Landis Computer

Microsoft Lync Server 2013 Step by Step for Anyone

Author

Matt Landis, Lync MVP

Revision 14

Over 100,000 Copies Worldwide

Contents

Chapter 1 - Installing Lync Server 2013 Standard Edition Front End on Windows 2012 7

Prepare Environment 7

Prepare Your Front End Server 8

Install Lync Server 2013 9

Prepare Active Directory 12

Prepare First Standard Edition Server 15

Configure DNS Records 17

Build and Publish Topology 21

Install Lync Server System 41

Add and Enable AD Users 47

Chapter 2 - Installing Lync Server 2013 Monitoring Role Collocated on Standard Edition Front End 51

Chapter 3 - Installing Lync Server 2013 Persistent Chat Collocated on Standard Edition Front End 68

Chapter 4 - Adding Your Second Lync Standard Edition Server 2013 & Creating an Associated Backup Pool for Resiliency 86

Chapter 5 - Enabling Lync Server 2013 Enterprise Voice Features, Response Groups and Managers 111

Enable Users for Enterprise Voice 111

Trying Out the Audio Test Service 114

Enabling and Using Call Park 115

Setting Up Normalization 118
Update Address Book 121
Unassigned Number 121
Response Group 123
Setup a Response Group Manager 129
Chapter 6 – Testing Lync Server 2013 Lync Web App and Looking at Functionality and Features 135
Chapter 7 - Installing Lync Server 2013 Edge Server on Windows 2012 147
Defining the Edge Pool in topology 156
Installing the Lync Components 174
Installing Certificates 179
Testing Your Edge Server 214
Chapter 8 - What's New with Lync Server 2013 and OneNote 2013 Integration 216
Chapter 9 – Questions and Answers about Microsoft Lync and Music on Hold 228
My notes on Audiocodes Mediant 1000, MSBG800 and MediaPack Gateway Delivered MOH: 234
My notes on NET UX1000/UX2000 Gateway Delivered MOH 235
My notes on Ferrari OfficeMaster Gate 235
My Notes on Dialogic Gateways/SBA 236
Chapter 10 – Using Microsoft Lync Server With Sonicwall Firewalls 239

Chapter 11 – How to Configure Lync Server 2013 Live Messenger PIC to Enable Skype Federation 245

Note: This book is an experiment in a new kind of book writing I'm calling "Blog to Book". I'm making no effort to hide the fact that these articles come directly from my blog http://windowspbx.blogspot.com .

There are a couple benefits of this type of book: Quick to market, mistakes can be easily addressed and new revision released. One last and big benefit is the interactivity of this book: You can click on that date/time URL underneath each chapter title and jump to the live blog article and comment/interact!

Several challenges are: No editorial process (arrgg!) and we are working with products that are not even released yet! So expect new editions of this book and your welcome to submit mistakes you see via blog comments or twitter to http://twitter.com/matthewlandis

To see this book online in blog form:
http://windowspbx.blogspot.com/search/label/Lync_2013_StepByStep

To get the latest eBook version of this book:
http://gallery.technet.microsoft.com/office/Lync-Server-2012-9d6fe954

Enjoy!

Matt Landis started Landis Computer Technology Solutions in 1995 and it has been providing IT services to businesses for 17 years and is now a 13 person Microsoft Silver Certified Partner. Matt has over 14 years of field experience implementing Windows Server, Communication/UC, and Dynamics ERP solutions in enterprise environments. Matt Landis has various industry certifications: Microsoft Certified Systems Engineer, Microsoft Certified Database Administrator, Microsoft Office Certified Expert, Microsoft Certified Dynamics, snom Certified Engineer, Network+ and A+.

Matt has been very involved with Windows Server based communication and PBX solutions including Microsoft Lync, 3CX and snom ONE. He is currently a Microsoft Lync MVP, a prolific blogger at http://windowspbx.blogspot.com and has written many articles on Microsoft Lync including "Planning, Implementing, and Using Microsoft Lync Server in Small Business Scenarios" on Microsoft Technet. He was the first 3CX Valued Professional (2008-2010) and has co-authored a book on Windows communication software "3CX IP PBX Tutorial". Matt likes giving back via community forums: he has contributed thousands of posts to Microsoft Lync, snom/snomONE and 3CX community forums over the years.

Matt is also a pastor at Calvary Mennonite Fellowship and when the chance affords he likes to travel internationally with his wife Rosalyn.

Lync & IT Consulting Company: http://landiscomputer.com
Blog: http://windowspbx.blogspot.com

Chapter 1

Chapter 1 - Installing Lync Server 2013 Standard Edition Front End on Windows 2012

By Matt Landis __on 7/16/2012 07:47:00 PM

NOTE: Remember Lync Server 2013 Preview is not meant for live/production environments.

Below are the step by step instructions to install Lync Server 2013 Standard Edition Front End on Windows Server 2012. Here is an outline of what we will do:

1. Prepare Servers
2. Install Lync Server 2013
3. Prepare Active Directory
4. Prepare First Server
5. Configure DNS
6. Build Topology
7. Install Lync Server System
8. Add & Enable AD Users
9. Login to Lync 2013

Prepare Environment

Some prerequisites for you Lync system:

- You will need 1 AD Server O/S and 1 Lync Server O/S
  - Lync requires 64bit O/S
- This guide is Using Windows Server 2012 64bit
  - but Windows Server 2008 R2 SP1 should work fine as well.
- Make Sure you have the below role running on your AD Server
  - AD-DS (Directory Services)
  - DNS
  - AD-CS (Certificate Authority)

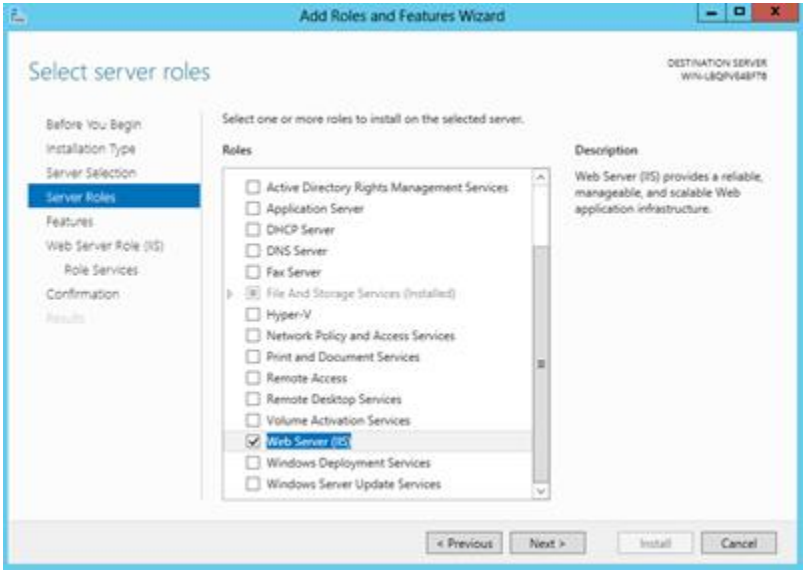
Tip: I suggest 2GB and 40GB hard drive for AD server and 4GB and 80GB for Lync Front End server for some quick guidance for a lab system.

