoft Dynamics CRM server as an administrator.
2. In a Windows PowerShell console window, run the following script.

```
$ClaimsSettings = Get-CrmSetting -SettingType
OAuthClaimsSettings
$ClaimsSettings.Enabled = $true
Set-CrmSetting -Setting $ClaimsSettings
```

Register the client apps

The client apps for the Apple iPad, Windows tablets and phones, and Outlook must be registered with AD FS.

▶

1. Log on to the AD FS server as administrator.
2. In a PowerShell window, execute the following command to register the mobile apps.

```
Add-AdfsClient -ClientId ce9f9f18-dd0c-473e-b9b2-47812435e20d
-Name "Microsoft Dynamics CRM for tablets and phones" -
RedirectUri ms-app://s-1-15-2-2572088110-3042588940-
2540752943-3284303419-1153817965-2476348055-1136196650/, ms-
app://s-1-15-2-1485522525-4007745683-1678507804-3543888355-
3439506781-4236676907-2823480090/, ms-app://s-1-15-2-
3781685839-595683736-4186486933-3776895550-3781372410-
```

```
1732083807-672102751/, urn:ietf:wg:oauth:2.0:oob
```

3. To register the Outlook client, enter the following command.

```
Add-AdfsClient -ClientId  2f29638c-34d4-4cf2-a16a-
7caf612cee15  -Name "Dynamics CRM Outlook Client" -
RedirectUri app://6BC88131-F2F5-4C86-90E1-3B710C5E308C/
```

User training and adoption

More information: Training and Adoption Kit for Microsoft Dynamics CRM.

See Also

Installing on-premises CRM 2016

Operating on-premises CRM 2016

Operating on-premises CRM 2016

The Microsoft Dynamics CRM operating section contains resources and topics designed to help you operate and maintain your on-premises deployment of Microsoft Dynamics CRM.

In This Section

Operating Microsoft Dynamics CRM 2016

Related Sections

Installing on-premises CRM 2016

Microsoft Dynamics CRM Administration Guide

Operating Microsoft Dynamics CRM 2016

As you administer Microsoft Dynamics CRM, you'll want to guarantee availability for your users by monitoring server status and performance, troubleshooting issues, and planning for disaster recovery.

Ongoing maintenance of Microsoft Dynamics CRM includes operations such as updating, customizing, monitoring, and relocating or reconfiguring Microsoft Dynamics CRM Server and required or optional technologies such as Microsoft SQL Server and Microsoft SharePoint.

⚠ **Caution**

Operations that require intensive database transactions cannot be run concurrently. This includes the following operations.

- Language pack provisioning
- Importing a solution

- Publishing customizations
- Database updates (Microsoft Dynamics CRM (on-premises) only)
- Solution update operations (Microsoft Dynamics CRM Online only)

In This Section

[Update Microsoft Dynamics CRM 2016](#)

Related Sections

[Planning on-premises CRM 2016](#)

[Installing on-premises CRM 2016](#)

Administration Guide for Microsoft Dynamics CRM and Microsoft Dynamics CRM Online

Microsoft Dynamics CRM PowerShell Reference

Administer the deployment using Windows PowerShell

With Windows PowerShell you can easily run deployment commands to change the configuration of your deployment, like tasks that can be performed from the Deployment Manager user interface. You can also use the methods described in the Microsoft Dynamics CRM SDK to perform these tasks. The PowerShell cmdlets are installed on the computer when you install a Full Server role or when you install the Deployment Tools server role, if you're installing individual server roles. To execute commands, you must first register the Microsoft Dynamics CRM commands with PowerShell. This topic describes how to do this plus additional tasks to help you use PowerShell.

Find help about the PowerShell cmdlets for Microsoft Dynamics CRM at [Microsoft Dynamics CRM PowerShell Reference](#).

For more information about using PowerShell, see [Scripting with Windows PowerShell](#).

For more information about the programmatic use of the Deployment Web Service, see [MSDN: Administer the deployment using the deployment web service](#).

In This Topic

[Get started using the Dynamics CRM PowerShell cmdlets](#)

[Use the PowerShell cmdlets](#)

[Set properties using PowerShell cmdlets](#)

[Get Dynamics CRM PowerShell cmdlet Help topics](#)

[Update deployment configuration settings using PowerShell](#)

Get started using the Dynamics CRM PowerShell cmdlets

▶ **Register the cmdlets**

1. Sign in to the administrator account on your Microsoft Dynamics CRM server.
2. Open a PowerShell command prompt.
3. Enter the following command.

```
Add-PSSnapin Microsoft.Crm.PowerShell
```

This command adds the Dynamics CRM PowerShell snap-in to the current session. The snap-in is registered during installation and setup of the Microsoft Dynamics CRM server.

⚠ Important

- For information about registering the XRM tooling connector cmdlets, Get-CrmConnection and Get-CrmOrganizations, see [MSDN: Use PowerShell cmdlets for XRM tooling to connect to CRM](#).

- For information about registering the Package Deployer cmdlets, see **Deploy packages using CRM Package Deployer and Windows PowerShell**.

- You must register the Dynamics CRM PowerShell commands; otherwise you'll receive the following message when you try to run a cmdlet.

  The term '*Microsoft Dynamics CRM Windows PowerShell command*' is not recognized as the name of a cmdlet, function, script file, or operable program. Check the spelling of the name, or if a path was included, verify that the path is correct and try again.

▶ Get a list of the Dynamics CRM cmdlets

1. At the PowerShell prompt, type the following.

```
Get-Help *Crm*
```

▶ Get help for a cmdlet

1. At the PowerShell prompt, type the following, replacing *CrmCmdletName* with the name of a command.

```
Get-Help CrmCmdletName
```

For detailed help for a specific cmdlet, use Get-Help *CRMCmdlet* –full, such as the **Import-CRMOrganization** cmdlet.

```
Get-Help Import-CRMOrganization -full
```

Use the PowerShell cmdlets

When you have registered the Dynamics CRM PowerShell commands, you can use them to perform tasks.

Use the following command to output the list of deployment administrators.

```
PS C:\Users\Administrator> Get-CrmDeploymentAdministrator
```

This command results in the following output.

Id	Name	ExtensionData

--	----	-------------
`4f431656-90f8-e211-831c-00155da83c4f`	`myDomainName\Administrator`	

Set properties using PowerShell cmdlets

When you have registered the Microsoft Dynamics CRM PowerShell commands, you can use them to perform tasks, such as set deployment-wide properties or set some organization properties.

For example, to add a Microsoft Dynamics CRM deployment administrator, run the following command where *domain\adminName* is the Active Directory domain and user name of the administrator you want to add.

```
New-CrmDeploymentAdminstrator domain\adminName
```

Get Dynamics CRM PowerShell cmdlet Help topics

For a complete list of the Microsoft Dynamics CRM PowerShell cmdlets with links to Help topics, see the [Microsoft Dynamics CRM PowerShell Reference](#).

Update deployment configuration settings using PowerShell

Use PowerShell to update deployment-wide settings, such as claims-based authentication, Internet-facing deployment (IFD), and web addresses. More information: [Update deployment configuration settings](#)

See Also

[Update deployment configuration settings](#)

[Operating Microsoft Dynamics CRM 2016](#)

Update deployment configuration settings

You can use the **T:Microsoft.Crm.PowerShell.Get-CrmSetting** and **T:Microsoft.Crm.PowerShell.Set-CrmSetting** cmdlets to retrieve and update many different settings properties for your Microsoft Dynamics CRM deployment. The **Get-CrmSetting** cmdlet retrieves a Microsoft Dynamics CRM deployment setting object, such as **IfdSettings**. The **Set-CrmSetting** cmdlet updates the deployment setting.

This topic lists the setting types with their parameters. For more information about these settings, see [MSDN: Microsoft.Xrm.Sdk.Deployment Namespace](#). For an example of code using the **Get-CrmSetting** and **Set-CrmSetting** cmdlets see "[Change monitoring settings](#).

In This Topic

[AsyncSettings](#)

[ClaimsSettings](#)

[CustomCodeSettings](#)

[DashboardSettings](#)

AsyncSettings

The following settings are available.

Name	Description	Data type
JobTimeoutLockedInterval	Gets or sets the interval used to query to see if there are any organization maintenance jobs that have timed out.	Integer
MaxJobExecutionTime	Gets or sets a value used for organization maintenance jobs to determine if a job has timed out.	Integer
MaxRetries	Gets or sets the number of times an asynchronous job will retry before it fails or suspends.	Integer
MaxStateStatusUpdateMaxRetryCount	Gets or sets the maximum number of times a database operation will be attempted	Integer

Name	Description	Data type
	before failure.	
OrgDatabaseMaintenanceJobInterval	Gets or sets the interval used to query to see if there is a pending organization maintenance job.	Integer
RetryInterval	Gets or sets the default rate of retries for failed asynchronous operations.	Integer
SdkRootDomain	Gets or sets the root domain used for calls into the Microsoft Dynamics CRM service from the asynchronous service.	String
SelectInterval	Gets or sets the interval used to determine if new asynchronous operations should be loaded into memory.	Integer
ThrottlingConfiguration	Gets or sets the throttling configuration.	String
TimeoutLockedInterval	Gets or sets the interval used to query to see if there are any asynchronous operations that have timed out.	Integer

ClaimsSettings

For an example of code you can use to update claims settings in your Microsoft Dynamics CRM deployment, see Configure claims settings. The following settings are available.

Name	Description	Data type
Enabled	Gets or sets whether or not claims is enabled.	Boolean
EncryptionCertificate	Gets or sets the encryption certificate name.	String

Name	Description	Data type
FederationMetadataUrl	Gets or sets the federation metadata URL.	String
FederationProviderType	Gets or sets the federation type provider.	Integer
SessionSecurityTokenLifetimeInHours	Gets or sets the security session token lifetime, in hours.	Integer

CustomCodeSettings

The following settings are available.

Name	Description	Data type
AllowDeclarativeWorkflows	Gets or sets whether XAML workflows are allowed on the server.	Boolean
AllowExternalCode	Gets or sets whether plug-ins and custom workflow activities can be registered on the server.	Boolean

DashboardSettings

The following setting is available.

Name	Description	Data type
MaximumControlsLimit	Gets or sets the maximum number of controls allowed on dashboards for the server. The maximum number cannot exceed 20.	Integer

DupSettings

The following settings are available.

Name	Description	Data type
BulkDetectBatchSize	Gets or sets the bulk duplicate detection batch	Integer

Name	Description	Data type
	size.	
MatchcodeLength	Gets or sets the length of the match code.	Integer
MatchcodePersistenceInterval	Gets or sets the persistence interval for the match code.	Integer
MaxPublishedRules	Gets or sets the maximum number of published rules.	Integer
PublishAsyncPollingInterval	Gets or sets the polling interval for the asynchronous job.	Integer
PublishPageSize	Gets or sets the page size for results.	Integer

EtmSettings

The following settings are available.

Name	Description	Data type
Enabled	Gets or sets whether Enterprise Transaction Monitor (ETM) is enabled.	Boolean
ThrottlingEnabled	Gets or sets whether Enterprise Transaction Monitor (ETM) throttling is enabled.	Boolean

IfdSettings

For an example of code you can use to update Internet-facing deployment (IFD) settings in your Microsoft Dynamics CRM deployment, see Configure IFD settings. The following settings are available.

Name	Description	Data type
DiscoveryWebServiceRootDomain	Gets or sets the discovery web service domain.	String
Enabled	Gets or sets a value that indicates whether Internet-facing deployment (IFD) is	Boolean

Name	Description	Data type
	enabled.	
ExternalDomain	Gets or sets the external domain value for Internet-facing deployment (IFD).	String
IntranetAccessEnabled	Gets or sets a value that indicates whether intranet access is enabled.	Boolean
OrganizationWebServiceRootDomain	Gets or sets the organization web service domain.	String
WebApplicationRootDomain	Gets or sets the web application server domain.	String

ImportSettings

The following settings are available.

Name	Description	Data type
BatchSize	Gets or sets the number of items to process in a batch.	Integer
ContentBufferSize	Gets or sets the size of the content buffer.	Integer
CountUpdateBatchSize	Gets or sets the batch size for import count updates.	Integer
MaxColumnsAllowed	Gets or sets the maximum number of columns in an import file.	Integer
MaxDataTruncationRetryCount	Gets or sets the maximum number or retries.	Integer
ParsedColumnDefaultSize	Gets or sets the default size of the parsed column.	Integer
PickListBatchSize	Gets or sets the batch size for picklist import.	Integer

MarketplaceSettings

The following settings are available.

Name	Description	Data type
InternetConnectionProxyEndpoint	Gets or sets the proxy server and port used for outgoing internet requests.	String
SolutionsMarketplaceEnabled	Gets or sets whether the solutions marketplace is enabled.	Boolean

MonitoringSettings

The following settings are available.

Name	Description	Data type
CertificateLifetimeNotificationThreshold	Gets or sets the threshold of the certificate lifetime remaining at which to begin reporting expiration notifications.	Integer
MonitoringOrganizationUniqueName	Gets or sets the unique name of the organization that will serve as the monitoring organization.	String
MonitoringOrganizationUserAccount	Gets or sets the user account to access that organization.	String
MonitoringOrganizationUserPassword	Gets or sets the password to access that organization.	PS-Credential
ResultsToKeep	Gets or sets the maximum number of results to keep as files from the monitoring.	Integer
ResultsToKeepInDatabase	Gets or sets the maximum number of results to keep in the database.	Integer
StoreResultsInDatabase	Gets or sets the results to store in the database as well as files.	Boolean

MultiEntityQuickFindSettings

The following settings are available.

Name	Description	Data type
MultiEntityQuickFindDegreeOfParallelism	Gets or sets the maximum degree of parallelism for multi-entity search queries.	Integer
MultiEntityQuickFindEntityLimit	Gets or sets the upper limit for the number of entities that can participate in a multi-entity search query.	Integer
MultiEntityQuickFindMaxRequestsPerOrgPerServer	Gets or sets the maximum number of concurrent **QuickFind** requests per organization per server.	Integer
MultiEntityQuickFindMaxRequestsPerServer	Gets or sets the maximum number of concurrent **QuickFind** requests per server	Integer

OAuthClaimsSettings

The following settings are available.

Name	Description	Data type
Enabled	Gets or sets whether or not claims is enabled.	Boolean
EncryptionCertificate	Gets or sets the encryption certificate name.	String
FederationMetadataUrl	Gets or sets the federation metadata URL.	String
FederationProviderType	Gets or sets the federation type provider.	Integer

Name	Description	Data type
SessionSecurityTokenLifetimeInHours	Gets or sets the security session token lifetime in hours.	Integer

QuickFindSettings

The following settings are available.

Name	Description	Data type
QuickFindEntityIndexLimit	Gets or sets the maximum number of the attributes used in the quick find search query, after which the **QuickFind** indexes are not created.	Integer
QuickFindRecordLimit	Gets or sets the maximum number of records that match the quick find query criteria before an exception error is thrown. This is needed for faster execution of the quick find searches.	Integer

SqmSettings

The following settings are available.

Name	Description	Data type
SqmEnabled	Gets or sets the value that indicates whether collection of information for the customer experience improvement program is enabled.	Boolean

TeamSettings

The following settings are available.

Name	Description	Data type
MaxAutoCreatedAccessTeamsPerEntity	Gets or sets the maximum number of	Integer

Name	Description	Data type
	auto created (system-managed) access teams per entity.	
MaxEntitiesEnabledForAutoCreatedAccessTeams	Gets or sets the maximum number of entities that can be enabled for auto created (system-managed) access teams.	Integer

ThrottleSettings

The following settings are available.

Name	Description	Data type
ExecuteAsyncMaxConnectionsPerServer	Gets or sets the maximum number of concurrent asynchronous execute operations per organization.	Integer
ExecuteAsyncPerOrgMaxConnectionsPerServer	Gets or sets the maximum number of concurrent execute multiple operations per organization per server.	Integer
ExecuteMultipleMaxConnectionsPerServer	Gets or sets the maximum number of concurrent execute multiple operations per organization.	Integer
ExecuteMultiplePerOrgMaxConnectionsPerServer	Gets or sets the maximum number of concurrent execute multiple operations per organization per server.	Integer

Name	Description	Data type
FollowInYammerMaxConnectionsPerServer	For internal use only.	Integer
FollowInYammerPerOrgMaxConnectionsPerServer	For internal use only.	Integer
MapiSyncMaxConnectionsPerServer	Gets or sets the server setting to control the maximum number of MAPI sync operations.	Integer
MapiSyncPerOrgMaxConnectionsPerServer	Gets or sets the server setting to control the maximum number of MAPI sync operations per organization.	Integer
MaxBackgroundSendEmailRequestsPerOrgPerServer	Gets or sets the server setting to control the maximum number of background email send operations per organization.	Integer
MaxBackgroundSendEmailRequestsPerServer	Gets or sets the server setting to control the maximum number of background email send operations.	Integer
MaxSharepointThreadsperOrganisation	Gets or sets the maximum number of Microsoft SharePoint threads allowed per organization.	Integer
MaxSharepointThreadsperUser	Gets or sets the maximum number of Microsoft SharePoint threads allowed per user.	Integer
OfflineSyncMaxConnectionsPerServer	Gets or sets the server setting to	Integer

Name	Description	Data type
	control the maximum number of offline sync operations.	
OfflineSyncPerOrgMaxConnectionsPerServer	Gets or sets the server setting to control the maximum number of offline sync operations per organization.	Integer
OutlookSyncMaxConnectionsPerServer	Gets or sets the server setting to control the maximum number of CRM for Outlook sync operations.	Integer
OutlookSyncPerOrgMaxConnectionsPerServer	Gets or sets the server setting to control the maximum number of CRM for Outlook sync operations per organization.	Integer

TraceSettings

The following settings are available.

Name	Description	Data type
CallStack	Gets or sets whether to save the call stack.	Boolean
Categories	Gets or sets the categories to trace.	String
Directory	Gets or sets the directory for the trace files.	String
Enabled	Gets or sets whether tracing is enabled.	Boolean
FileSize	Gets or sets the trace file size limit (MB).	Integer

WebAddressSettings

For an example of code you can use to update web address settings in your Microsoft Dynamics CRM deployment, see [Configure web address settings](). The following settings are available.