Prepare Your Front End Server

- Server Requirements
  - Front End server must be joined to domain
  - FE must have UI installed
- Install Silverlight (will save time later)
- Front End Must have these Features
  - Roles
    - Web Server (IIS)
  - Features
    - Message Queuing | Message Queuing Services
    - Remote Server Administration Tools | Role Administration Tools | AD DS and AD LDS Tools
    - User Interfaces and Infrastructure | Desktop Experience
    - Windows Identity Foundation 3.5
    - .NET Framework 3.5 Features
      - .NET Framework 3.5
      - HTTP Activation (Important!)
      - Non-HTTP Activation
    - .NET Framework 4.5 (all options)
  - Roles
    - Web Server (IIS)
      - Role Services
        - Common Http Features Installed
          - Static
          - Default doc
          - Https errors
        - Health and Diagnostics
          - Http logging
          - Logging Tools
          - Tracing
        - Performance
          - Static Content Compression
          - Dynamics Content Compression
        - Security
          - Request Filtering
          - Client Cert Mapping Authentication

- Windows Authentication
- Management Tools
  - IIS Mgt Console
  - IIS mgt Scripts and Tools
- Application Development
  - ASP.NET 3.5
  - ASP.NET 4.5
  - .NET extensibility 3.5
  - .NET extensibility 4.5
  - ISAPI extensions
  - ISAPI Filters

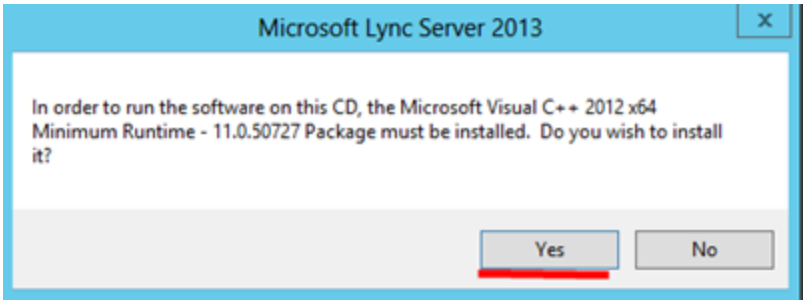
Install using Windows Server 2012 “Add Roles and Features Wizard”



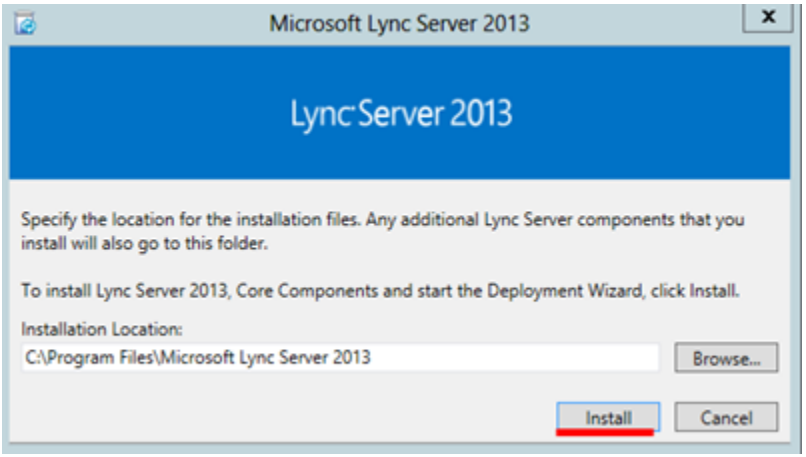
Reboot Front End and login as Domain Administrator.

Install Lync Server 2013

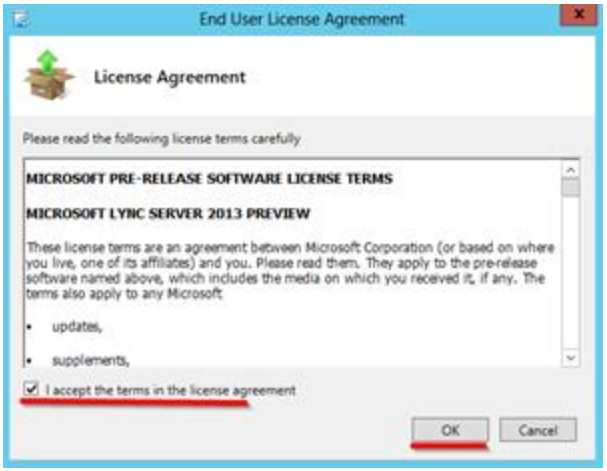
Insert CD and Run Setup.exe. You will be prompted to install Visual C++, click “Yes” (below)



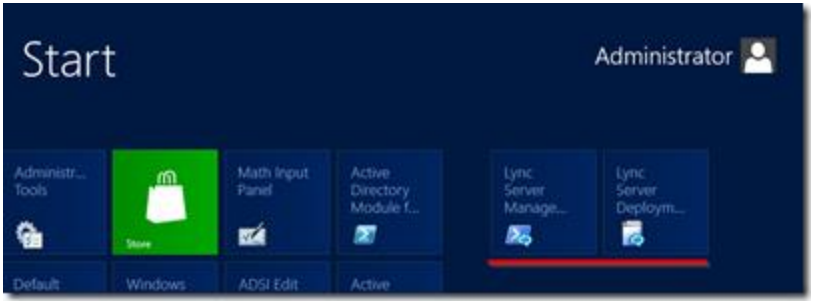
You can accept default location and click Install (below)



Accept Terms and click “Ok” to install.