Name	Description	
DeploymentSdkRootDomain	Gets or sets the root domain for the deployment web service (SDK).	String
DiscoveryRootDomain	Gets or sets the root domain for the discovery web service.	String
HelpServerUrl	Gets or sets the URL for help content server.	String
NlbEnabled	Gets or sets whether network load balancing (NLB) is enabled.	Boolean
RootDomainScheme	Gets or sets the root domain scheme: http or https.	String
SdkRootDomain	Gets or sets the root domain for the organization web service (SDK).	String
SslHeader	Gets or sets the secured sockets layer (SSL) header.	String
WebAppRootDomain	Gets or sets the root domain for the web application.	String

WorkflowSettings

The following settings are available.

Name	Description	Data type
MaxDepth	Gets or sets the maximum depth for a workflow.	Integer
MinInactiveSeconds	Gets or sets the maximum number of seconds a workflow can be inactive.	Integer

YammerSettings

The following settings are available.

Name	Description	Data type
ApplicationId	Gets or sets the application ID.	String
ApplicationSecret	Gets or sets the application secret.	String

See Also

Administer the deployment using Windows PowerShell

Microsoft Dynamics CRM PowerShell Reference

Configure claims settings

Using the PowerShell **Get-CrmSetting** and **Set-CrmSetting** cmdlets you can update the settings in your Microsoft Dynamics CRM deployment. One of the types of settings you can change is the claims setting.

Requirements

To set up the Microsoft Dynamics CRM PowerShell cmdlets, see Administer the deployment using Windows PowerShell.

Demonstrates

You can use the following script to enable or disable claims authentication. You must specify the following parameters:

Enabled - A **Boolean** that specifies whether claims authentication is enabled or disabled.

EncryptionCertificate – An encryption certificate.

FederationMetadataUrl – A URL for federation metadata.

Example

Code

```
param

(

    #optional params

    [boolean]$Enabled,

    [string]$EncryptionCertificate,

    [string]$FederationMetadataUrl

)


$RemoveSnapInWhenDone = $False


if (-not (Get-PSSnapin -Name Microsoft.Crm.PowerShell -ErrorAction SilentlyContinue))
```

```
{

    Add-PSSnapin Microsoft.Crm.PowerShell

    $RemoveSnapInWhenDone = $True

}


$ClaimsSettings = Get-CrmSetting -SettingType ClaimsSettings


if($PSBoundParameters.ContainsKey('Enabled')) {$ClaimsSettings.Enabled = $Enabled}

if($EncryptionCertificate) {$ClaimsSettings.EncryptionCertificate =
$EncryptionCertificate}

if($FederationMetadataUrl) {$ClaimsSettings.FederationMetadataUrl =
$FederationMetadataUrl}


Set-CrmSetting -Setting $ClaimsSettings


$ClaimsSettings


if($RemoveSnapInWhenDone)

{

    Remove-PSSnapin Microsoft.Crm.PowerShell

}
```

See Also

[Administer the deployment using Windows PowerShell](#)

[Update deployment configuration settings](#)

Configure IFD settings

Using the PowerShell **Get-CrmSetting** and **Set-CrmSetting** cmdlets you can update the settings in your Microsoft Dynamics CRM deployment. One of the types of settings you can change is for an Internet-facing deployment (IFD).

Requirements

To set up the Microsoft Dynamics CRM PowerShell cmdlets, see [Administer the deployment using Windows PowerShell](#).

Demonstrates

You can use the following script to update settings for an Internet-facing deployment (IFD). You must specify the following parameters:

DiscoveryWebServiceRootDomain – The discovery Web service domain.

Enabled - A **Boolean** that indicates whether Internet-facing deployment (IFD) is enabled.

ExternalDomain - The external domain value for IFD.

OrganizationWebServiceRootDomain -The organization Web service domain.

WebApplicationRootDomain -The Web application server domain.

Example

Code

```
param
(
    #optional params
    [string]$DiscoveryWebServiceRootDomain,
    [boolean]$Enabled,
    [string]$ExternalDomain,
    [string]$OrganizationWebServiceRootDomain,
    [string]$WebApplicationRootDomain
)


$RemoveSnapInWhenDone = $False


if (-not (Get-PSSnapin -Name Microsoft.Crm.PowerShell -ErrorAction SilentlyContinue))
{
    Add-PSSnapin Microsoft.Crm.PowerShell
    $RemoveSnapInWhenDone = $True
}


$IfdSettings = Get-CrmSetting -SettingType IfdSettings


if($DiscoveryWebServiceRootDomain) {$IfdSettings.DiscoveryWebServiceRootDomain =
$DiscoveryWebServiceRootDomain}

if($ExternalDomain) {$IfdSettings.ExternalDomain = $ExternalDomain}

if($PSBoundParameters.ContainsKey('Enabled')) {$IfdSettings.Enabled = $Enabled}

if($OrganizationWebServiceRootDomain) {$IfdSettings.OrganizationWebServiceRootDomain =
$OrganizationWebServiceRootDomain}

if($WebApplicationRootDomain) {$IfdSettings.WebApplicationRootDomain =
$WebApplicationRootDomain}


Set-CrmSetting -Setting $IfdSettings
```

```
$IfdSettings


if($RemoveSnapInWhenDone)

{

    Remove-PSSnapin Microsoft.Crm.PowerShell

}
```

See Also

Administer the deployment using Windows PowerShell

Update deployment configuration settings

Configure web address settings

Using the PowerShell **Get-CrmSetting** and **Set-CrmSetting** cmdlets you can update the settings in your Microsoft Dynamics CRM deployment. One of the types of settings you can change is the web address settings

Requirements

To set up the Microsoft Dynamics CRM PowerShell cmdlets, see Administer the deployment using Windows PowerShell.

Demonstrates

You can use the following script to update web address settings - partner-hosted (IFD). You must specify the following parameters:

RootDomainScheme – The root domain scheme: http or https.

DeploymentSdkRootDomain – The root domain for the deployment Web service (SDK).

DiscoveryRootDomain – The root domain for the discovery Web service.

NlbEnabled – A **Boolean** that specifies whether network load balancing (NLB) is enabled.

SdkRootDomain – The root domain for the organization Web service (SDK).

SslHeader – The secured sockets layer (SSL) header.

WebAppRootDomain – The root domain for the Web application.

Example

Code

```
param

(

    #optional params

    [string]$RootDomainScheme,

    [string]$DeploymentSdkRootDomain,

    [string]$DiscoveryRootDomain,

    [boolean]$NlbEnabled,
```

```
        [string]$SdkRootDomain,

        [string]$SslHeader,

        [string]$WebAppRootDomain
)


$RemoveSnapInWhenDone = $False


if (-not (Get-PSSnapin -Name Microsoft.Crm.PowerShell -ErrorAction SilentlyContinue))
{
    Add-PSSnapin Microsoft.Crm.PowerShell
    $RemoveSnapInWhenDone = $True
}


$WebAddressSettings = Get-CrmSetting -SettingType WebAddressSettings


if($DeploymentSdkRootDomain) {$WebAddressSettings.DeploymentSdkRootDomain =
$DeploymentSdkRootDomain}

if($DiscoveryRootDomain) {$WebAddressSettings.DiscoveryRootDomain = $DiscoveryRootDomain}

if($PSBoundParameters.ContainsKey('NlbEnabled')) {$WebAddressSettings.NlbEnabled =
$NlbEnabled}

if($RootDomainScheme) {$WebAddressSettings.RootDomainScheme = $RootDomainScheme}

if($SdkRootDomain) {$WebAddressSettings.SdkRootDomain = $SdkRootDomain}

if($PSBoundParameters.ContainsKey('SslHeader')) {$WebAddressSettings.SslHeader =
$SslHeader}

if($WebAppRootDomain) {$WebAddressSettings.WebAppRootDomain = $WebAppRootDomain}


Set-CrmSetting -Setting $WebAddressSettings


$WebAddressSettings


if($RemoveSnapInWhenDone)
{
    Remove-PSSnapin Microsoft.Crm.PowerShell
}
```

Use Deployment Manager to manage the deployment

Microsoft Dynamics CRM Deployment Manager is a Microsoft Management Console (MMC) snap-in that system administrators and value-added resellers use to manage Deployment Administrator accounts, organizations, servers, and licenses for Microsoft Dynamics CRM deployments.

Note the following:

- To use Deployment Manager, you must have the Deployment Administrator role. During Microsoft Dynamics CRM Server Setup, the process automatically assigns that role to the user who is running Setup.

    Important

    Make sure that at least two or three trusted people have the Deployment Administrator role. This avoids system lockout if the primary deployment administrator is unavailable.

- To create and manage Microsoft Dynamics CRM user accounts, you must use the Microsoft Dynamics CRM web client or Dynamics CRM for Outlook.

- The Deployment Administrator role is separate from the Microsoft Dynamics CRM user security role. A Deployment Administrator may or may not have a Microsoft Dynamics CRM user security role.

In this section

Microsoft Dynamics CRM deployment properties

Change the product key

Using Windows PowerShell to perform Deployment Manager tasks

Configure claims-based authentication

Disable claims-based authentication

Configure an Internet-facing deployment

Disable an Internet-facing deployment

Microsoft Dynamics CRM deployment properties

The Microsoft Dynamics CRM **Properties** dialog box displays information about the deployment and lets you specify settings for Web Address, License, and Usage Reporting.

Open the Microsoft Dynamics CRM Properties dialog box

You can open the Microsoft Dynamics CRM Properties dialog box in one of two ways:

▶

- In the **Actions** pane, click **Properties**.
- In the console tree, right-click **Microsoft Dynamics CRM**, and then click **Properties**.

💡 **Tip**

You can implement some of the procedures described here by using a Windows PowerShell cmdlet. For more information, see Administering Microsoft Dynamics CRM by using Windows PowerShell.

In This Topic

General tab

Web Address tab

License tab

Usage Reporting tab

General tab

The **General** tab shows information about the Microsoft Dynamics CRM deployment

Web Address tab

Use the **Web Address** tab to set the **Binding Type** and to specify information for the **Web Application Server**, **Organization Web Service**, **Discovery Web Service**, and **Deployment Web Service**.

⚠ **Warning**

If you enter incorrect values in these fields, some users might not be able to access Microsoft Dynamics CRM.

▶ **Enter Web Address information**

1. After opening the Microsoft Dynamics CRM **Properties** dialog box, click the **Web Address** tab.
2. Specify the **Binding Type**, either HTTP or HTTPS.

   📝 **Note**

- The **Binding Type** *must* be set to HTTPS to use claims-based authentication.
- The Deployment Manager does not configure the Microsoft Dynamics CRM website site to use HTTPS. The website must already be configured for HTTPS. For information about how to configure a website to use HTTPS, see the Internet Information Services (IIS) Manager Help.

3. In the boxes provided, enter the domain paths.

   For the domain paths, the values for the paths must be in the form:

   ```
   server:port
   ```

   or

   ```
   server.domain.tld:port
   ```

   where:

   - `server` is the computer name
   - `domain` is the complete sub domain path where the computer is located
   - `tld` is the top level domain, such as com or org
   - The `:port` designation is required if you are not using the standard http port (80) or https port (443)

   Typically, in a Full Server or Front End Server role deployment, the path values are the same. However, if you deploy Microsoft Dynamics CRM on multiple servers with separate server roles, that is, where the **Web Application Server**, **Organization Web Service**, or **Discovery Web Service** server roles are located on different servers, these path values will be different:

   - **Web Application Server**. WebApplicationServerName.domain.tld:port
   - **Organization Web Service**. OrganizationWebServiceServerName.domain.tld:port
   - **Discovery Web Service**. DiscoveryWebServiceServerName.domain.tld:port
   - **Deployment Web Service**. DeploymentWebServiceServerName.domain.tld:port

   For more information about web addresses, see [Install Microsoft Dynamics CRM Server on multiple computers](#) in the Microsoft Dynamics CRM Installing Guide.

▶Specify NLB and SSL header information

1. At the bottom of the **Web Address** tab, click **Advanced**.
2. In the **NLB and SSL Header Information** dialog box, specify if you are using network load-balancing (NLB) and the header for the Secure Sockets Layer (SSL) offloading system.

   Selecting **The deployment uses an NLB** sets Microsoft Dynamics CRM to configure Windows Identity Foundation (WIF) to use the encryption certificate to encrypt, decrypt, and sign the Microsoft Dynamics CRM session authentication cookies. The encrypted cookies can then be processed by any server in the NLB cluster.

   For information about procedures for loading and administering NLB on Windows Server, see the Network Load Balancing Manager Help on the Windows Server computer. For information about how to configure NLB in Windows Server 2008, see [Network Load](#)

.

3. If you are using NLB, select **The deployment uses an NLB**.

4. If you are using SSL offloading, in the **SSL Header** box, type the SSL header for the SSL offloading system.

   📝 **Note**

   The SSL header is not a URL or domain. It is an agreed-on header value for the HTTP request that is configured on the device that is handling the SSL offloading. Review the SSL offloading device documentation for the header value.

5. Click **OK**.

Configure domain names for IFD

To configure Microsoft Dynamics CRM for IFD, you must start Deployment Manager and run the Internet-Facing Deployment Configuration Wizard to add or revise the domain values. Depending on how you deployed the Microsoft Dynamics CRM Server role group or separate server role installation, and the configuration of each server in the NLB cluster, the **Web Application Server Domain**, **Organization Web Service Domain**, and **Discovery Web Service Domain** values use the NLB virtual cluster domain name. For example, if the Web Application Server is installed on an Internet-facing NLB cluster that has the FQDN virtual name *crmcluster.contoso.com*, enter **contoso.com** as the **Web Application Server Domain** value.

For more information about how to configure internal web address and external domain values, see Configure IFD for Microsoft Dynamics CRM.

License tab

After opening the Microsoft Dynamics CRM **Properties** dialog box, click the **License** tab.

The **License** tab displays a summary of all Microsoft Dynamics CRM users that are configured in the deployment. For information about each of these client access license types, see CRM purchase plans.

The following information for all Microsoft Dynamics CRM users and their respective client access license (CAL) types is displayed:

- **Administrative Users**. Shows the total number of Microsoft Dynamics CRM users configured as administrative users.

- **Professional CALs Required**. Shows the total number of Microsoft Dynamics CRM users configured with the Professional client access license (CAL) in the deployment.

- **Basic CALs Required**. Shows the total number of Microsoft Dynamics CRM users configured with the Basic CAL in the deployment.

- **Essential CALs Required**. Shows the total number of Microsoft Dynamics CRM users configured with the Essential CAL in the deployment.

- **Server Licenses Required**. Shows the total number of Microsoft Dynamics CRM Server licenses in the deployment.

The **License** tab also displays the product ID you can use to identify and validate your copy of Microsoft Dynamics CRM and a link to the **Change Product Key** dialog box. To change the product key, see Change the product key.

If the Deployment Manager cannot access one or more organizations, the license counts are shown as "Unavailable."

Note

If a user is a member of multiple organizations and uses a different license in different organizations, the Deployment Manager reports that user as using the highest privilege level license. For example, if the user has a Full user license in one organization and a Limited license in another organization, that user is reported as using one Full license.

Users who have the Deployment Administrator role do not automatically become Microsoft Dynamics CRM users and do not consume a CAL.

Usage Reporting tab

On the Usage Reporting tab, indicate whether you want to allow organizations in the deployment to participate anonymously in the Customer Experience Improvement Program. If you accept, each organization in the deployment can be configured to send data to Microsoft. If you decline for the entire deployment, no organization is able to send data, regardless of the organization's usage reporting setting.

▶**Allow usage reporting**

1. After you open the Microsoft Dynamics CRM **Properties** dialog box, click the **Usage Reporting** tab.

2. Select the **Allow organizations to participate anonymously in the Customer Experience Improvement Program** option.

For information about the Customer Experience Improvement Program, see Microsoft Customer Experience Improvement Program.

See Also

Configure claims-based authentication

Configure an Internet-facing deployment

Change the product key

Change the product key

The **Change Product Key** dialog box lets you change the product key.

Tip
You can implement the procedure described here by using a Windows PowerShell cmdlet. For more information, see Administering Microsoft Dynamics CRM by using Windows PowerShell.

▶ Change the product key

1. Open the **Change Product Key** dialog box in one of two ways:
   - In the **Actions** pane, click **Change Product Key**.
   - In the console tree, right-click **Microsoft Dynamics CRM**, and then click **Change Product Key**.
2. Type the new product key into the **Enter the Microsoft Dynamics CRM product key** boxes.
3. Click **Apply**.

See Also

Microsoft Dynamics CRM deployment properties

Using Windows PowerShell to perform Deployment Manager tasks

Using Windows PowerShell to perform Deployment Manager tasks

You can use Windows PowerShell cmdlets to perform many of the tasks that can be performed by using the Deployment Manager user interface.

For more information about the Microsoft Dynamics CRM Windows PowerShell cmdlets, see Administering Microsoft Dynamics CRM by using Windows PowerShell.

▶ Register the Microsoft Dynamics CRM cmdlet

1. Sign in to the administrator account on your Microsoft Dynamics CRM server.
2. Open a Windows PowerShell prompt.
3. Add the Microsoft Dynamics CRM Windows PowerShell snap-in.

```
PS > Add-PSSnapin Microsoft.Crm.PowerShell
```

This command adds the Microsoft Dynamics CRM Windows PowerShell snap-in to the current session. The snap-in is registered during installation and setup of the Microsoft Dynamics CRM server.

Here's how to get a list of Microsoft Dynamics CRM cmdlets.

```
Get-Help *Crm*
```

For detailed help for a specific a cmdlet, use Get-Help *CRMCmdlet* –full, such as the **Import-CRMOrganization** cmdlet.

```
Get-Help Import-CRMOrganization
```

See Also

Use Deployment Manager to manage the deployment

Configure claims-based authentication

Configure claims-based authentication

The claims-based security model extends traditional authentication models to include other directory sources that contain information about users. This identity federation lets users from

various sources—such as Active Directory Domain Services, customers through the Internet, or business partners—use Microsoft Dynamics CRM.

💧 **Important**

Claims-based authentication is required for Microsoft Dynamics CRM Internet-facing deployment (IFD) access. However, claims-based authentication isn't required for intranet Microsoft Dynamics CRM access if Microsoft Dynamics CRM is deployed in the same domain where all Microsoft Dynamics CRM users are located, or users are in a trusted domain.

Before you run the Configure Claims-Based Authentication Wizard, a security token service (STS), such as Active Directory Federation Services (AD FS) must be available. For more information about Active Directory Federation Services (AD FS), see Identity and Access Management.

▶ **Configure claims-based authentication**

1. Start the Deployment Manager.
2. Set the **Binding Type** to HTTPS, as follows:
    *   In the **Actions** pane, click **Properties**.
    *   Click the **Web Address** tab.
    *   Under **Binding Type**, select **HTTPS**.
    *   Click **OK**.

    💧 **Important**

    The **Binding Type** *must* be set to HTTPS to use claims-based authentication.

    Verify that the web addresses are valid for your SSL certificate and the SSL port bound to the Microsoft Dynamics CRM website.

    If Dynamics CRM for Outlook clients were configured using the old binding values, these clients will need to be configured with the new values.
3. Open the Configure Claims-Based Authentication Wizard in one of two ways:
    *   In the **Actions** pane, click **Configure Claims-Based Authentication**.
    *   In the Deployment Manager console tree, right-click **Microsoft Dynamics CRM**, and then click **Configure Claims-Based Authentication**.
4. Click **Next**.
5. On the **Specify the security token service** page, enter the **Federation metadata URL**, such as https://adfs.contoso.com/federationmetadata2007-06/federationmetadata.xml.

    This data is typically located on the website where the Active Directory Federation Services (AD FS) is running. To verify the correct URL, open an Internet browser by using the URL to view the federation metadata. Verify that no certificate-related warnings appear.
6. Click **Next**.
7. On the **Specify the encryption certificate** page, specify the encryption certificate in one

of two ways:

- In the **Certificate** box, type the name of the certificate. Type the complete common name (CN) of the certificate by using the format CN=certificate_subject_name.
- Under **Certificate**, click **Select**, and then select a certificate.

This certificate is used to encrypt authentication security tokens that are sent to the Active Directory Federation Services (AD FS) security token service (STS).

📝 **Note**

The Microsoft Dynamics CRM service account must have Read permissions for the private key of the encryption certificate. See the following section The CRMAppPool account and the Microsoft Dynamics CRM encryption certificate.

8. Click **Next**.

   The Configure Claims-Based Authentication Wizard verifies the token and certificate you specified.

9. On the **System Checks** page, review the results, fix any problems, and then click **Next**.

10. On the **Review your selections and then click Apply** page, verify your selections, and then click **Apply**.

11. Note the URL you must use to add the relying party to the security token service. View and save the log file for later reference.

12. Note the information on the page, and then click **Finish**.

13. Configure relying parties for claims-based authentication.

    🔷 **Important**

    Claims-based authentication won't work until you create the relying parties in STS. For more information, see Configure the AD FS server for claims-based authentication.

The CRMAppPool account and the Microsoft Dynamics CRM encryption certificate

Claims data sent from Microsoft Dynamics CRM to Active Directory Federation Services (AD FS) is encrypted using a certificate you specify in the Configure Claims-Based Authentication Wizard. The CRMAppPool account of each Microsoft Dynamics CRM web application must have Read permissions to the private key of the encryption certificate.

1. On the Microsoft Dynamics CRM Server, create a Microsoft Management Console (MMC) with the **Certificates** snap-in console that targets the **Local computer** certificate store.

2. In the console tree, expand the Certificates (**Local Computer**) node, expand the **Personal** store, and then click **Certificates**.

3. In the details pane, right-click the encryption certificate specified in the Configure Claims-Based Authentication Wizard, point to **All Tasks**, and then click **Manage Private Keys**.

4. Click **Add**, (or select the Network Service account if that is the account you used during setup) add the **CRMAppPool** account, and then grant Read permissions.

   💡 **Tip**

You can use IIS Manager to determine what account was used during setup for the CRMAppPool account. In the **Connections** pane, click **Application Pools**, and then check the **Identity** value for CRMAppPool.

5. Click **OK**.

See Also

Disable claims-based authentication

Configure an Internet-facing deployment

Disable claims-based authentication

Use the following procedure to disable claims-based authentication.

▶ **Disable claims-based authentication**

- Disable claims-based authentication one of two ways:
    - In the Deployment Manager **Actions** pane, click **Disable Claims-Based Authentication**.
    - In the Deployment Manager console tree, right-click **Microsoft Dynamics CRM**, and then click **Disable Claims-Based Authentication**.

📝 **Note**

Disabling claims-based authentication also disables Internet-facing deployment (IFD).

Disabling claims-based authentication does not change the binding type. It will remain set to HTTPS unless changed manually.

See Also

Configure claims-based authentication

Configure an Internet-facing deployment

Configure an Internet-facing deployment

Configuring an Internet-facing deployment (IFD) lets users get to Microsoft Dynamics CRM from the Internet, outside the company firewall, without using a virtual private network (VPN). Microsoft Dynamics CRM configured for Internet access uses claims-based authentication to verify credentials of external users. When you configure Microsoft Dynamics CRM for Internet access, integrated Windows authentication must remain in place for users accessing Microsoft Dynamics CRM through your LAN or WAN.

🔷 **Important**

Claims-based authentication is required for Microsoft Dynamics CRM Internet-facing deployment (IFD) access. If Microsoft Dynamics CRM is deployed in the same domain where all Microsoft Dynamics CRM users are located or users are located in a trusted domain, claims-based authentication is not required for intranet Microsoft Dynamics CRM access.

Before you run the Configure Claims-Based Authentication Wizard, a security token service (STS), such as Active Directory Federation Services (AD FS) must be available. For more information about Active Directory Federation Services (AD FS), see Identity and Access Management.

Configure Internet-facing deployment

1. Start the Deployment Manager.
2. If you have not already done so, configure claims-based authentication.

   See Configure claims-based authentication.
3. Open the Internet-Facing Deployment Configuration Wizard in one of two ways:
   - In the **Actions** pane, click **Configure Internet-Facing Deployment**.
   - In the Deployment Manager console tree, right-click **Microsoft Dynamics CRM**, and then click **Configure Internet-Facing Deployment**.
4. Review the page, and then click **Next**.
5. On the **Make Microsoft Dynamics CRM available to users who connect through the Internet** page, type the *domains* for the specified Microsoft Dynamics CRM Server roles, and then click **Next**.

   📝 **Note**
   - Specify domains, not servers.
   - If your deployment is on a single server or servers in the same domain, the **Web Application Server Domain** and **Organization Web Service Domain** will be identical.
   - The **Discovery Web Service Domain** must be a subdomain of the **Web Application Server Domain**. By default, "dev." is pre-pended to the **Web Application Server Domain** to make the **Discovery Web Service Domain**.
   - The domains must be valid for the Secure Sockets Layer (SSL) certificate's common name or names.

   For more information about web addresses, see Install Microsoft Dynamics CRM Server on multiple computers.
6. In the **Enter the external domain where your Internet-facing servers are located** box, type the external domain information where your Internet-facing Microsoft Dynamics CRM servers are located, and then click **Next**.

   The domain you specify must be a subdomain of the **Web Application Server Domain** specified in the previous step. By default, "auth." is pre-pended to the **Web Application Server Domain**.
7. On the **System Checks** page, review the results, fix any problems, and then click **Next**.
8. On the **Review your selections and then click Apply** page, verify your selections, and then click **Apply**.
9. Click **Finish**.

10. If you experience issues connecting to Microsoft Dynamics CRM through an external address, reset Internet Information Services (IIS).

   Restart Internet Information Services (IIS). To do this, click **Start**, click **Run**, type **IISRESET**, and then click **OK**.

11. Configure relying parties for IFD.

   💧 **Important**
   You must configure a relying party for IFD. For more information, see Configure the AD FS server for IFD.

See Also

Configure claims-based authentication

Disable an Internet-facing deployment

Disable an Internet-facing deployment

▶ **Disable an Internet-facing deployment**

- Disable an Internet-facing deployment (IFD)in one of two ways:
  - In the Deployment Manager **Actions** pane, click **Disable Internet-Facing Deployment**.
  - In the Deployment Manager console tree, right-click **Microsoft Dynamics CRM**, and then click **Disable Internet-Facing Deployment**.

See Also

Configure an Internet-facing deployment

Configure claims-based authentication

Deployment Administrators

To run Deployment Manager, you must have the Deployment Administrator role. Deployment Administrators have unrestricted access to perform Deployment Manager tasks on all organizations and servers in a Microsoft Dynamics CRM deployment.

💧 **Important**
Make sure that at least two or three trusted people have the Deployment Administrator role. This prevents system lockout if the primary deployment administrator is unavailable.

During Microsoft Dynamics CRM Server Setup, the user running Setup is automatically given the Deployment Administrator role. A Deployment Administrator can give the Deployment Administrator role to other users in Active Directory directory service.

📝 **Note**
Users who have the Deployment Administrator role do not automatically become Microsoft Dynamics CRM users and do not consume a client access license (CAL).

The Deployment Administrator role cannot be managed in the Microsoft Dynamics CRM client applications.

See Also

[Add a new Deployment Administrator](#)

[Remove a Deployment Administrator](#)

Add a new Deployment Administrator

You can grant or remove the Deployment Administrator role in the **Deployment Administrators** node in Deployment Manager.

💡 **Tip**

You can implement the procedure described here by using a Windows PowerShell cmdlet. For more information, see [Administer the deployment using Windows PowerShell](#).

▶**Add a Deployment Administrator**

1. In the console tree, right-click **Deployment Administrators**, and then click **New Deployment Administrator**.
2. In the **Select User** dialog box, in the **Enter object name to select** box, type the name of a user, who must exist in Active Directory, and then click **Check Names**.
3. After the user name is accepted, click **OK**.

See Also

[Deployment Administrators](#)

[Remove a Deployment Administrator](#)

Remove a Deployment Administrator

In Microsoft Dynamics CRM, you can remove a person from the Deployment Administrator role.

💡 **Tip**

You can implement the procedure described here by using a Windows PowerShell cmdlet. For more information, see the Remove-CrmDeploymentAdministrator command in the [Microsoft Dynamics CRM PowerShell Reference](#).

▶**Remove a Deployment Administrator**

1. In the Deployment Manager console tree, click **Deployment Administrators**.
2. In the **Name** list, right-click the name of the user to remove.
3. Click **Remove**, and then click **Yes**.

See Also

[Deployment Administrators](#)

[Add a new Deployment Administrator](#)

Manage organizations

Use the **Organizations** page to view, change, add, enable, disable, and import organizations for Microsoft Dynamics CRM.

You can implement the procedure described here by using a Windows PowerShell cmdlet. For more information, see [Microsoft Dynamics CRM PowerShell Reference](#).

▶ **View the Organizations page**

1. In the console tree, click **Organizations**.
2. In the details pane, the organizations are listed, and in the **Actions** pane, organization-related tasks are listed.

See Also

[Edit an organization's attributes](#)

[Disable or enable an organization](#)

[Add a new organization](#)

[Import an organization](#)

[Delete an organization](#)

Edit an organization's attributes

Before you can edit an organization, you must disable it. After you make the changes, re-enable the organization.

You can change the display name and SQL Server computer where the organization database is located. Also, you can change the Microsoft Dynamics CRM Reporting Extensions for SQL Server Reporting Services URL, which specifies where the Microsoft Dynamics CRM Reporting Extensions for SQL Server Reporting Services is installed.

You cannot change the name of the organization.

💡 **Tip**

You can implement the procedure described here by using a Windows PowerShell cmdlet. For more information, see the Disable-CrmOrganization and Edit-CrmOrganization commands in the [Microsoft Dynamics CRM PowerShell Reference](#).

▶ **Edit an organization**

1. In the console tree, click **Organizations**.
2. Right-click the organization you want to edit, click **Disable**, and then click **Yes**.
3. Right-click the organization again, and then click **Edit Organization**.
4. In the **Edit Organization Wizard**, change the following as necessary:
   - **Display Name**. Type a name for the organization.
   - **SQL Server**. Type the name of the SQL Server where the organization database is located. Be aware that, before you can change the SQL Server for an organization, the organization database must be located on the new SQL Server, attached, and available. The Edit Organization Wizard does not move the database for you. For more information about how to move a database in SQL Server, see [MSDN: SQL](#)

Server Books Online.

- **SQL Server Reporting Services URL**. Type the URL of the computer that is running Microsoft SQL Server Reporting Services where the Microsoft Dynamics CRM Reporting Extensions for SQL Server Reporting Services is installed.

5. Click **Next**.

   The **System Checks** page appears. This page is a summary of all system requirements to create new organization settings. Failed tests must be corrected and all errors resolved before the settings can be applied. If necessary, cancel the Edit Organization Wizard, fix the problem, and then try again.

6. When no errors, or only warnings, appear, click **Next**.

7. On the **Ready to Apply Changes** page, click **Apply**.

8. On the **Edit Organization** page, click **Finish**.

See Also

Manage organizations

Disable or enable a server

Manage servers

Disable or enable an organization

Use the **Organizations** page to disable or enable an organization. It is a best practice to disable an organization temporarily when you perform database maintenance.

⬥ **Important**

When you disable an organization, users cannot access the Microsoft Dynamics CRM application for the organization.

💡 **Tip**

You can implement the procedure described here by using a Windows PowerShell cmdlet. For more information, see the Disable-CrmOrganization and Enable-CrmOrganization commands in the Microsoft Dynamics CRM PowerShell Reference.

▶ **Disable or enable an organization**

1. In the console tree, click **Organizations**. The list of organizations appears in the middle pane.

2. In the details pane, select the organization.

3. Right-click the organization, and:
   - If the organization is enabled, click **Disable**.
   - If the organization is disabled, click **Enable**.

See Also

Manage organizations

Add a new organization

Add a new organization

You can add a new organization in the Microsoft Dynamics CRM deployment in the Organizations node of Deployment Manager.

📝 **Note**
- Not all versions of Microsoft Dynamics CRM allow you to add multiple organizations.
- To add an organization, you must be a member of the domain where Microsoft Dynamics CRM is installed. You cannot add an organization as a member of a child or a trusted domain.

💡 **Tip**
The procedure described here can be implemented by using a Windows PowerShell cmdlet. For more information, see the New-CrmOrganization command in the Microsoft Dynamics CRM PowerShell Reference.

▶

1. In the Deployment Manager console tree, right-click **Organizations**, and then click **New Organization** to open the New Organization Wizard.
2. On the **Specify the Organization Settings** page, enter the following information:
   - In the **Display Name** box, type the name of your organization.
   - In the **Name** box, keep the name that is automatically generated or type a unique name. The name is limited to 30 characters. Spaces and extended characters are not allowed.
   - Under **ISO currency code**, click **Browse**, select the ISO currency code for the base currency for the organization, and then click **OK**. You can change the currency's symbol, name, or precision.
   - In the **Base Language** list, select the base language for the organization. In Microsoft Dynamics CRM, only the base language of the first organization is tied to the language of the server installation. All other organizations can have different base languages, but you must first install Microsoft Dynamics CRM Language Packs for the other language. For instructions about how to install Language Pack, see Microsoft Dynamics CRM Language Pack Installation Instructions.
   - In the **SQL collation** list, keep the default selection or select a different collation that the organization database will use to sort and compare data characters.
   - The default SQL collation changes based on the base language selection. For more information, see Collation and Unicode Support.
3. Click **Next**.

   ⬩ **Important**
   After the New Organization Wizard is finished, you cannot change the organization name, base ISO currency code, or SQL Server database collation.
4. On the **Help Us Improve the Customer Experience** page, select whether you want users in the new organization to be able to participate in the Customer Experience

Improvement Program, and then click **Next**.

For more information about the Customer Experience Improvement Program, see [Microsoft Customer Experience Improvement Program](#).

5. On the **Select SQL Server** page, type or select the computer that is running SQL Server that will be used for the Microsoft Dynamics CRM database, and then click **Next**.

6. On the **Specify Reporting Services Server** page, type the report server URL. (Make sure you use the Microsoft SQL Report Server URL, not the Report Manager URL.) Then, click **Next**.

7. The **System Checks** page validates your organization.

    Failed tests must be corrected before a new organization can be added. If necessary, cancel the New Organization Wizard, fix the problem, resolve all errors, and then start the New Organization Wizard again.

    If no errors, or only warnings, appear, click **Next**.

8. Review the **Ready to Create** page, and then click **Create**.

9. On the **New Organization** page, click **Finish**.

See Also

[Manage organizations](#)

[Import an organization](#)

Import an organization

You can import an existing Microsoft Dynamics CRM organization with the Import Organization Wizard. You can use this wizard when you move Microsoft Dynamics CRM Server to another computer. Use the Import Organization Wizard to import an organization from any domain in the Active Directory directory service forest.

Important

- Before you import, upgrade, or update a Microsoft Dynamics CRM organization, you should back up the configuration and organization databases.

- You cannot import a database that is already deployed in the target Microsoft Dynamics CRM deployment.

- Not all versions of Microsoft Dynamics CRM Server support multiple organizations in the deployment. When you import an organization into a version of Microsoft Dynamics CRM that only supports one organization and already has an organization in place, the existing organization will be replaced by the imported organization.

- If the Import Organization Wizard detects that the organization you are importing is from an earlier version of Microsoft Dynamics CRM, the organization database will be upgraded to the new version.

- We recommend that for each organization you upgrade, the volume has free space that is at least three times the size of the organization database file and four times the size of the log file. That way, if a single organization database and log file are located on the same volume and are one gigabyte in total, you should have at least seven gigabytes of available disk space before you perform the upgrade.

- Before you can import an organization with the Import Organization Wizard, the organization database must be restored and attached to SQL Server. For more information about how to restore databases, see MSDN: SQL Server Books Online.

- The encryption key is required to activate data encryption when you import an organization database into a new deployment; a deployment that has had the configuration database (MSCRM_CONFIG) re-created after the organization was encrypted; or a restore from an earlier backup that doesn't contain the encryption key. You can copy the original encryption key to Notepad and paste it into the Settings > Data Management > Data Encryption dialog after the organization import is completed. When you activate data encryption after redeployment, we recommend you use Internet Explorer to paste the encryption key into the Data Encryption dialog box. For more information about data encryption, see Data encryption.