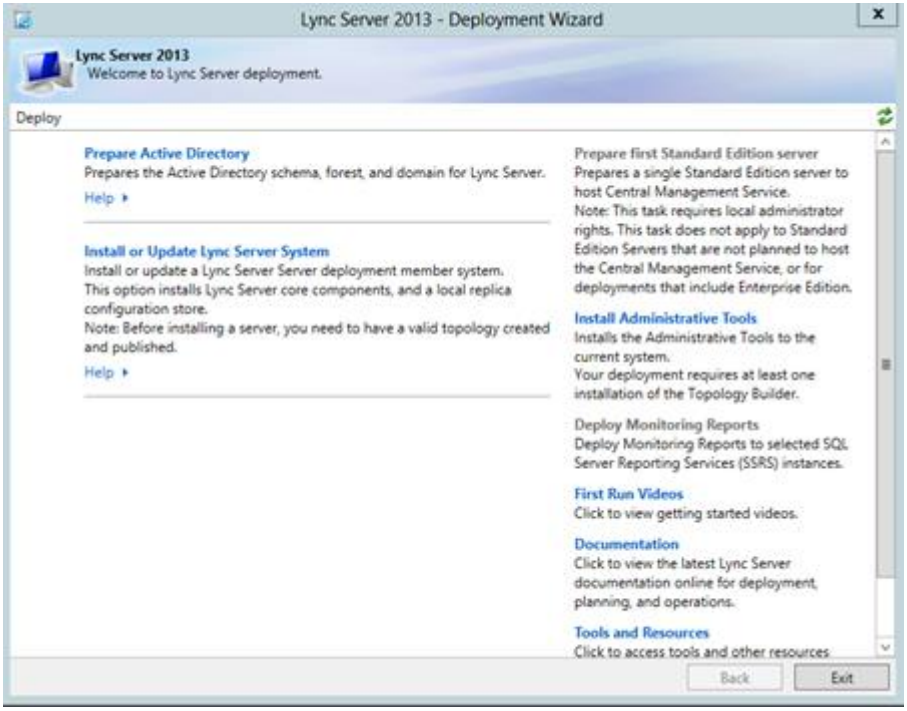


When install is complete (3minute wait time) you will have below apps on your server and the Lync Server Deployment Wizard (below) will appear.



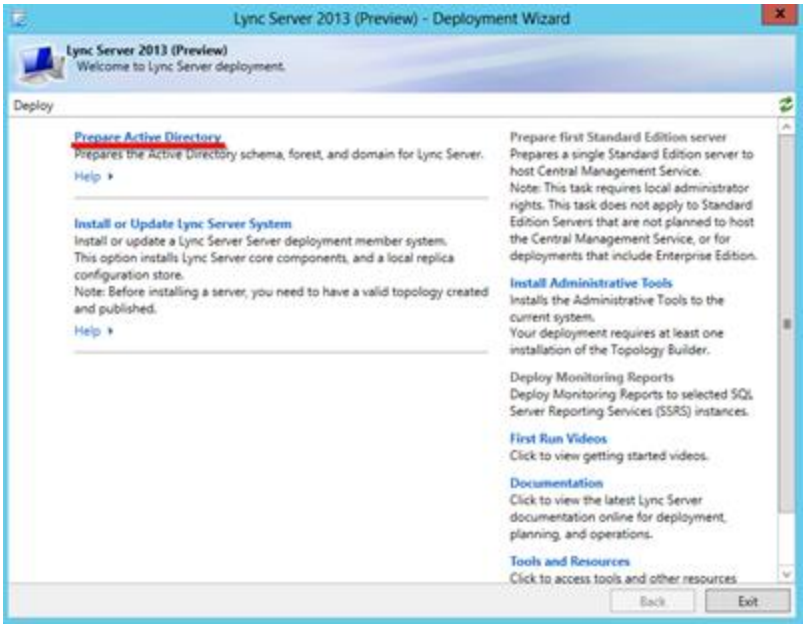
- Lync Server Manager
- Lync Server Deployment Wizard
- ~~Lync Server Logging~~ (Note: Logging tool is missing from Lync 2013 Preview)

	Note: Microsoft Lync Server 2013 has a new centralized logging mechanism. This is the reason for the logging tool not being installed with Lync Server 2013 Preview. Jens Trier Rassmussen has a complete article on this subject at http://bit.ly/S3DL4Q. Also, Randy Wintle has written a Powershell UI for this new central logging at http://bit.ly/Pbbp8v.

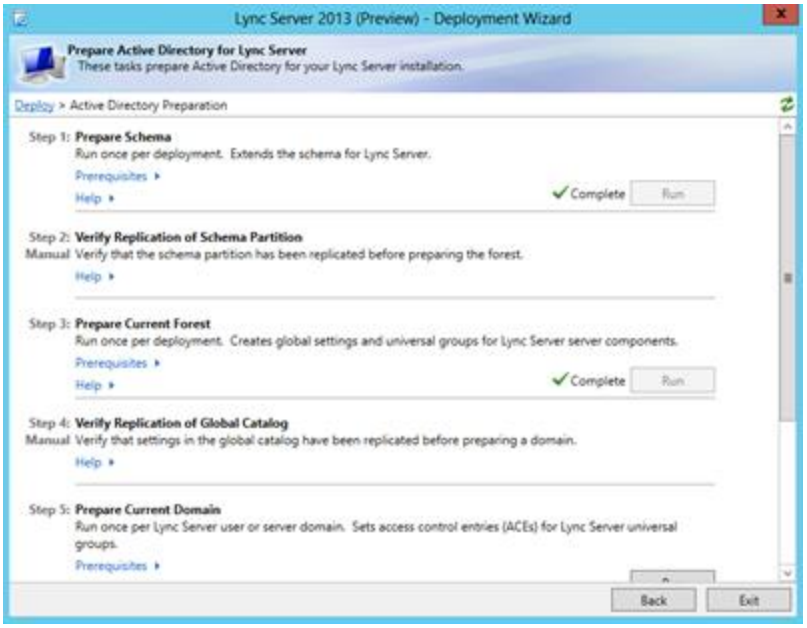


Prepare Active Directory

Click "Prepare Active Directory". (As noted in prerequisites, you will need AD DS and AD LDS Tools Feature installed on your Front End to complete this step.)