💡 **Tip**

The procedure described here can be implemented by using a Windows PowerShell cmdlet. For more information, see the Import-CrmOrganization command in the Microsoft Dynamics CRM PowerShell Reference.

▶ **Import an organization**

1. In the Deployment Manager console tree, right-click **Organizations**, and then click **Import Organization** to open the Import Organization Wizard.

2. On the **Select** SQL Server page, in the SQL Server box, type or select the computer that is running SQL Server where the Microsoft Dynamics CRM organization database is located.

3. In the **Organization database** list, select the organization that you want to import.

4. Click **Next**.

5. On the **Specify the Organization Settings** page, accept the default **Display Name** for the imported organization or type a new **Display Name**.

6. Accept the default **Unique Database Name** for the imported organization or type a new **Unique Database Name**.

7. Click **Next**.

8. On the **Specify Reporting Services Server** page, accept the default entry or type the URL for the Microsoft SQL Report Server to be used by the organization you import.

9. On the **Select Method for Mapping Users** page, select one of the following options:

   - **Automatically Map Users**. This selection automatically maps the users' Active Directory account names to Microsoft Dynamics CRM accounts.

     Users in the Active Directory domain are verified against the current domain user information. If the organization being imported has users added with their User Principal Name (UPN), the user information will be mapped across without any changes or validation.

   - **Select Custom Mapping Options**. This selection lets you specify custom user

account matching options.

10. Click **Next**.

11. If you selected **Select Custom Mapping Options**, you'll see custom user mapping options. Select from the following options:

- **Keep existing user mappings**. Select this option to keep the existing user mappings in the organization database. Typically, you select this option if you are importing an organization database that is located in the same Active Directory domain as the Microsoft Dynamics CRM Server where the organization is to be imported.

  For users external to the Active Directory domain, who were added with their UPN, the user information will be mapped across without any changes or validation.

- **Manually map users**. Select this option to manually map each user, typing each user's ID into the mapping table.

- **Generate a new mapping file**. Select this option to create a sample XML mapping file. Then, you can exit the Import Organization Wizard, change the user mapping file to select how users are imported, and run the Import Organization Wizard again. The default behavior is to create the user mapping file in the folder <*drive*>:\Program Files\Microsoft Dynamics CRM\Tools.

- **Auto-map users**. Select this option to automatically map the user settings by selecting from the following options:

  - **Active Directory account name**. Select this option to use the user logon name that is set in Active Directory. Users in the Active Directory domain are verified against the current domain user information.

  - **Microsoft Dynamics CRM full name to Active Directory full name**. Select this option to use the display or full name that is set in Active Directory.

  - **Prefix**. Select this option to create a prefix, with an appended numeric value, for each user.

  - **Use existing mapping file**. Select this option if you have created a mapping file to import users. Then, type the full path and file name in the box provided, or click **Browse** to find and select the user mapping file.

    📝 **Note**

    In all the Auto-map methods, users entered with their UPNs are mapped across without any changes.

12. Click **Next** to open the **System Requirements** page.

    This page shows a summary of all system requirements to create a new organization. Failed tests must be corrected before a new organization can be created. If necessary, cancel the Import Organization Wizard, fix the problem, resolve all errors, and then start the Import Organization Wizard again.

13. If no errors, or only warnings appear, click **Next**.

14. On the **Ready to Import** page, click **Import**.

15. On the **Import Organization** page, click **Finish**.

See Also

Upgrade an organization

You can upgrade organizations from earlier versions of Microsoft Dynamics CRM on-premises by using Deployment Manager to import them into the new deployment.

💡 **Tip**

You can implement the procedure described here by using a Windows PowerShell cmdlet. For more information, see the Import-CrmOrganization and Update-CrmOrganization commands in the Microsoft Dynamics CRM PowerShell Reference.

Upgrade an organization by importing it

During the import process, the Import Organization Wizard detects the version and upgrades the organization automatically.

◆ **Important**

Before you import, upgrade, or update a Microsoft Dynamics CRM organization, you should back up the configuration and organization databases.

Only Microsoft Dynamics CRM 2015 organizations are supported for importing with this version of Microsoft Dynamics CRM. To upgrade earlier versions, see Upgrade from Dynamics CRM Server 2013 or Dynamics Server 2011.

Upgrade an organization in-place

After you upgrade Microsoft Dynamics CRM Server, if the deployment contains additional organizations from the earlier version of Microsoft Dynamics CRM, those organizations become disabled and aren't upgraded. You can upgrade those organizations by using the steps described here.

▶ **Use Deployment Manager to upgrade organizations**

1. On the Deployment Manager home page, in the console tree, click **Organizations**.
2. In the details pane for each organization, review the **Version** column.
3. For each organization where the **Version** is earlier than the latest version installed, right-click the organization, and then click **Upgrade Organization**.

See Also

Update an organization

When you update the organizations in your deployment, disabled organizations can't be updated until they are enabled. In the list of organizations in the details pane for the disabled organization, the **Update** column will show that an update is **Available**.

> **Important**
>
> Before you import, upgrade, or update a Microsoft Dynamics CRM organization, you should back up the configuration and organization databases.

> **Tip**
>
> You can implement the procedure described here by using a Windows PowerShell cmdlet. For more information, see the Enable-CrmOrganization and Update-CrmOrganization commands in the Microsoft Dynamics CRM PowerShell Reference.

▶ **Update a disabled organization**

1. To enable the organization, in the details pane, right-click the disabled organization, and then click **Enable**.

2. To update the organization, in the details pane, right-click the organization, and then click **Update**.

Update management

Microsoft Dynamics CRM updates include security, performance, and functional improvements. Making sure that your Microsoft Dynamics CRM applications have the latest updates helps make sure that your system is running as efficiently and reliably as it can.

For information about how to manage updates, see the following:

- Windows Server Update Services
- Introduction to Software Updates in Configuration Manager

See Also

Manage organizations

Import an organization

Upgrade an organization

Troubleshoot organization import and upgrade issues

Troubleshoot organization import and upgrade issues

If you encounter any issues during organization import and upgrade, here are some tips for troubleshooting them:

- Make sure that the user account that's running the import has administrative permissions for the instance of SQL Server. For more information about how to grant permissions in Microsoft SQL Server, see Managing Logins, Users, and Schemas How-to Topics.
- View the DMSnapin log file located in the following folder: <drive:>%appdata%\Microsoft\MSCRM\Logs.

See Also

Manage organizations

Import an organization

Upgrade an organization

Delete an organization

Before you can delete an organization, you must disable it.

Note

The ability to have multiple organizations in a single deployment of Microsoft Dynamics CRM isn't available in all Microsoft Dynamics CRM editions.

When you delete an organization, the SQL Server database is not deleted. Therefore, you can import the organization later.

Tip

You can implement the procedure described here by using a Windows PowerShell cmdlet. For more information, see the Disable-CrmOrganization and Remove-CrmOrganization commands in the Microsoft Dynamics CRM PowerShell Reference.

Delete an organization

1. In the Deployment Manager console tree, click **Organizations**.
2. In the middle pane, right-click the organization that you want to delete, and then click **Disable**.
3. Click **Yes**.
4. Right-click the organization again, and then click **Delete**.
5. Click **Yes**.

See Also

Manage organizations

Disable or enable an organization

Manage servers

You can do the following actions in the **Servers** area of Deployment Manager:

- View a list of Microsoft Dynamics CRM servers.
- Enable or a disable a server.
- Delete a server.

You can customize the **Servers** area view to display the information that you want about the servers that are listed. Also, you can export a list of those servers and any displayed details to a text file.

See Also

Microsoft Dynamics CRM server roles

Disable or enable a server

Delete (remove) a Microsoft Dynamics CRM Server

Disable or enable a server

You can use the **Servers** area to disable or enable a Microsoft Dynamics CRM Server.

Warning

When you disable a server, users can't access the Microsoft Dynamics CRM application through the server. If the deployment contains only a single server that is running Microsoft Dynamics CRM, users can't access the application.

Depending on the server roles that are installed, disabling a server stops the following services or server roles:

- Web Application Server
- Organization Web Service
- Help Server
- Discovery Web Service
- Deployment Web Service
- Asynchronous Processing Service
- Asynchronous Processing Service (maintenance)
- Sandbox Processing Service
- Microsoft Dynamics CRM VSS Writer service

Enabling a server that was disabled starts the server role service.

Important

You can't disable the SQL Server and Microsoft Dynamics CRM Reporting Extensions server roles by using the Deployment Manager disable feature.

Tip

You can implement the procedure described here by using a Windows PowerShell cmdlet. For more information, see the Disable-CrmServer and Enable-CrmServer commands in the Microsoft Dynamics CRM PowerShell Reference.

▶ Disable or enable a server

1. In the Deployment Manager console tree, click **Servers** to view the list of servers.
2. In the details pane, right-click the server, and then click **Disable** or **Enable**.

See Also

Manage servers

Microsoft Dynamics CRM server roles

Delete (remove) a Microsoft Dynamics CRM Server

To delete a Microsoft Dynamics CRM Server from a deployment, use the **Servers** area. However, before you can delete a server, you must disable it.

Caution

After you delete a server, users may no longer be able to access or use the Microsoft Dynamics CRM application, or use certain features, such as reporting. To restore a deleted server, you must run Microsoft Dynamics CRM Server Setup and reinstall the server roles that were removed when the server was deleted.

Tip

The procedure described here can be implemented by using a Windows PowerShell cmdlet. For more information, see the [Disable-CrmServer](#) and [Remove-CrmServer](#) commands in the [Microsoft Dynamics CRM PowerShell Reference](#).

Delete a server

1. In the Deployment Manager console tree, click **Servers**.

2. In the details pane, right-click the server that you want to delete, and then click **Disable**.

3. Click **Yes**.

4. After the server is disabled, in the details pane, right-click the server that you want to delete, and then click **Delete**.

5. Click **Yes**.

See Also

[Manage servers](#)

[Disable or enable a server](#)

Troubleshooting and known issues for Microsoft Dynamics CRM

Administrators can use the information in this section to troubleshoot issues with Microsoft Dynamics CRM.

In this section

[Monitor and troubleshoot Microsoft Dynamics CRM](#)

Learn about:

- Creating trace files to troubleshoot error messages or other issues in Microsoft Dynamics CRM.

- Using the System Center Monitoring Pack for Microsoft Dynamics CRM to administer the Microsoft Dynamics CRM application in Microsoft System Center Operations Manager.

See Also

Known issues for CRM for tablets and phones

[Operating Microsoft Dynamics CRM 2016](#)

CRM 2016 PowerShell Reference

Monitor and troubleshoot Microsoft Dynamics CRM

In Microsoft Dynamics CRM, you can create trace files that monitor the actions that are performed by the server and client applications. Trace files are helpful when you have to troubleshoot error messages or other issues in Microsoft Dynamics CRM.

To enable Microsoft Dynamics CRM Server tracing, you can use deployment-level tracing or server-level tracing. Choosing either method determines the range of server roles monitored, the degree of control, and how to enable tracing and the location of the trace files.

Additionally, Microsoft Dynamics CRM Reporting Extensions, Dynamics CRM for Outlook, and Microsoft Dynamics CRM for tablets can be enabled for tracing.

In This Topic

[Microsoft Dynamics CRM deployment-level tracing (on-premises versions only)](#)

[Microsoft Dynamics CRM server-level tracing (on-premises versions only)](#)

[Enable tracing for Microsoft Dynamics CRM Reporting Extensions for SQL Server Reporting Services (on-premises versions only)](#)

[Enable tracing for Microsoft Dynamics CRM for Outlook](#)

[Enable tracing for Microsoft Dynamics CRM Email Router](#)

[Enable tracing for CRM for phones for Windows Phone](#)

[Enable tracing for CRM for tablets](#)

[System Center Operations Manager management pack for Microsoft Dynamics CRM 2016 (on-premises versions only)](#)

Microsoft Dynamics CRM deployment-level tracing (on-premises versions only)

Deployment-level tracing monitors all Microsoft Dynamics CRM server roles and services, regardless of the server roles installed on the local computer. When deployment-level tracing is enabled, all server roles are monitored such as Asynchronous Service, Sandbox Processing Service, Unzip Service, Web application (w3wp), and Deployment Tools (mmc-Tools). Corresponding trace files are created.

Deployment-level tracing is set by using Windows PowerShell commands and is maintained in the MSCRM_CONFIG database. Deployment-level tracing can only be enabled from a computer that has the Microsoft Dynamics CRM Deployment Tools server role.

The trace files are located in a folder on the computer where the Microsoft Dynamics CRM Deployment Tools server role is running. By default, the location is C:\crmdrop\logs.

🛑 **Caution**

Trace files may contain sensitive or personal information. Use discretion when you send trace files to other people, or when you give other people the ability to view the information in a trace file.

When you turn on tracing it can significantly affect performance of the application. We strongly recommend that you only turn on tracing for troubleshooting issues and turn off tracing after the issue is resolved.

🔷 **Important**

Before you run Microsoft Dynamics CRM Windows PowerShell commands, the Microsoft.Crm.PowerShell snap-in must be registered by running the `Add-PSSnapin Microsoft.Crm.PowerShell` command.

For more information, see [Administer the deployment using Windows PowerShell](#).

💡 **Tip**

To get a list of the registered Windows PowerShell snap-ins, run the `Get-PsSnapin –registered` command.

View the current deployment-wide trace settings

```
Get-CrmSetting TraceSettings
```

Enable deployment-wide tracing

To turn on deployment-wide trace settings that record the maximum amount of information, including detailed logging with callstack information, run the following commands, in the order provided, from the Windows PowerShell console on the computer where the Deployment Tools server role is running. To enable less detailed logging or to change the location of the log files, see [Optional parameters](#).

```
$Setting = Get-CrmSetting TraceSettings$Setting.Enabled = $True
$Setting.CallStack=$True$Setting.Categories="*:Verbose"Set-CrmSetting $setting
```

Optional parameters

- **CallStack**. Records callstack information. For detailed troubleshooting, we recommend that you turn this on. By default, this is turned off.
- **Categories**. Indicates the level of detail to record.
  - **Error**. By default, the **Categories** value is **Error**, which is the least detailed and only records errors.
  - **Warning**. Includes warnings and errors.
  - **Info**. Includes warnings, errors, and additional information.
  - **Verbose**. Records the most detailed information.
- **Directory**. Specifies the location of the trace log file. By default, the location is c:\crmdrop\logs.
- **FileSize**. Specifies the maximum file size of the log file in megabytes before information in the trace file is overwritten.

Disable deployment-level tracing (on-premises versions only)

To disable tracing, run the following commands, in the order provided, from the Windows PowerShell console on the computer where the Deployment Tools server role is running.

```
$Setting = Get-CrmSetting TraceSettings$setting.Enabled = $FalseSet-CrmSetting $setting
```

Trace files aren't deleted when tracing is disabled. Additionally, services used by Microsoft Dynamics CRM Server lock open the trace files. Therefore, you may have to restart any Microsoft Dynamics CRM services and the World Wide Web Publishing Service if these services are running on the computer where you want to delete the trace files.

Microsoft Dynamics CRM server-level tracing (on-premises versions only)

Server-level tracing only monitors those Microsoft Dynamics CRM server roles that are running on the local computer where server-level tracing is enabled. When server-level tracing is enabled, trace files that are specific to the Microsoft Dynamics CRM server roles or services that are running on the local computer are created. Server-level tracing does not require the Deployment Tools role and can provide a greater degree of control where you can set specific trace values such as what Microsoft Dynamics CRM features to trace or the maximum trace file size.

For more information about setting server-level tracing properties in Microsoft Dynamics CRM, see How to enable tracing in Microsoft Dynamics CRM.

If both deployment-level and server-level tracing are enabled on the same computer, only server-level tracing will be used.

Server-level tracing must be manually set in the Windows registry on the computer where one or more Microsoft Dynamics CRM server roles are running.

The server-level tracing files are located in the **Traces** folder of the Microsoft Dynamics CRM installation folder. By default, the location is C:\Program Files\Microsoft Dynamics CRM\Trace.

Enable or disable server-level tracing

⚠️ **Caution**

Trace files may contain sensitive or personal information. Use discretion when you send trace files to other people, or when you give other people the ability to view the information that a trace file contains.

When you turn on tracing it can significantly affect performance of the application. We strongly recommend that you only turn on tracing for troubleshooting issues and turn off tracing after the issue is resolved.

⚠️ **Caution**

This task contains steps that tell you how to modify the registry. However, serious problems might occur if you modify the registry incorrectly. Therefore, make sure 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, see: How to back up and restore the registry in Windows.

On the Microsoft Dynamics CRM Server that you want to turn on server-level tracing, start RegEdit and locate the following registry location: HKEY_LOCAL_MACHINE\SOFTWARE\MICROSOFT\MSCRM

Create the following two required new values.

Value name	Type	Value
TraceEnabled	DWORD (32-bit)	0 or 1 If you use a value of 0, tracing is disabled. If you use a value of 1, tracing is enabled.
TraceRefresh	DWORD (32-bit)	A number between zero and 99 This value must change for Microsoft Dynamics CRM to detect a change to any of the other trace values in the Windows registry. For example, if the value is 2, you can set it to

Value name	Type	Value
		1 so that other trace values changes, such as a change to TraceCategories, will be applied.

Enable tracing for Microsoft Dynamics CRM Reporting Extensions for SQL Server Reporting Services (on-premises versions only)

In Microsoft Dynamics CRM, you can create trace files that monitor the actions that are performed by Microsoft Dynamics CRM Reporting Extensions. Trace files are helpful when you have to troubleshoot error messages or other issues in Microsoft Dynamics CRM Reporting Extensions.

⛔ **Caution**

Trace files may contain sensitive or personal information. Use discretion when you send trace files to other people, or when you give others the ability to view the information that a trace file contains.

When you turn on tracing it can significantly affect performance of the application. We strongly recommend that you only turn on tracing for troubleshooting issues and turn off tracing after the issue is resolved.

You can enable tracing for Microsoft Dynamics CRM Reporting Extensions in two ways:

Enable tracing using registry values

Enable tracing using deployment properties

🔵 **Important**

Traces will not be generated if the folder specified in **TraceDirectory** does not exist.

Enable tracing using registry values

⛔ **Caution**

This task contains steps that tell you how to modify the registry. However, serious problems might occur if you modify the registry incorrectly. Therefore, make sure 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, see: How to back up and restore the registry in Windows.

1. On the computer where you have installed Microsoft Dynamics CRM Reporting Extensions, locate and then click the following registry subkey:

   `HKEY_LOCAL_MACHINE\SOFTWARE\MICROSOFT\MSCRM`

2. Set the following registry values:

   - TraceEnabled = 1
   - TraceDirectory = *<directory path where traces will be stored>*

   You can also set other row values like **TraceCategories**, but they already have defaults.

3. Restart Microsoft SQL Server Reporting Services.

Enable tracing using deployment properties

1. Go to the **DeploymentProperties** table in the Configuration Database.

2. Locate the row with the value "TraceEnabled" and set its "BitColumn" column's value to "True".

   Other row values like **TraceCategories**, **TraceDirectory** already have default values, but you can change these values.

   You'll start seeing the traces in the directory specified in the TraceDirectory row in the **DeploymentProperties** table.

3. Restart Microsoft SQL Server Reporting Services.

Registry settings take precedence over deployment properties. If there are any invalid entries in the registry, for example, and **TraceDirectory** does not exist, the deployment properties are used.

Enable tracing for Microsoft Dynamics CRM for Outlook

This section applies to Microsoft Dynamics CRM Online and on-premises versions of Microsoft Dynamics CRM. Dynamics CRM for Outlook tracing monitors the instance of Dynamics CRM for Outlook that is running on the local computer. If an issue is isolated to a particular user running Dynamics CRM for Outlook, enabling Dynamics CRM for Outlook tracing can help determine the cause.

The Dynamics CRM for Outlook tracing files are located in the C:\Users\<username>\AppData\Local\Microsoft\MSCRM\Traces folder.

⚠️ **Caution**

Trace files may contain sensitive or personal information. Use discretion when you send trace files to other people, or when you give other people the ability to view the information that a trace file contains.

When you turn on tracing it can significantly affect performance of the application. We strongly recommend that you only turn on tracing for troubleshooting issues and turn off tracing after the issue is resolved.

Enable or disable tracing for Microsoft Dynamics CRM for Outlook

1. On the computer running Dynamics CRM for Outlook, click **Start**, click **All Programs**, click **Microsoft Dynamics CRM 2016**, and then click **Diagnostics**.

2. Click the **Advanced Troubleshooting** tab, and then select **Tracing** to enable or click to clear **Tracing** to disable.

3. Select a Tracking level from the drop-down list.

4. Click **Save**.

You can reduce the amount of information during the trace by setting the **TraceCategories** Windows registry value. For example, you can set the value so that only error messages are recorded. Reducing the amount of logging can be helpful when you troubleshoot specific issues, such as when you receive error messages going offline. To do this, follow these steps.

⚠ **Caution**

Turning on verbose tracing during process intense actions such as Outlook startup, or going online and offline with Dynamics CRM for Outlook, is not recommended and could result in stability issues with Dynamics CRM for Outlook.

This task contains steps that tell you how to modify the registry. However, serious problems might occur if you modify the registry incorrectly. Therefore, make sure 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, see How to back up and restore the registry in Windows.

Notice that tracing must already be enabled for the following steps to work.

1. On the computer where you have installed Dynamics CRM for Outlook start RegEdit and locate and then click the following registry subkey: HKEY_CURRENT_USER\Software\Microsoft\MSCRMClient.

2. If the TraceCategories string value does not exist add it. To do this, right-click **MSCRMClient**, click **New**, click **String Value**, type **TraceCategories** and then press ENTER.

3. Right-click **TraceCategories**, click **Modify**, type **Application.Outlook:Error**, and then click **OK**.

For more information about the values available for TraceCategories, see How to enable tracing in Microsoft Dynamics CRM.

Trace files are not deleted when tracing is disabled.

Enable tracing for Microsoft Dynamics CRM Email Router

This section applies to Microsoft Dynamics CRM Online and on-premises versions of Microsoft Dynamics CRM. Microsoft Dynamics CRM Email Router tracing monitors the Email Router service that is running on the local computer.

▶ **Enable or disable tracing for Microsoft Dynamics CRM Email Router**

1. On the computer where the Microsoft Dynamics CRM Email Router service (Microsoft CRM Email Router) is running, open Microsoft.Crm.Tools.EmailAgent.xml using an XML or text editor. By default, Microsoft.Crm.Tools.EmailAgent.xml is located in the <drive>:\Program Files\Microsoft CRM Email\Service folder.

2. Add the following entries between the **<SystemConfiguration>** parent elements:

   <LogLevel>Level</LogLevel>

   Specifies the logging level. Acceptable values for *Level* are 0, 1, 2, or 3.

   - 0. No logging. By default, logging is set to 0.
   - 1. Error logging only.
   - 2. Detailed information logging at the mailbox level.
   - 3. Very detailed information logging at the message level.

<LogFile>Path\Logfilename</LogFile>

Specifies the full path of the location to the log file.

3. Restart the Email Router service.

Sample Microsoft.Crm.Tools.EmailAgent.xml

The following Microsoft.Crm.Tools.EmailAgent.xml file sets the logging at level 1 and places the log file at c:\emailRouterLog.txt.

```xml
<?xml version="1.0" encoding="utf-8"?>

<Configuration>

<SystemConfiguration>

<MaxThreads>50</MaxThreads>

<MaxThreadExecution>600000</MaxThreadExecution>

<SchedulingPeriod>1000</SchedulingPeriod>

<ConfigRefreshPeriod>5000</ConfigRefreshPeriod>

<ConfigUpdatePeriod>3600000</ConfigUpdatePeriod>

<LogLevel>1</LogLevel>

<LogFile>c:\emailRouterLog.txt</LogFile>

<ProviderOverrides>

<CacheCapacity>1024</CacheCapacity>

<PendingStatusDelay>300000</PendingStatusDelay>

<SendingStatusDelay>1800000</SendingStatusDelay>

<MaximumDeliveryAttempts>10</MaximumDeliveryAttempts>

<EWSRetrieveMessageCount>10</EWSRetrieveMessageCount>

<BatchSize>5</BatchSize>

<RequestBatchSize>5</RequestBatchSize>

</ProviderOverrides>

</SystemConfiguration>

</Configuration>
```

Enable tracing for CRM for phones for Windows Phone

To help with troubleshooting, follow these steps to capture and view logs on your Windows Phone.

▶**Install the Field Medic app**

1. Install the Field Medic app from the [Windows Phone store](#).
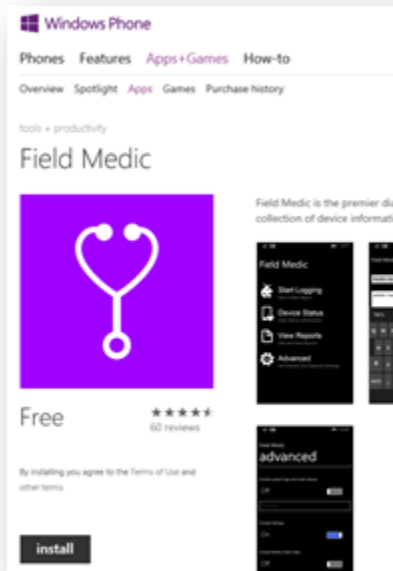
Create a custom profile for AppHost logging

1. Connect your Windows Phone to your computer via USB.
2. Create the file FieldMedic-AppHost.xml in the following folder: `computer\<windows phone>\Phone\Documents\FieldMedic`. Create the folder structure if it doesn't exist already. You can create the file using Notepad and save as FieldMedic-AppHost.xml.
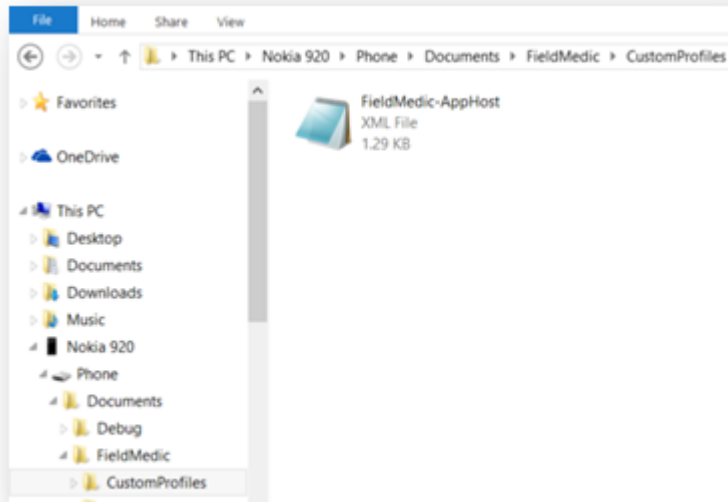
3. Using Notepad, add the following code to the FieldMedic-AppHost.xml file.

```xml
<?xml version="1.0" encoding="utf-8" standalone='yes'?>


<WindowsPerformanceRecorder Version="1.0" Author="CXE
Ecosystem SATT" Team="CXE Ecosystem SATT"
Comments="FieldMedic ETW profiles" Company="Microsoft
Corporation" Copyright="Microsoft Corporation"
Tag="FieldMedic">
  <Profiles>
    <!-- Event Collectors -->
    <EventCollector Id="EventCollector_AppHost"
Name="FieldMedic AppHost Category Event Collector"
Private="false" ProcessPrivate="false" Secure="false"
Realtime="false">
      <BufferSize Value="128"/>
      <Buffers Value="40"/>
      <MaximumFileSize Value="5" FileMode="Circular"/>
      <FileMax Value="3"/>
    </EventCollector>
    <!-- Event Providers -->
```

```xml
    <EventProvider Id="EventProvider_Microsoft-Windows-
AppHost" Name="98e0765d-8c42-44a3-a57b-760d7f93225a"
Level="5"/>

    <!-- Profiles -->

    <Profile Id="AppHost.Verbose.File" LoggingMode="File"
Name="AppHost" DetailLevel="Verbose" Description="FieldMedic
AppHost category profile">

      <Collectors>

        <EventCollectorId Value="EventCollector_AppHost">

          <EventProviders>

            <EventProviderId Value="EventProvider_Microsoft-
Windows-AppHost"/>

          </EventProviders>

        </EventCollectorId>

      </Collectors>

    </Profile>

  </Profiles>

</WindowsPerformanceRecorder>
```

▶ Enable logging

1. Open the Field Medic app.
2. Tap **Advanced**.
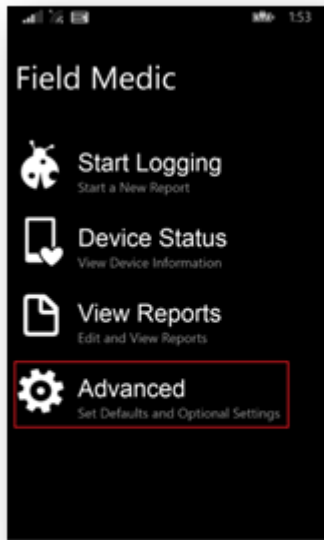
3. Tap **Choose which ETW providers to use**.
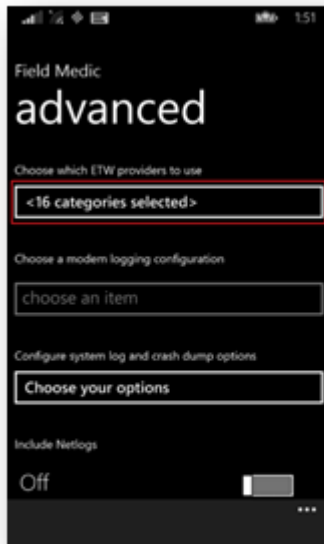
4. Swipe up to locate the **Custom Group** section and then select the checkbox for **FieldMedic-AppHost.xml**.
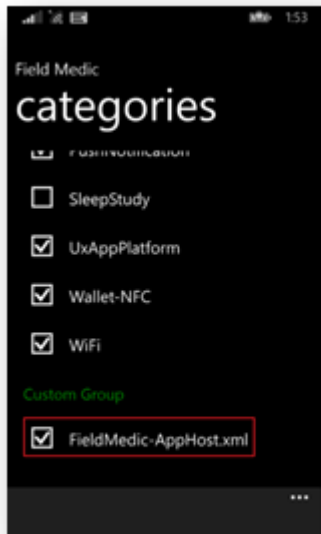
5. Tap the back button twice.
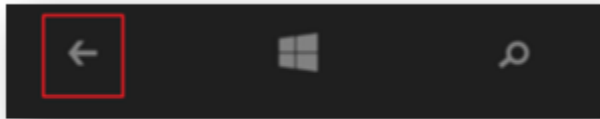
6. Tap **Start Logging**.
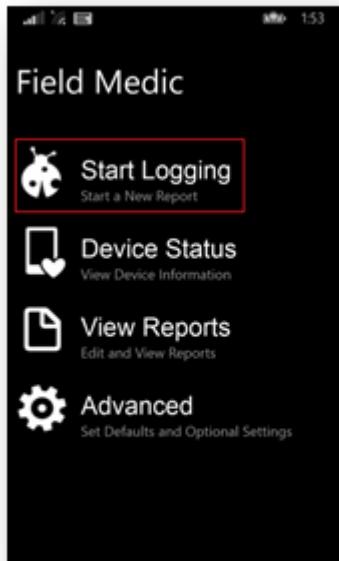
The following will appear.
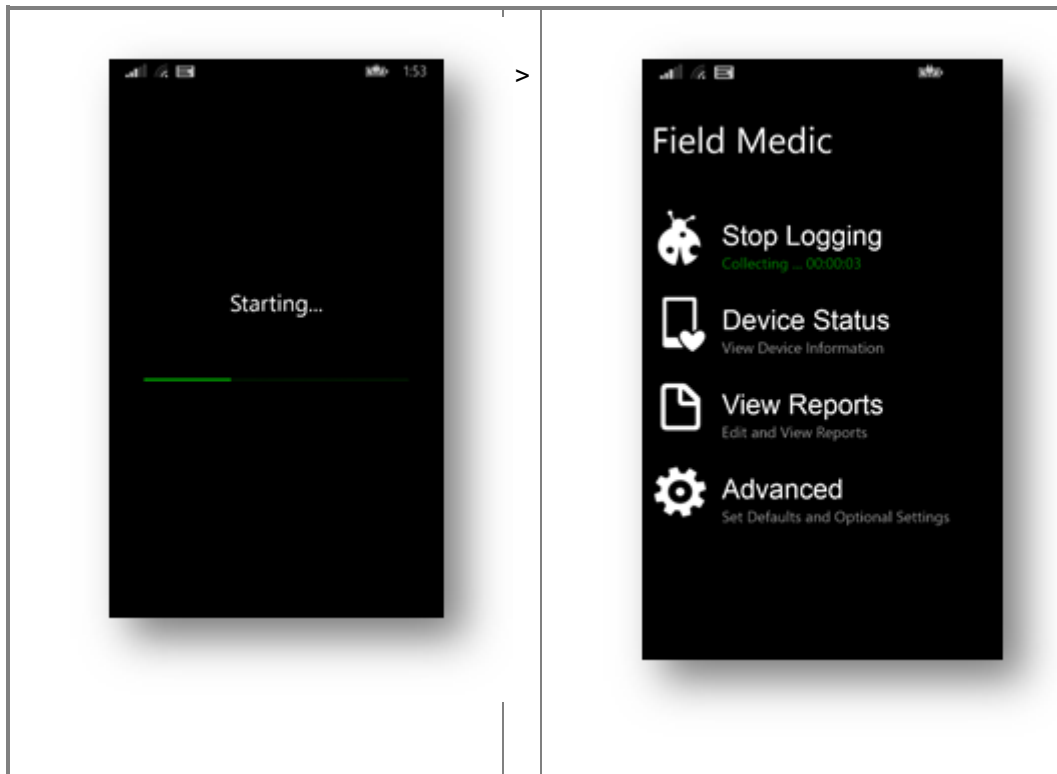
▶Reproduce your issue