- Step 1: Prepare Schema. (takes 1minute, and you may need to wait a couple minutes before this and step 2)
- Step 2: Verify Replication of Schema is not necessary if this is a Lab and there is only one AD server—you can safely keep moving to step 3.
- Step 3: Prepare Forest | Next | select Local Domain | Next (5sec)
- Step 4: just keep moving
- Step 5: Prepare Domain | Next (5sec)
- Step 6: just keep moving
- Step 7 below

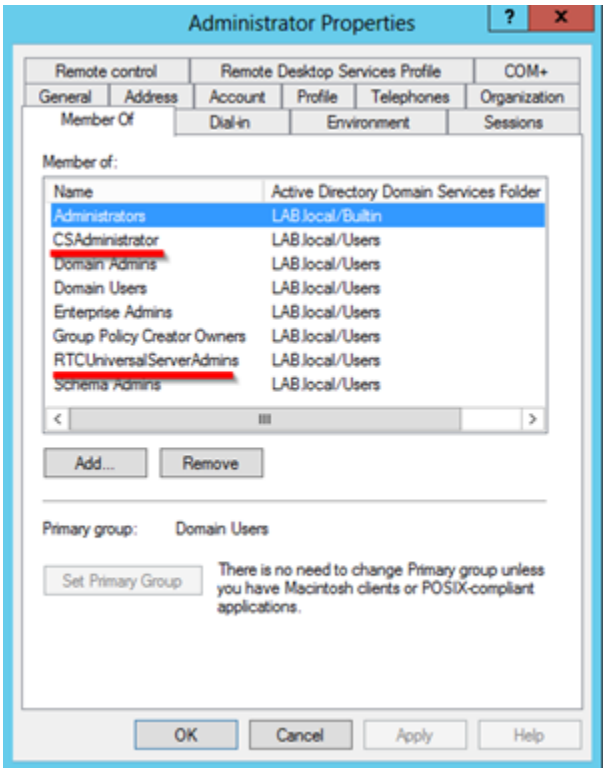


Add Lync Administrative User To Admin Group

Add the Administrator to CSAdministrator group (shownbelow)

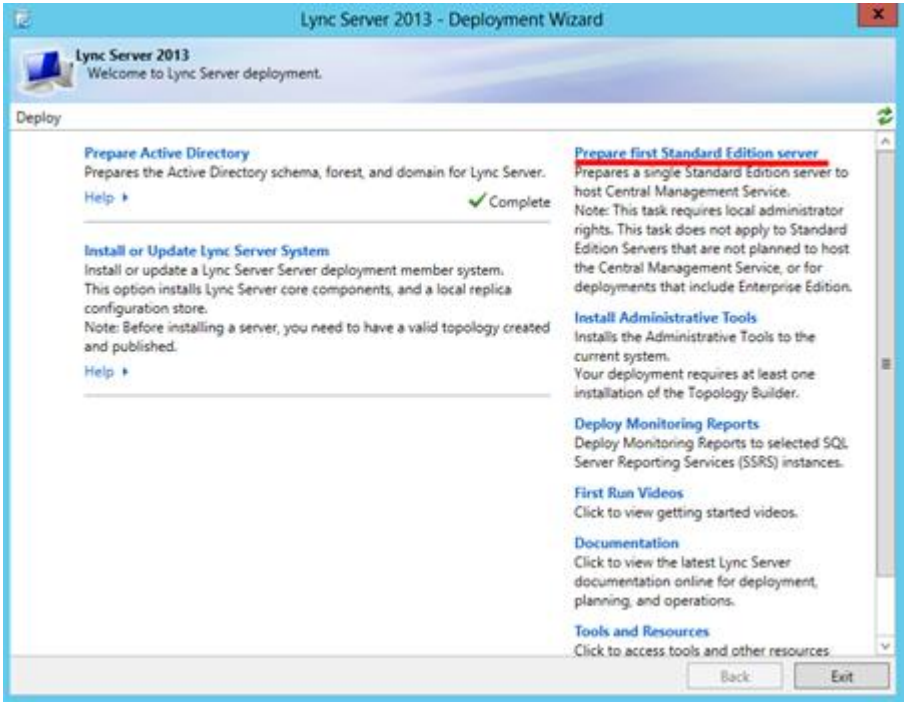
- CSAdministrator

~~NOTE: the user running setup needs to be Administrator of the Lync FE local machine.~~



Prepare First Standard Edition Server

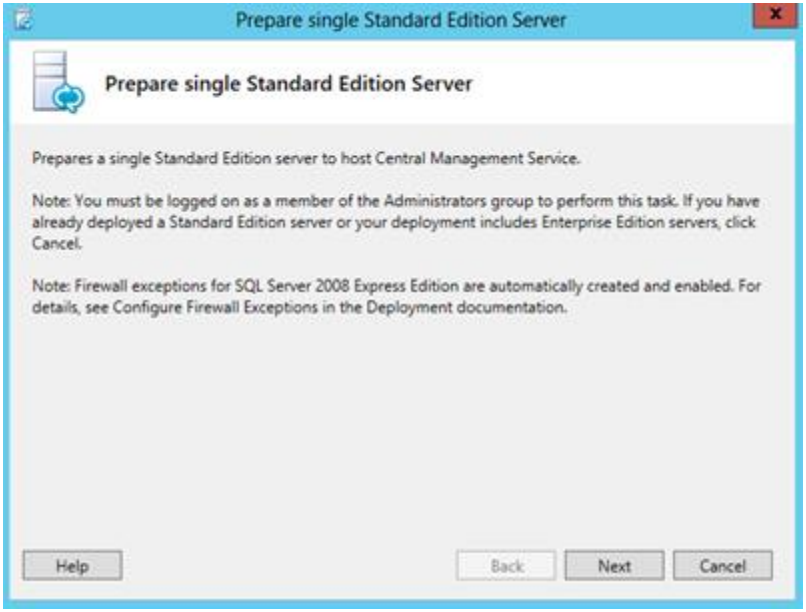
Now lets go back to the Deployment Wizard and click “Prepare first Standard Edition server”.



You will see the below "Prepare single Standard Edition Server" wizard window and you can just click "Next". During this process the below will be installed:

- SQL Server 2008 Express Edition will be installed
- RTC databases will be created and populated
- Lync Server installation files will be put in place
- Etc

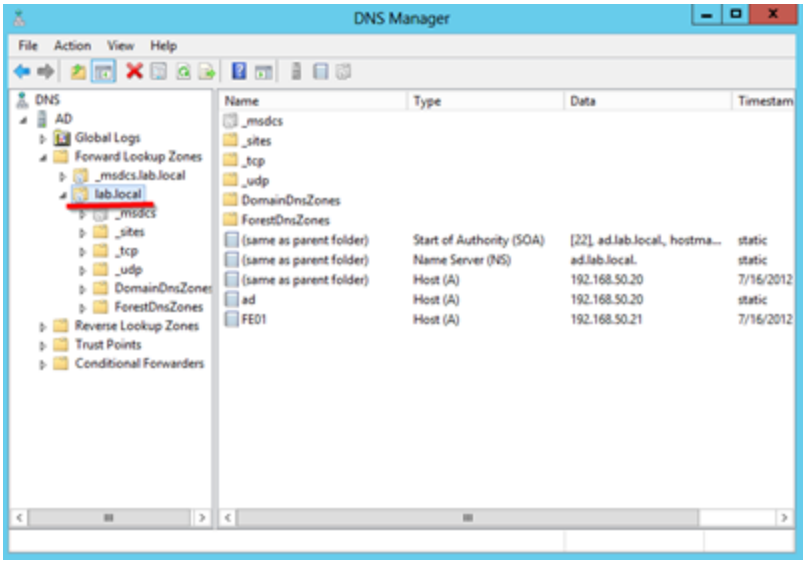
(Note: as noted in prereqs, Windows Identity Foundation 3.5 must be installed for this process to complete successfully)



(Time: on new AD with no users, 6-10 minutes to Prepare first Server)

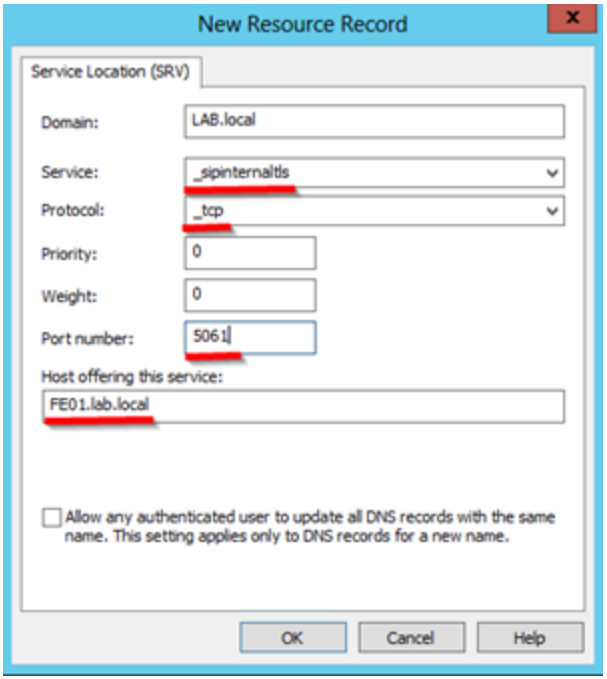
Configure DNS Records

Lets open DNS Manager on AD server. Right click on your domain (in our case lab.local) under Forward Lookup Zones, click "Other New Records…" and scroll down to "Service Location (SRV)" and click Create Record.



Will will add a DNS SRV record pointing at our Lync FE Server FQDN (FE01.lab.local in our case)

- Service = _sipinternaltls
- Protocol = _tcp
- Port number = 5061
- Host Offering the service = fqdn of Lync Std. FE server or Pool. (In our case FE01.lab.local)

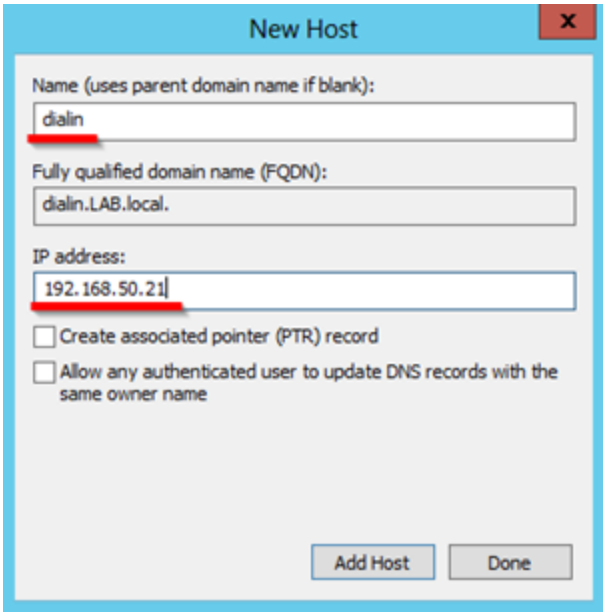


Note: a DNS A record should already be pointing to Lync Front End Server (FE01.lab.local)

We will also create 3 DNS A Records. Right click, "New Host (A or AAAA)…" Add a DNS A record for