1. Switch to the CRM for phones app.
2. Reproduce your issue.

▶Stop logging

1. Switch to the Field Medic app.
2. Tap **Stop Logging**.
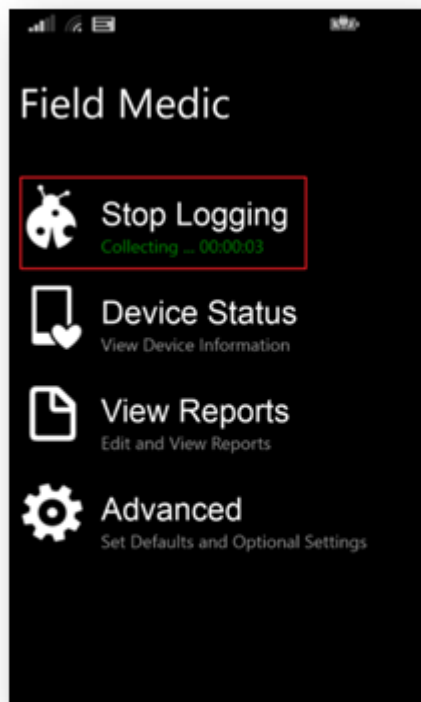
3. Provide a title for the logs and then tap **Save**.
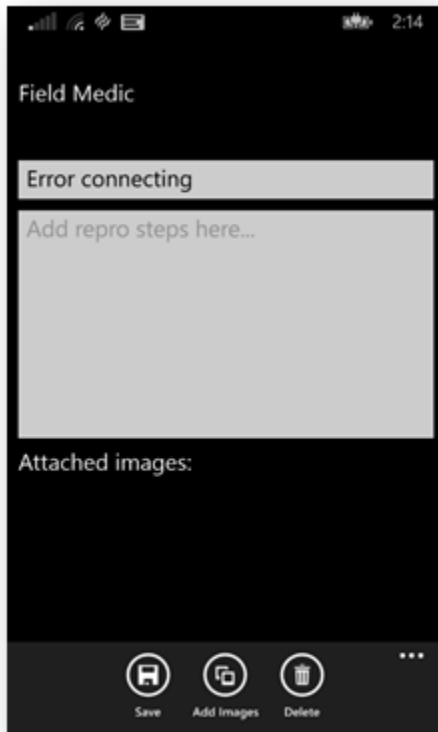
4. Tap **View Reports** to confirm you logs were successfully saved.
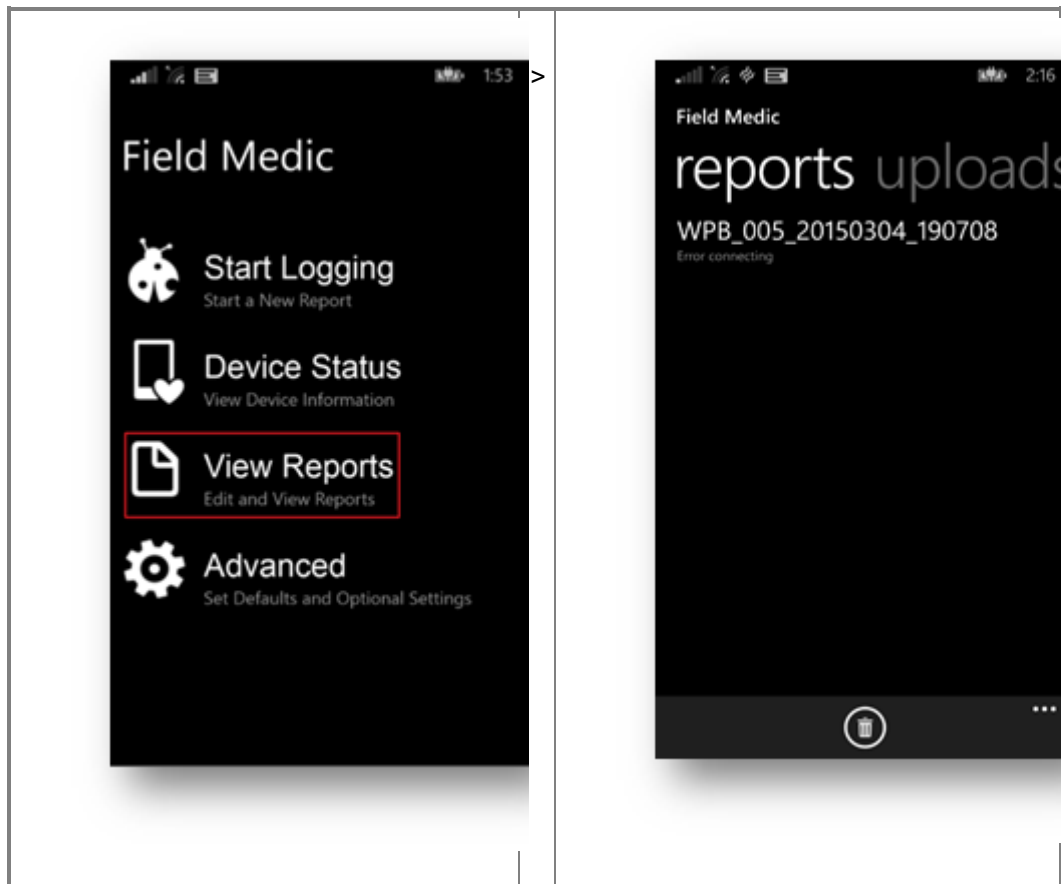
▶ Locate the log files

1. Disconnect and reconnect the USB cable to your Windows Phone. This will ensure the latest files appear.
2. On your computer, navigate to: `computer\<windows phone>\Phone\Documents\FieldMedic\reports`
3. Copy the contents of this folder to your computer.
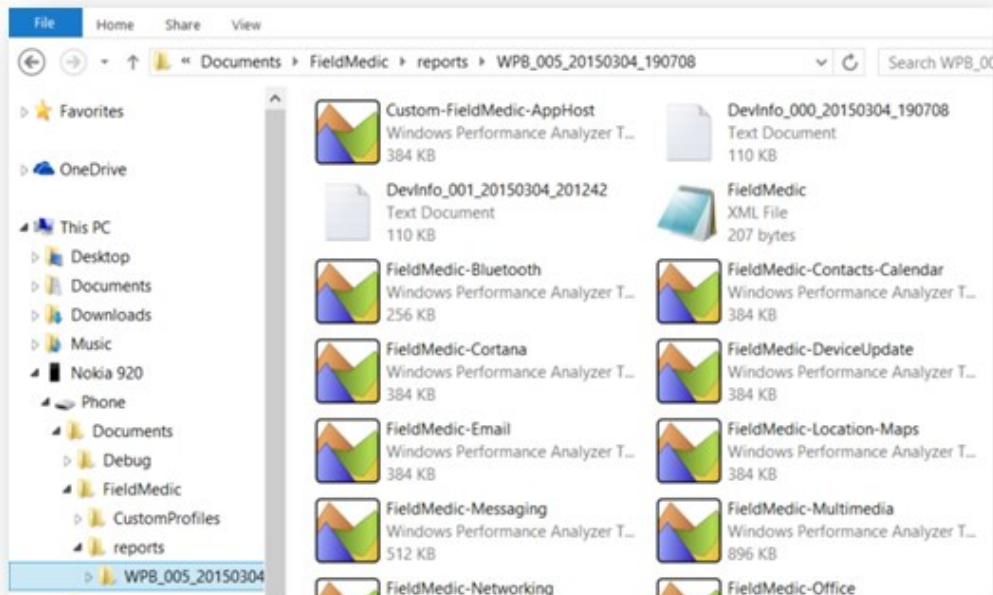
►View logs using Event Viewer

1. Open Event Viewer on your computer.
2. Click **Action** > **Open Saved Log…**
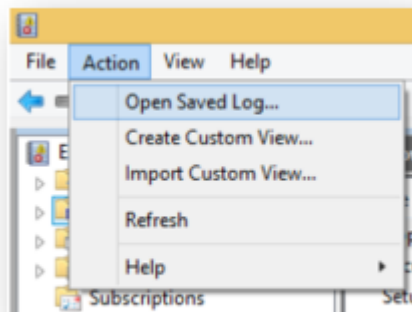
3. Navigate to: `computer\<windows phone>\Phone\Documents\FieldMedic\reports` or wherever you copied the log files from your Windows Phone.
4. Select and open the Custom-FieldMedic-AppHost file.

5. If prompted to open the log in the new event log format, click **Yes**, and then click **OK**.

6. Review the event log entries for any errors.
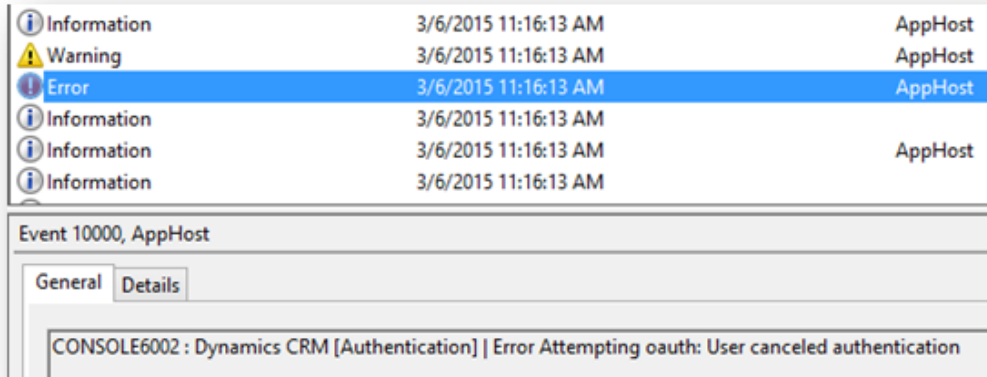
Enable tracing for CRM for tablets

You can enable tracing in the Microsoft Dynamics CRM for tablets app to diagnose issues. When you enable tracing, verbose information is recorded on the device. This information can be analyzed to help identify the source of an issue. The way to enable and view tracing differs depending on the tablet operating system.

Windows

Follow these steps to view events. Tracing is enabled by default.

▶

1. Open the Event Viewer. To do this, go to the Start screen, type **Run**, and then press or tap **ENTER**. In the Run box type **eventvwr**, and then press or tap **ENTER**.

2. Select the **AppHost** folder under Application And Services Logs\Microsoft\Windows

3. From the **View** menu, click or tap **Show Analytic and Debug Logs**.
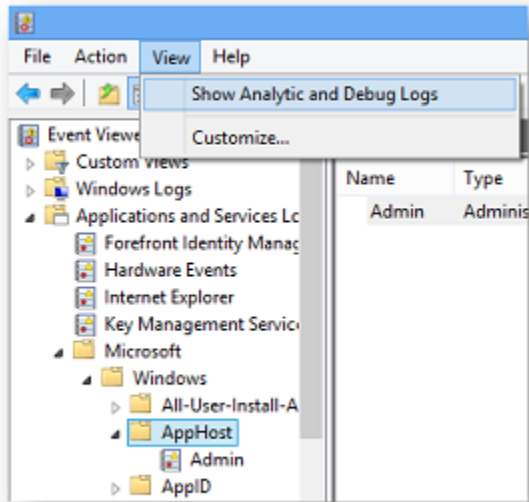
4. Additional nodes will appear under the **AppHost** folder.
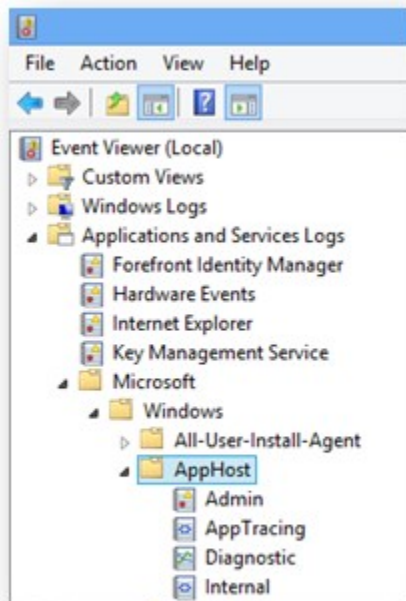
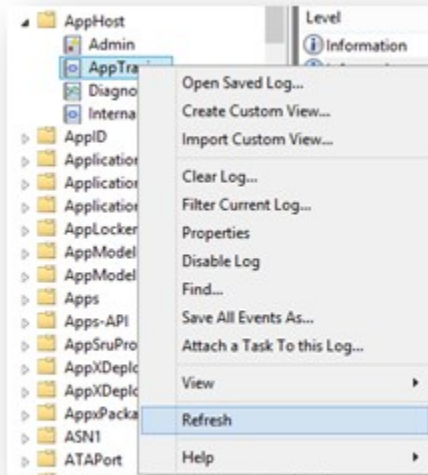5. Right-click (press and hold) the **AppTracing** node and then click or tap **Enable Log**.
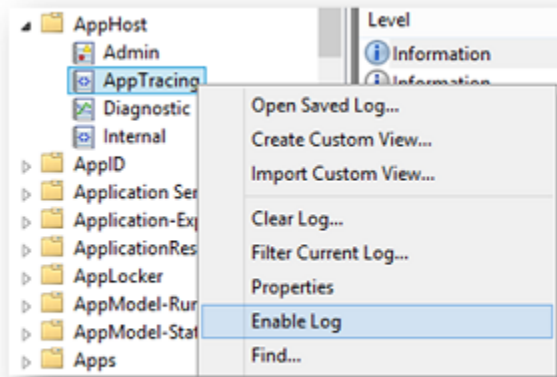
6. Click or tap **OK** to agree to the following warning.
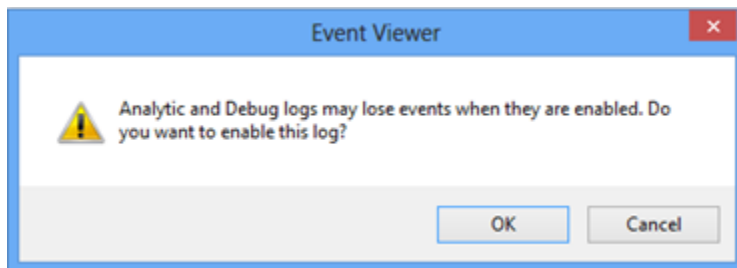
7. After reproducing the issue, right-click (press and hold) **AppTracing** and then click or tap **Disable Log**.
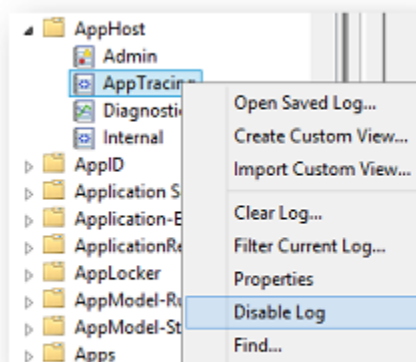
8. Refresh the Event Viewer to view log events. You can use **F5** or right-click (press and hold) **AppTracing** and then click or tap **Refresh**.

9. Review the details of events that are logged. Look for entries containing "Dynamics CRM" in the field under the **General** tab.
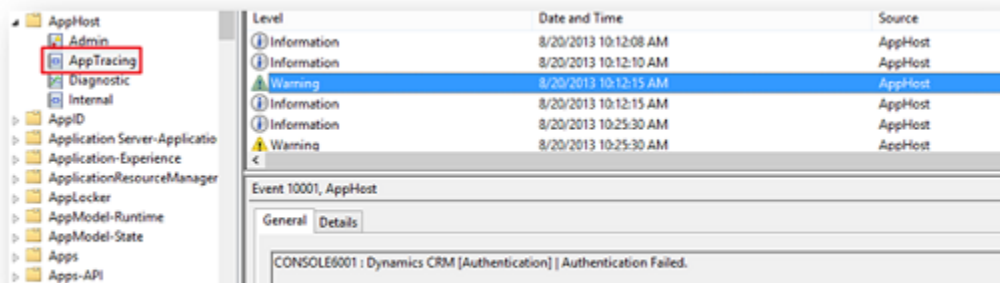
💡 **Tip**

You can right-click (press and hold) **AppTracing** and then click or tap **Find** to initiate a find. Then search for any events containing a word such as "CRM." Ctrl + F is the keyboard shortcut.

10. Also check the events logged under **Admin**.

To save an event log, right-click (press and hold) the log and select **Save All Events As**. Specify the directory where you want to save the log file.
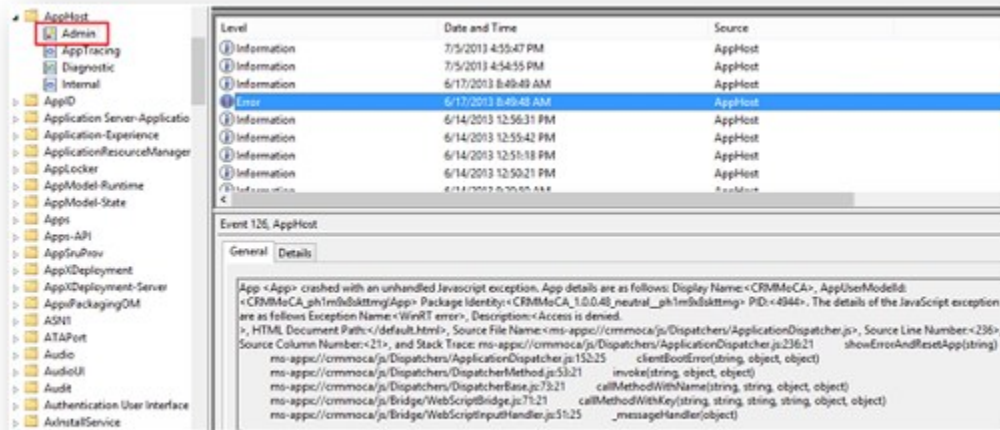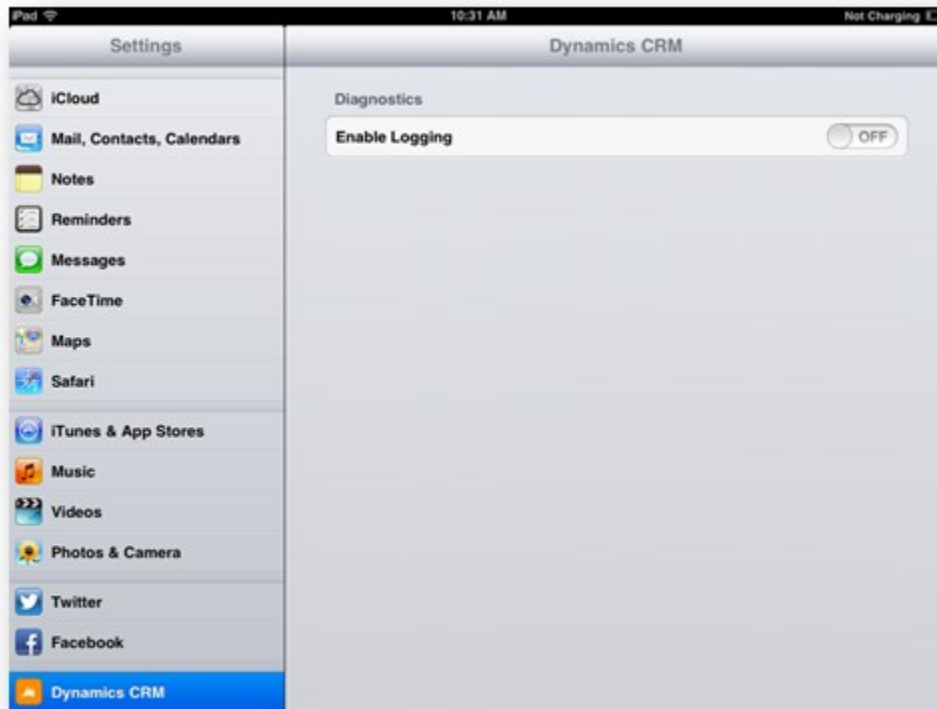
iPad

Follow these steps to set up and view logging on the iPad.