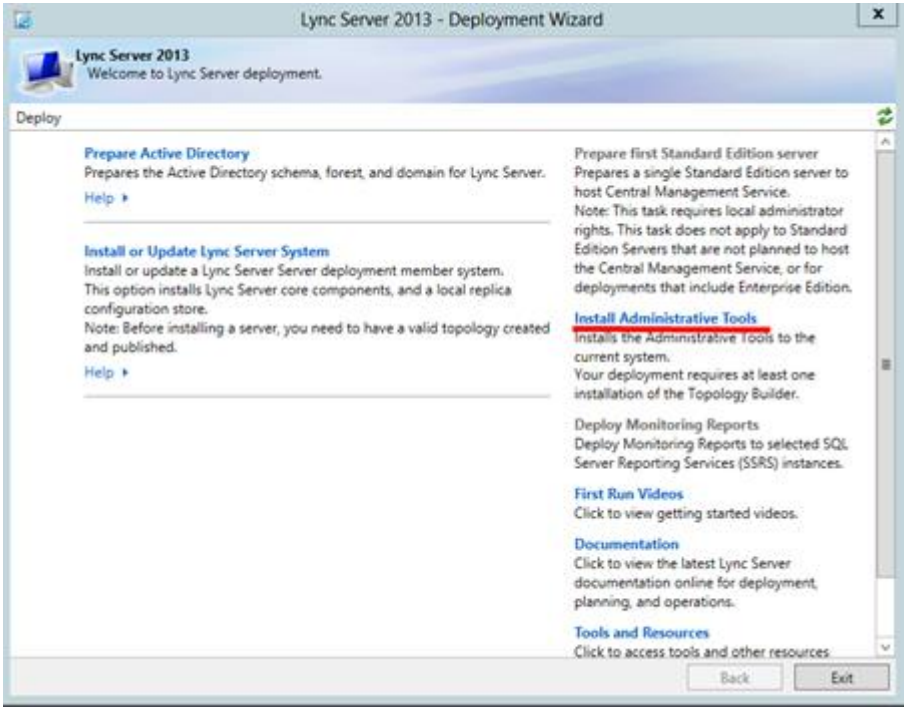
- meet
- dialin
- admin

as shown below



Repeat this for meet and admin DNS A Records.

Now lets go back to the Deployment Wizard and click “Install Administrative Tools”.

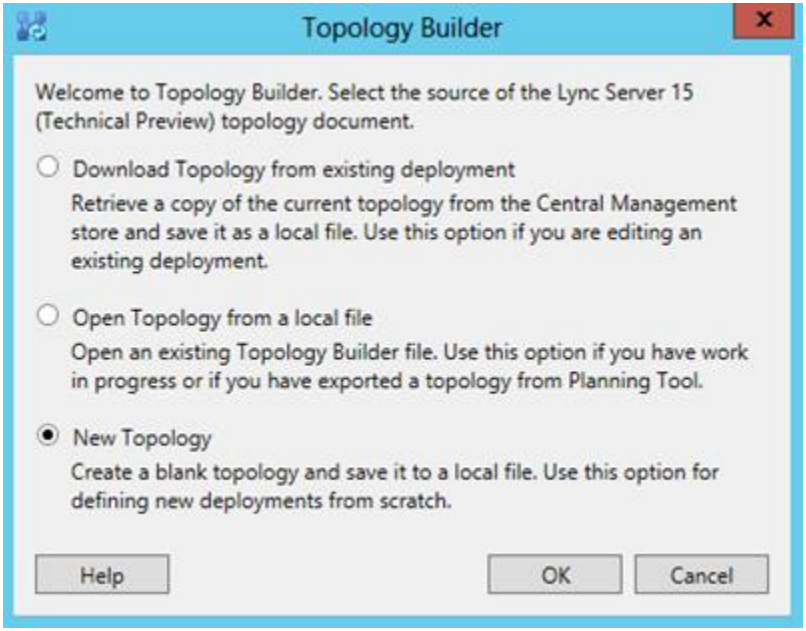


This takes just a second to run.

Build and Publish Topology

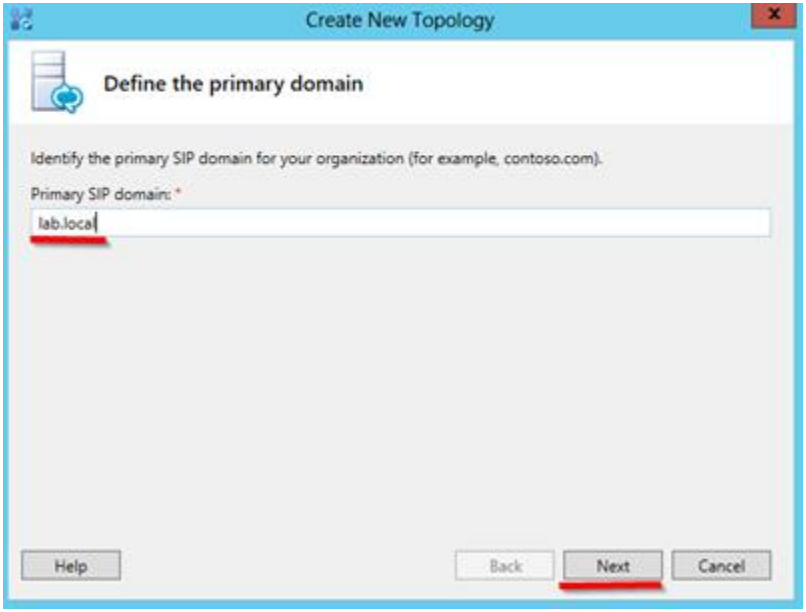
Next we will go to Start and run “Lync Server Topology Builder” (below).

Select New Topology (as shown below) and then give the topology some name (just any old name like “mylab.tbxml”)

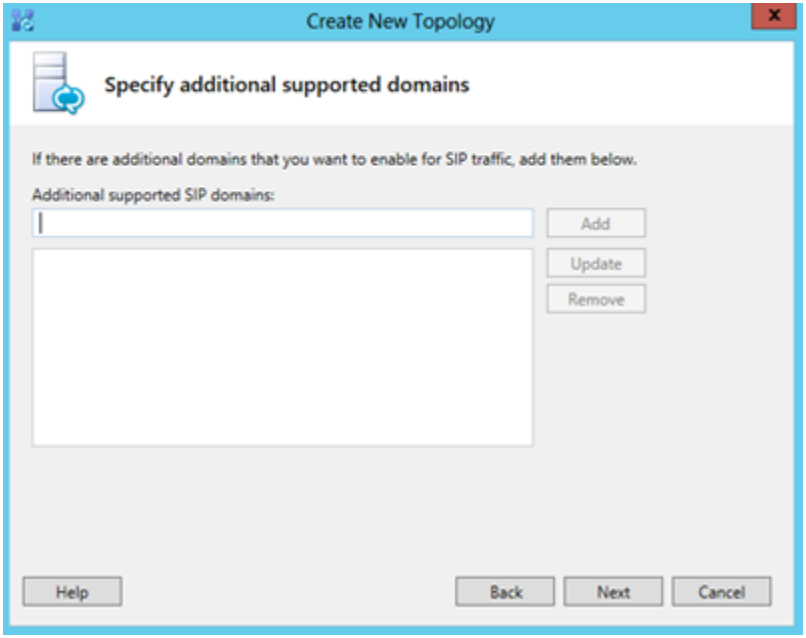


Now we will be define this topology.