▶ **Enable logging on the iPad**

    1. Open **Settings**.

2. Select **Dynamics CRM** from the Settings list.

3. The **Enable Logging** option is set to **OFF** by default. Toggle this option to switch the setting to **ON**.
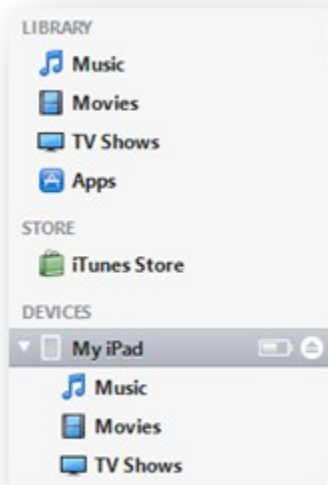
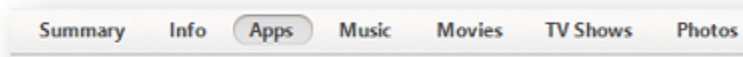4. After reproducing the issue, toggle the **Enable Logging** setting to **OFF**.
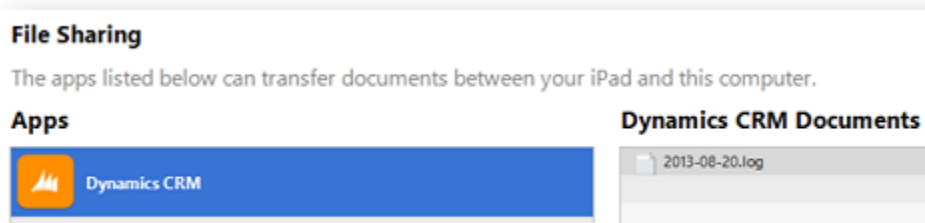
▶ View the iPad log files

1. Connect your iPad to your computer.
2. Open iTunes.
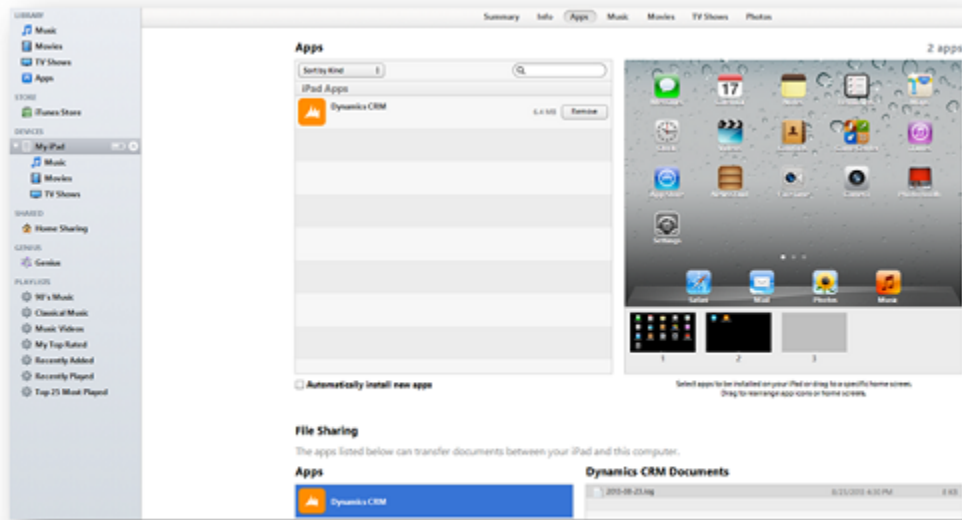3. Select your device from the Devices section.
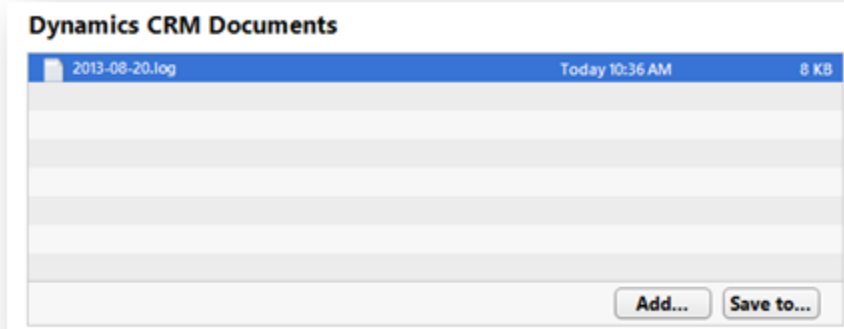
4. Select the Apps area from the header.

5. Locate the File Sharing section and select the Dynamics CRM app.

6. On the right-side column you should see a list of log files if logging was enabled for the app. Select a log file, press **Save to**, and then choose a location to save the log file.

7. Locate the log file you saved and open it to view the log details.

Android

On an Android device, you can enable logging during or after configuration.

- If you're setting up CRM for tablets, see **Enable logging on the setup page**.
- If you have already configured CRM for tablets and encounter an error post configuration, you need to sign out or reconfigure to enable logging. See **Enable logging after configuration**.
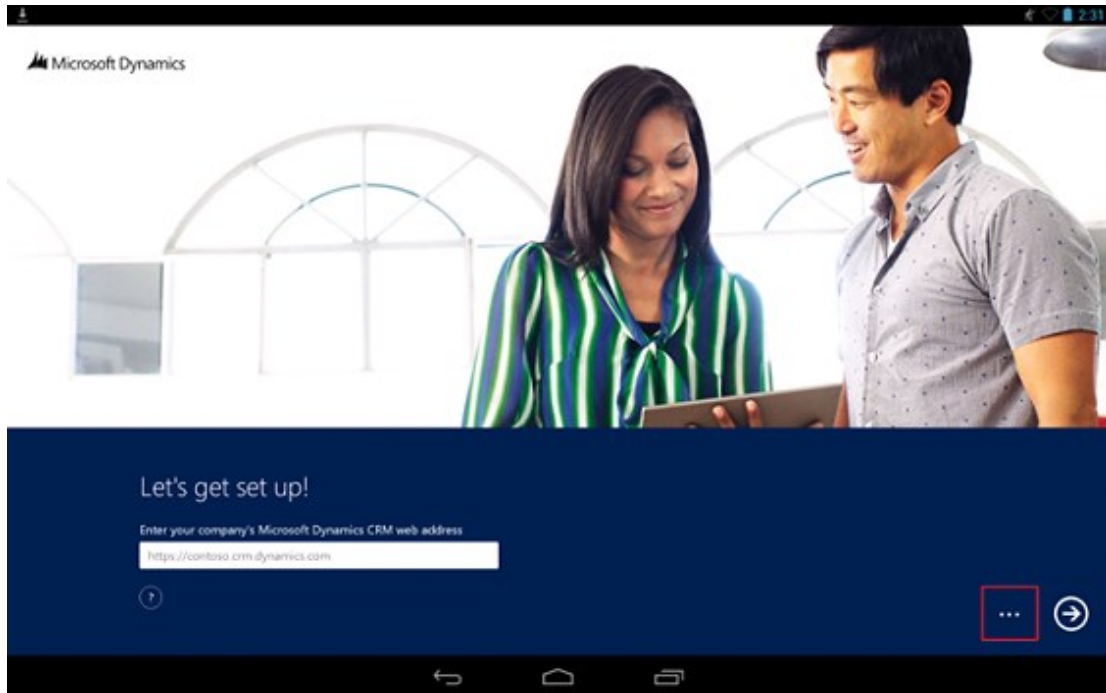
📝 Note

By default, logging is disabled. If you enable logging and close and reopen CRM, logging will be disabled,

▶ Enable logging on the setup page

1. On the setup page for CRM for tablets, tap the ellipses (…) to display the option to enable logging.

2. Tap the **Enable Logging** checkbox.

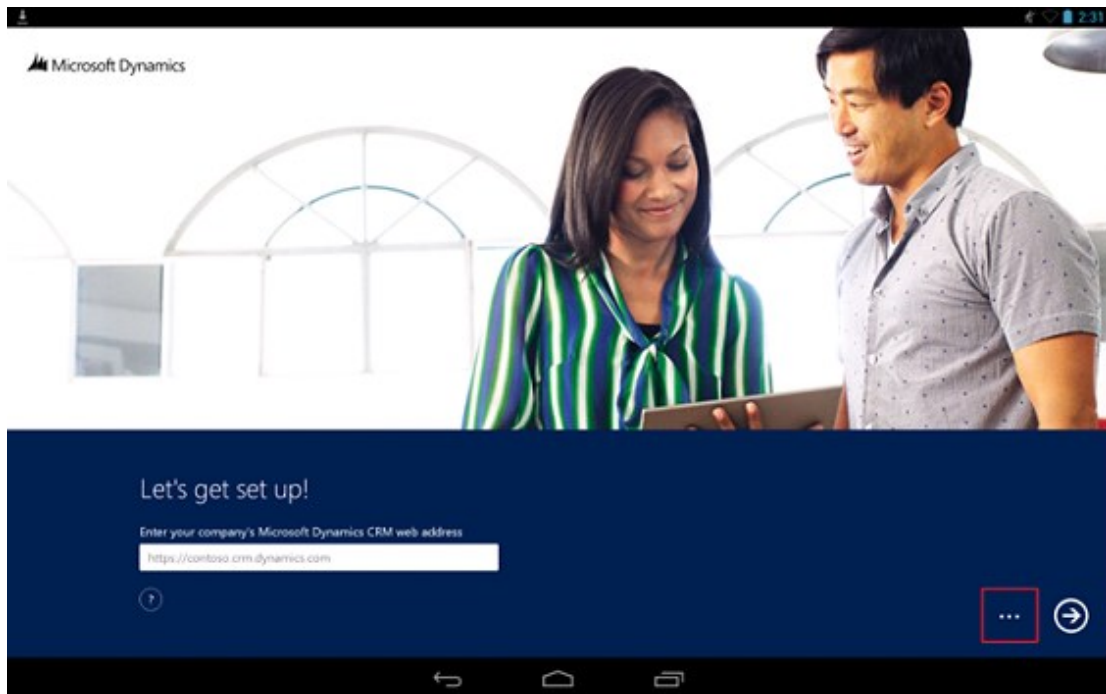### ▶ Enable logging after configuration

1. Open the CRM for Android app.
2. While on the dashboard, tap the ellipses (…) in the bottom-right corner to display the command bar.

3. Tap **Settings**, and then tap **Sign out**.
4. On the sign-in page, tap the back button to go to the set up page.
5. On the setup page for CRM for tablets, tap the ellipses (…) to display the option to

enable logging.
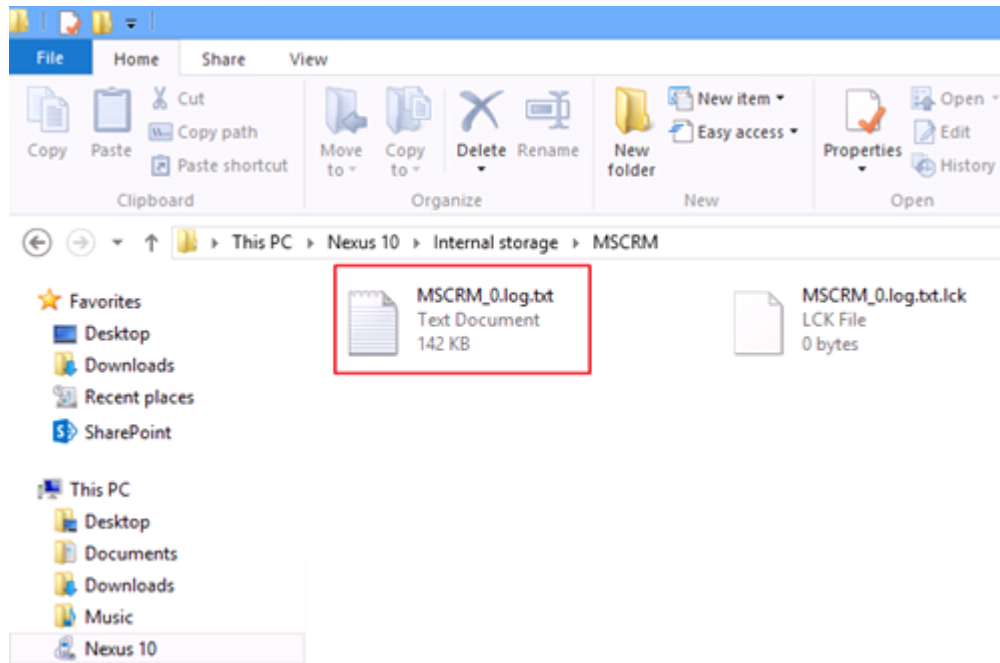

6. Tap the **Enable Logging** check box.

► **View the Android log files**

1. Logging is written to a log file in the MSCRM folder in the root directory of your device. You can connect your tablet to your computer with USB to browse the file system. You can also use other company's Android apps to view the file system.

2. Open the MSCRM folder, then select and view the log file.

Sample log

The following example shows you what you might see in a log file.

```
2013-08-20 15:33:23 +0000 [INFO]: Unique install id | 5FDD3711-9E89-4D8B-B835-
88B2C7C51703

2013-08-20 15:33:23 +0000 [INFO]: Application activated

2013-08-20 15:33:24 +0000 [INFO]: Application resume

2013-08-20 15:33:25 +0000 [ERROR]: App WebView Load failed | -1003

2013-08-20 15:33:32 +0000 [INFO]: [PAL] | Authentication: Starting

2013-08-20 15:33:32 +0000 [INFO]: [PAL] | Authentication: Starting authorization

2013-08-20 15:33:32 +0000 [INFO]: [PAL] | Authentication: Authorization error: -
2147093999

2013-08-20 15:33:39 +0000 [INFO]: [PAL] | Authentication: Starting

2013-08-20 15:33:39 +0000 [INFO]: [PAL] | Authentication: Starting authorization

2013-08-20 15:33:39 +0000 [INFO]: [PAL] | Authentication: Authorization error: -
2147093999

2013-08-20 15:33:42 +0000 [INFO]: Application Pause

2013-08-20 15:34:27 +0000 [INFO]: Unique install id | 5FDD3711-9E89-4D8B-B835-
88B2C7C51703
```

273

```
2013-08-20 15:34:27 +0000 [INFO]: Application activated

2013-08-20 15:34:27 +0000 [INFO]: Application resume

2013-08-20 15:34:27 +0000 [INFO]: [PAL] | Authentication: Failed - cookie setup

2013-08-20 15:34:28 +0000 [INFO]: [PAL] | Authentication: Complete

2013-08-20 15:34:30 +0000 [INFO]: [PAL] | Authentication: Starting

2013-08-20 15:34:30 +0000 [INFO]: [PAL] | Authentication: Starting authorization

2013-08-20 15:34:30 +0000 [INFO]: [PAL] | Authentication: Authorization complete

2013-08-20 15:34:30 +0000 [INFO]: [PAL] | Authentication: Complete

2013-08-20 15:34:31 +0000 [INFO]: [PAL] | Error Messages:

1: Principal user (Id=d0961fb9-0f09-e311-b8aa-00155d05381a, type=8) is missing
prvReadAccount privilege (Id=886b280c-6396-4d56-a0a3-2c1b0a50ceb0)

2: Principal user (Id=d0961fb9-0f09-e311-b8aa-00155d05381a, type=8) is missing
prvReadAccount privilege (Id=886b280c-6396-4d56-a0a3-2c1b0a50ceb0)

2013-08-20 15:36:30 +0000 [INFO]: Application Pause
```

System Center Operations Manager management pack for Microsoft Dynamics CRM 2016 (on-premises versions only)

The Operations Manager management pack for CRM enables you to monitor Microsoft Dynamics CRM 2016 (on-premises) in Microsoft System Center Operations Manager.

You can download the Microsoft System Center Operations Manager management pack for Microsoft Dynamics CRM 2016 here.

See Also

Operating Microsoft Dynamics CRM 2016

Microsoft Dynamics CRM 2016 data protection and recovery

Known issues for CRM for tablets and phones

CRM 2016 PowerShell Reference

Microsoft Dynamics CRM Monitoring Service

The Microsoft Dynamics CRM Monitoring Service is an NT-style service that monitors all Microsoft Dynamics CRM Server roles running on the local computer. The monitoring service doesn't transmit information outside the computer where the service is running. The monitoring service is installed with the installation of any Microsoft Dynamics CRM Server role.

The monitoring service validates the health of the server roles that are running on the local computer by running a series of tests. By default, monitoring occurs every 15 minutes and 10 records are maintained before the earliest record is replaced. Some tests performed by the monitoring service require that the organization be set for monitoring. For more information, see Change monitoring settings later in this topic.

View monitoring results

Events are recorded under the **MSCRMMonitoringServerRole** source in the Application area of Event Viewer.

By default, detailed monitoring results are saved as XML files located in C:\Program Files\Microsoft Dynamics CRM\Monitoring\results.

Tip

Use a web browser to view the monitoring logs. To do this in Internet Explorer, right-click the monitoring XML file, select **Open with**, and then select Internet Explorer.

Additionally, you can record monitoring results to the configuration database as described later in this topic. Then you can use a SQL statement such as the following to view monitoring information for the deployment.

```
USE MSCRM_CONFIG SELECT * FROM MonitoringResults ORDER BY EndTime
```

Change monitoring settings

The following PowerShell commands perform these operations.

- Displays the current monitoring settings.
- Sets the monitoring service to record a maximum of 10 results to the MonitoringResults table in the configuration database (**MSCRM_CONFIG**) in addition to recording to XML files in a file folder.

  Sets the *testorg* organization for organization-level monitoring, and sets the monitoring organization user account and password.

- Displays the current monitoring settings, again.

Note

Although this example configures two separate options, you don't have to configure both options together. The first option is to store monitoring records in the configuration database, and the second option is to set the monitoring organization, account, and password.

```
Add-PSSnapin Microsoft.Crm.PowerShell

Get-CrmSetting -SettingType MonitoringSettings

$set =Get-CrmSetting -SettingType Monitoringsettings

$set.StoreResultsInDatabase = "true"

$set.ResultsToKeepInDatabase = "10"

$set.MonitoringOrganizationUniqueName ="testorg"

$set.MonitoringOrganizationUserAccount = "contoso\administrator"

$set.MonitoringOrganizationUserPassword = "password"

Set-CrmSetting -Setting $set

Get-CrmSetting -SettingType MonitoringSettings
```

Important

> After you make a change to the monitoring service settings, you may need to restart the Microsoft Dynamics CRM Monitoring Service to incorporate the change.

See Also

CRM PowerShell Reference

Operating on-premises CRM 2016

Update Microsoft Dynamics CRM 2016

With Microsoft Dynamics CRM 2016, you have several options that help make your deployment run optimally, reliably, and securely. In most situations where Microsoft Dynamics CRM is running in a production environment, we recommend that you apply the latest update for all CRM applications shortly after the update becomes available.