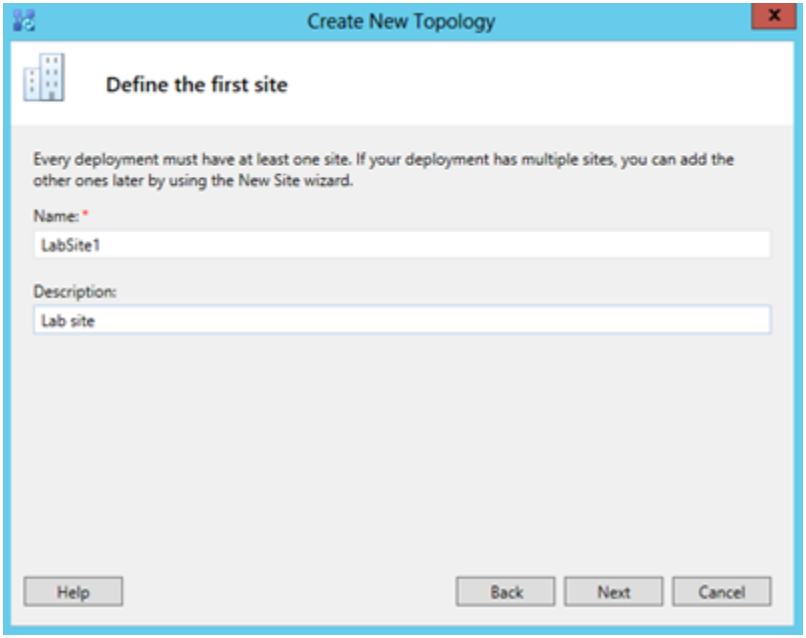
Primary SIP domain: lab.local | Next



- Specify additional supported domains: {nothing/none} | Next

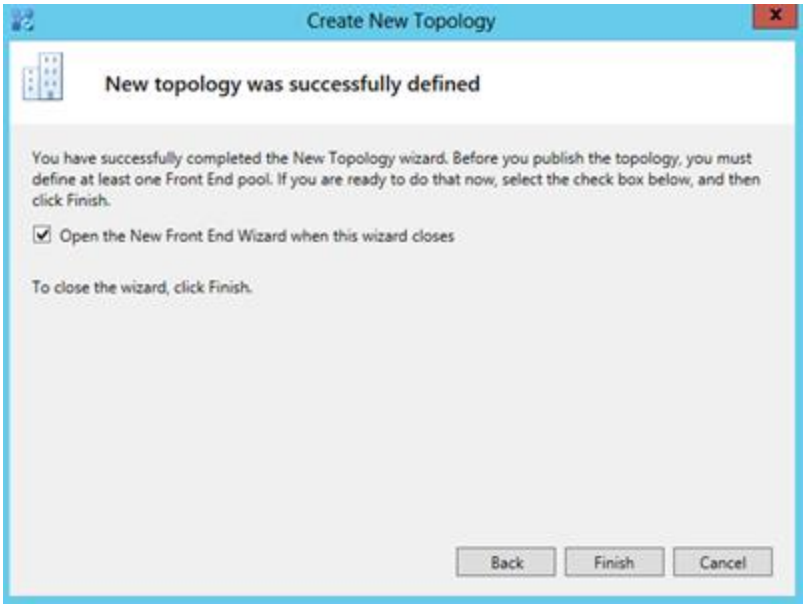


- Define the First site
  - Name: LabSite1
  - Description: Lab Site (not important, just something)

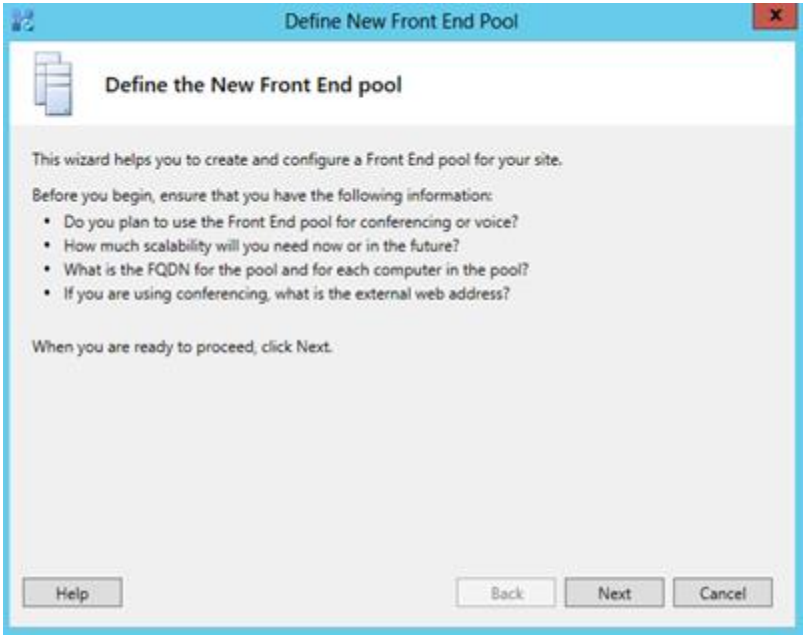


- Specify site details
  - City
  - State
  - Country

Click “Finish”

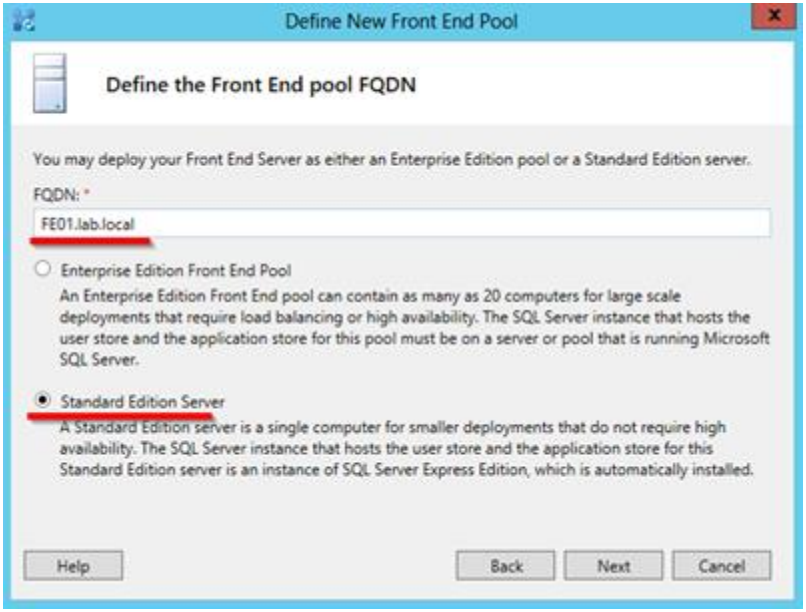


Next we will define a new Front End pool. click Next



Define Front End Pool

- FQDN: FE01.lab.local
  - Note: if this is a Standard Edition, this FQDN will be exactly the same FQDN as your FE server (FE01.lab.local in our case)
- Standard Edition Server