On-premises versions of Microsoft Dynamics CRM use two kinds of update technology:

- **Setup updates**, which can be applied as part of the Setup process.
- **Application updates**, which are provided as an update package that can be automatically installed by using Microsoft Update.

In this topic

Microsoft Dynamics CRM Setup update

Microsoft Dynamics CRM application updates

Microsoft Dynamics CRM Setup update

Microsoft Dynamics CRM Setup update, also known as self-healing Setup, makes sure that you have the latest version of Setup. By using this feature, you can update the Setup program, before it installs anything on the computer, for the following CRM applications:

- Microsoft Dynamics CRM Server
- Microsoft Dynamics CRM Reporting Extensions
- Microsoft Dynamics CRM Report Authoring Extension
- Microsoft Dynamics CRM Email Router

To use Setup update, select **Get updates for Microsoft Dynamics CRM** during Setup. For Microsoft Dynamics CRM for Outlook, Setup update applies the latest published update package at the end of Setup.

Microsoft Dynamics CRM application updates

Microsoft Dynamics CRM regularly publishes updates in a package format that is a collection of software updates. Microsoft fully tests and supports installing any published update for Microsoft Dynamics CRM at the time of its release.

Distribution and application of Microsoft Dynamics CRM updates

Microsoft Dynamics CRM (on-premises) is engineered to use Microsoft Update, a service that can automatically download and install updates to Microsoft applications, such as Microsoft

Dynamics CRM Server, Microsoft Dynamics CRM Reporting Extensions, Microsoft Dynamics CRM Report Authoring Extension, Microsoft Dynamics CRM for Outlook, Microsoft Dynamics CRM Language Pack, and Microsoft Dynamics CRM Email Router.

During installation or upgrade of a Microsoft Dynamics CRM application, Setup asks whether you want to opt in, which sets Microsoft Update to apply automatic updates. If you don't want to apply automatic updates during Setup, you can enable this feature later by turning on automatic updates in the Windows Update area of Control Panel. More information: Turn automatic updating on or off and Change how Windows installs or notifies you about updates.

When you enable Microsoft Update, updates are automatically downloaded for Microsoft Dynamics CRM and for any other Microsoft applications that are enabled to use Microsoft Update.

If you don't want to use Microsoft Update, you can still download updates from the Microsoft Download Center and manually install them or push them out to the appropriate computers by using Windows Server Update Services (WSUS). More information: Windows Server Update Services.

Update requirements

An update may require updates to required components, such as the Microsoft .NET Framework or even an earlier Microsoft Dynamics CRM update. For more information about such requirements, see the Microsoft Knowledge Base (KB) article for the update.

See Also

Operating Microsoft Dynamics CRM 2016

Microsoft Dynamics CRM 2016 data protection and recovery

This section explains the options available and provides instructions for data back up and failure recovery.

In This Section

Microsoft Dynamics CRM VSS writer service

Back up the Microsoft Dynamics CRM System

Exporting and importing customizations and solutions

Microsoft Dynamics CRM failure recovery

See Also

Operating on-premises CRM 2016

Microsoft Dynamics CRM VSS writer service

The Microsoft Dynamics CRM Volume Shadow Copy Service (VSS) Writer Service provides added functionality for backing up and restoring Microsoft Dynamics CRM databases through the VSS framework.

VSS is a set of Component Object Model (COM) application programming interfaces (APIs) that provides standardized interfaces, enabling backup and restoration software, such as Systems Center Data Protection Manager, to centrally manage the backup and restore operations on a variety of applications. VSS also implements a framework that enables volume backups to be performed while applications on a system continue to write to the volumes.

In this topic

Dependencies

Permissions required

Features

Steps required to use with System Center Data Protection Manager

Dependencies

- System Center 2012 Data Protection Manager (DPM)
- SQL Server VSS Writer. The SQL Server VSS Writer service, which is available with Microsoft SQL Server, must be started for the Microsoft Dynamics CRM VSS Writer service to work correctly.

Important
Earlier versions of System Center DPM aren't supported.

Permissions required

The Microsoft Dynamics CRM VSS Writer runs as a service and can be run either under Network Service or a domain user account. For information about the required permissions, see Minimum permissions required for Microsoft Dynamics CRM Setup and services.

Features

The Microsoft Dynamics CRM VSS Writer supports:

- Backup and restore of the configuration (MSCRM_CONFIG) and multiple organization (*organizationName*_MSCRM) databases.
- The Microsoft Dynamics CRM application doesn't need to be offline while databases are backed up.
- During a database restore, the application is automatically taken offline, and after successful restoration, brought back online again.

The Microsoft Dynamics CRM VSS Writer doesn't support:

- Backup and restore of Microsoft SharePoint databases that are integrated with Microsoft Dynamics CRM. For these databases, use the SharePoint VSS Writer.

- Backup and restore of Microsoft SQL Server Reporting Services databases that are used for Microsoft Dynamics CRM reporting. For these databases, use the [SQL Server VSS Writer](#).

Steps required to use with System Center Data Protection Manager

The following command needs to be executed in the DPM Management Shell on the computer where System Center 2012 DPM is running so that Data Protection Manager can recognize the Microsoft Dynamics CRM VSS Writer. The user running the command must be a member of the administrators group on the local computer.

```
Set-DPMGlobalproperty -dpmservername DPM_SRVR_NAME -registeredwriters APPS_VSS_WRITER_ID
```

DPM_SRVR_NAME is the name of the computer where System Center 2012 DPM is running.

APPS_VSS_WRITER_ID is the unique identifier of the Microsoft Dynamics CRM VSS Writer service, which is always `74bf91e0-e0fa-4ba9-9258-48f4fd1d0445`.

See Also

[Microsoft Dynamics CRM 2016 data protection and recovery](#)

[Back up the Microsoft Dynamics CRM System](#)

[MSDN: Volume Shadow Copy Service](#)

[Data Protection Manager](#)

Back up the Microsoft Dynamics CRM System

To recover from any scenario, you must back up all needed information and store a copy off site. A backup plan should be created and rehearsed for all Microsoft Dynamics CRM components and services to make sure that, if a disk or other failure occurs, the maximum amount of data is recoverable.

In This Topic

[Backup requirements summary](#)

[Selecting a backup technology and type](#)

[Backing up Windows Server](#)

[Backing up Active Directory](#)

[Backing up SQL Server, including Reporting Services](#)

[Backing up Microsoft Dynamics CRM Server](#)

Backup requirements summary

Backup requirements vary according to the servers involved. The following table is a summary of what to back up for Microsoft Dynamics CRM.

Server	What to back up	Comments
Domain controller	Full System State	None.

Server	What to back up	Comments
SQL Server	MSCRM_CONFIG OrganizationName_MSCRM master msdb ReportServer ReportServertempdb	The OrganizationName_MSCRM and ReportServer databases should have full database backups and transaction log backups. For databases that are rarely updated, such as msdb, you may select only full database backup. Backups of the master and msdb databases aren't required by Microsoft Dynamics CRM but should be part of an overall backup strategy.
SharePoint	Backup recommended if SharePoint integration is enabled.	If you have enabled SharePoint document management, we recommend that you back up the SharePoint databases. For more information, see the SharePoint documentation.
Exchange Server	Backup not required by Microsoft Dynamics CRM.	Backup may be required for Exchange Server. For more information, see [Backup, restore and disaster recovery](#).
Microsoft Dynamics CRM Server	web.config (Default location: c:\Program Files\Microsoft Dynamics CRM\CRMWeb) Windows registry: HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\MSCRM	The web.config file is required only if the file has been changed from the default settings. Windows registry subkey.

Selecting a backup technology and type

Microsoft Dynamics CRM Server includes Volume Shadow Copy Service (VSS) support that can be used in conjunction with System Center Data Protection Manager to centrally manage the backup and restore operations for Microsoft Dynamics CRM. For more information, see Microsoft Dynamics CRM VSS writer service and Data Protection Manager.

Windows Server Backup in Windows Server 2012 supports external and internal hard disks, optical media drives, removable media drives, and Hyper-V virtual machines for local storage. Additionally, Windows Server 2012 supports online backup by using Microsoft Azure Online Backup. More information: Azure Backup

To perform a scheduled backup, as a best practice, use an external hard disk that supports at least USB 2.0 or IEEE 1394.

In Windows Server 2012, you can perform three types of backup:

- System state backup, which includes all the files that are required to recover Active Directory.
- Critical-volumes backup, which includes all the volumes that contain system state files.
- Full server backup, which includes all volumes on the server.

Backing up Windows Server

Windows Server has backup tools that let you back up important company data to disk, removable media, or cloud. The scheduling capability found in the Backup and Restore Wizard provides data backup for the server itself and workstations in the small business network. The data backed up includes security information, file and share permissions, and registry data. For data security, only a member of the Administrators or Backup Operators group can perform a backup. Individual files and directories on the server can be restored by using the Backup and Restore Wizard.

Backing up Active Directory

You can use Windows Server Backup to protect your operating system state, volumes, files, and application data. For instructions about how to back up Active Directory, see Windows Server Backup Feature Overview and Windows Server 2012: Planning for Active Directory Forest Recovery.

Although we recommend that you back up Active Directory, the only way to avoid data loss is to have multiple Active Directory domain controllers. Then, if a domain controller fails, the other domain controllers will have a complete copy of the directory. With a backup, you have data only as recent as your last backup.

Backing up SQL Server, including Reporting Services

Windows Server Backup in Windows Server 2012 uses Volume Shadow Copy Services (VSS) to protect Microsoft SQL Server application data. An alternative solution that can be used while SQL Server runs is the built-in backup features of Microsoft SQL Server.

If you use SQL Server Management Studio to create a backup of the SQL Server databases, you can run a backup job from the Backup and Restore Wizard to include database backups that Reporting Services created. Schedule the backup routing in Reporting Services to run first,

followed by a backup job run in the Backup and Restore Wizard. More information: Backing Up and Restoring Databases in SQL Server

Microsoft Dynamics CRM creates at least two Microsoft Dynamics CRM-specific databases on SQL Server. In addition, Microsoft Dynamics CRM requires the default master and msdb SQL Server databases for database services and the default report server SQL Server databases for Reporting Services. The databases that make up a CRM system on SQL Server are as follows:

- OrganizationName_MSCRM
- MSCRM_CONFIG
- ReportServer
- ReportServertempdb
- master
- msdb

📝 **Note**

> For multitenant deployments, your Microsoft Dynamics CRM deployment will include more than one *OrganizationName*_MSCRM database.

The SQL Server backup plan should address each of these databases to make sure that Microsoft Dynamics CRM could recover if one, or all, databases fail. If your organization already has SQL Server or another database application, your database administrator may have a database backup strategy. However, if this is the first database application in your organization, you can create and maintain scheduled jobs to perform the necessary backups by using the Maintenance Plan Wizard in SQL Server Management Studio. To start the Maintenance Plan Wizard, in Reporting Services, expand the server, expand the **Management** folder, right-click the **Maintenance Plans** folder, and then click **Maintenance Plan Wizard**.

Your backup plan for the Microsoft Dynamics CRM databases provides you a backup set that includes a full database backup and some number of transaction log backups, depending on the Microsoft Dynamics CRM installation and the frequency with which you determine whether you must have backups. For more information, see Back Up and Restore of SQL Server Databases.

For databases that are updated infrequently, such as the msdb database, you might perform only full database backups. The *OrganizationName*_MSCRM, MSCRM_CONFIG, and *ReportServer* databases should have both full database and transaction-log backups.

Databases on which transaction log backups will be performed must have the Full recovery model database property set. You can set this property through SQL Server Management Studio. For more information, see Recovery Models .

Schedule full database backups frequently enough to reduce the number of restores after a failure. For example, if one day's data loss is acceptable, you can back up the transaction log one time per day, and back up the database one time per week. If only one hour's maximum data loss is acceptable, you can back up the transaction log one time per hour. To reduce the number of restores, back up the database one time per day.

To create a database maintenance plan for scheduled backups, run the Maintenance Plan Wizard from SQL Server Management Studio. Select the option to back up the database as part

of the maintenance plan for a full database backup. Select the option to back up the transaction log as part of the maintenance plan for a transaction log backup.

Your computer that is running SQL Server should also be designed with a level of fault-tolerance that is correct for a database server. This includes a RAID-5 disk array for your databases and a RAID-1 (mirror) for your transaction logs. With the correct level of hardware fault-tolerance, restoring from backup should be a very uncommon occurrence.

More information:

[Backing Up and Restoring Databases in the SQL Server](#)

Backing up Microsoft Dynamics CRM Server

Backing up and restoring the Microsoft Dynamics CRM Server basically involves the following data:

- Microsoft Dynamics CRM Server database files (explained previously)
- Microsoft Dynamics CRM Server program files
- Microsoft Dynamics CRM website files

For information about how to back up solutions and customizations that have been implemented outside of the Microsoft Dynamics CRM application, contact your solution vendor.

Note

We recommend that you keep a record of your current Microsoft Dynamics CRM update version. Therefore, if failure recovery is required, the appropriate update can be reapplied.

By default, all Microsoft Dynamics CRM program files are located in the following folders:

- C:\Program Files\Microsoft Dynamics CRM\
- C:\Program Files\Microsoft Dynamics CRM Reporting Extensions\

By default, the Microsoft Dynamics CRM website files are located in the following folder:

- C:\Program Files\Microsoft Dynamics CRM\CRMWeb

See Also

[Microsoft Dynamics CRM 2016 data protection and recovery](#)

[Exporting and importing customizations and solutions](#)

Exporting and importing customizations and solutions

The Solutions feature can be used to export all unmanaged solution customizations such as modified forms, views, and mappings. Later, the solution customization can be imported to the same organization or a different organization. For example, you can export a solution from an on-premises deployment of Microsoft Dynamics CRM and then import it into a Microsoft Dynamics CRM Online organization.

The Solutions feature is located in the **Customizations** area of the **Settings** area in the Microsoft Dynamics CRM web application. It is a good practice to export your customizations before you make changes so that they can be imported back if there is unexpected behavior. More information: **Import, update, and export solutions**

See Also

Microsoft Dynamics CRM 2016 data protection and recovery

Microsoft Dynamics CRM failure recovery

Microsoft Dynamics CRM failure recovery

To understand failure recovery, you must examine different scenarios to learn how restoration occurs in each case. For each scenario in this section, total server failure is assumed. The following scenarios contain information that shows the steps to ensure successful recovery of Microsoft Dynamics CRM Server:

- SQL Server failure recovery
- Microsoft Dynamics CRM Server failure recovery

See Also

Microsoft Dynamics CRM for Outlook failure recovery

Microsoft Dynamics CRM 2016 data protection and recovery

Exporting and importing customizations and solutions

SQL Server failure recovery

If the computer that is running Microsoft SQL Server fails, you must restore the databases from backup, and then reassociate them with the Microsoft Dynamics CRM deployment.

▶

1. Install Microsoft Windows Server and make sure that the computer is in the same domain as the Microsoft Dynamics CRM Server or Microsoft Dynamics CRM Server roles. In addition, you should use the same database name and disk structure. If you change either of these, you must take additional steps to correctly restore the SQL Server databases.

2. Install SQL Server. For supported versions, see SQL Server editions.

3. If you have a valid backup of the master database, restore that backup. For more information, see MSDN: Back Up and Restore of System Databases in SQL Server Books Online.

4. Restore the msdb database. For more information, see MSDN: Back Up and Restore of System Databases in SQL Server Books Online.

5. Restore the MSCRM_CONFIG and *OrganizationName*_MSCRM databases. For more information about how to restore SQL Server databases, see MSDN: Back Up and

[Restore of SQL Server Databases](#).

6. If Microsoft SQL Server Reporting Services and the Microsoft Dynamics CRM Reporting Extensions are also installed on the instance of SQL Server, restore the **ReportServer** and **ReportServertempDB** databases. For more information about how to restore databases, see [MSDN: Backup and Restore of SQL Server Databases](#).

7. If you restored the MSCRM_CONFIG database, you must run Microsoft Dynamics CRM Server Setup and use the **Connect to existing databases** option on the **Specify Deployment Options** page. If you didn't restore the MSCRM_CONFIG database and the database is functioning correctly, you can reconnect the organization database to the system. To do this, run the **Disable-CrmOrganization** and **Edit-CrmOrganization** Windows PowerShell commands. More information: [Administer the deployment using Windows PowerShell](#). Alternatively, in Deployment Manager right-click the organization and select **Disable**, right-click the organization again, click **Edit Organization**, and then change the **SQL Server** value in the wizard. For more information about how to edit an organization, see [Edit an organization's attributes](#).

This scenario is a worst-case situation, that is, a total failure of the computer that is running SQL Server. In other circumstances, such as the failure of a disk, you may only have to restore a single database to recover the environment.

For more information about high availability and disaster recovery using SQL Server availability groups, see [AlwaysOn Availability Groups (SQL Server)](#) and [Set configuration and organization databases for SQL Server 2012 AlwaysOn failover](#).

See Also

[Microsoft Dynamics CRM failure recovery](#)

[Microsoft Dynamics CRM Server failure recovery](#)

Microsoft Dynamics CRM Server failure recovery

Most of the Microsoft Dynamics CRM configuration information is stored on the computer that's running SQL Server. Therefore, the information can be recovered if all, or part, of Microsoft Dynamics CRM Server fails. Windows registry entries on Microsoft Dynamics CRM Server are recovered when you run the repair program or reinstall processes for Microsoft Dynamics CRM Server and Microsoft Dynamics CRM Reporting Extensions.

We recommend that you keep a record of your current CRM update level. Then, if failure recovery is required, the appropriate update can be reapplied.

▶

1. Install the operating system on another server and join the same Active Directory Domain Services (AD DS) domain as the computer that is running SQL Server.

2. Install Microsoft Dynamics CRM Server. During Setup, select **Connect to, and if necessary, upgrade an existing deployment** when prompted. If Microsoft Dynamics CRM Reporting Extensions was also installed on the computer that failed, install the Microsoft Dynamics CRM Reporting Extensions after Microsoft Dynamics CRM Server is

completed.

3. If the ISV.config or web.config files have been changed from their default settings, restore these files from backup.

4. Publish all customizations. More information: **Publishing customizations**

See Also

[Microsoft Dynamics CRM failure recovery](#)

Microsoft Dynamics CRM PowerShell Reference

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