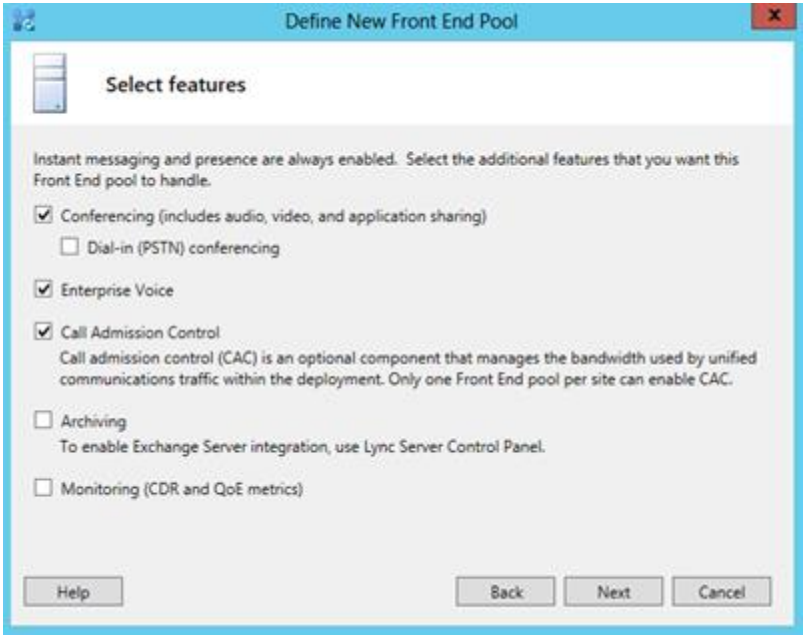


Next we will select Features for this Front End Pool

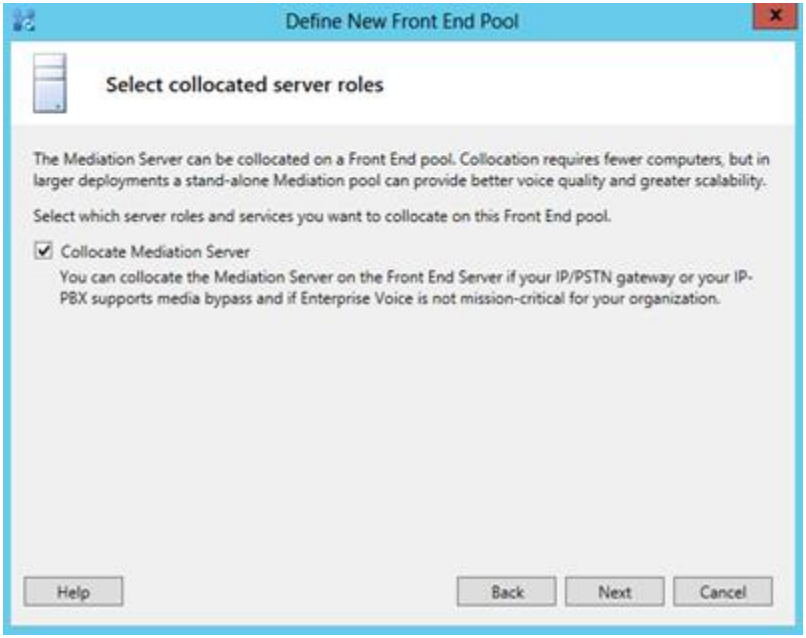
Check these features:

- Conferencing
- Enterprise Voice
- CAC

Tip: What works best for me is to NOT define ARCHIIVE and MONITOR servers till you are ready to actually install them. I suggest to NOT select Archiving and Monitoring now. We will do that after we have actually installed the SQL server and are ready to define those roles in topology builder.

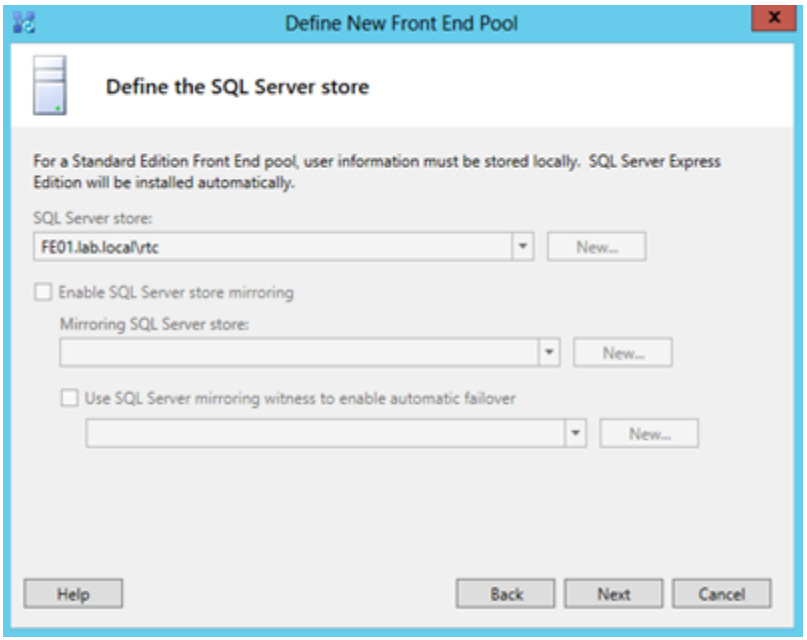


- Select Collocated server roles
    - collocate Mediation Server: check

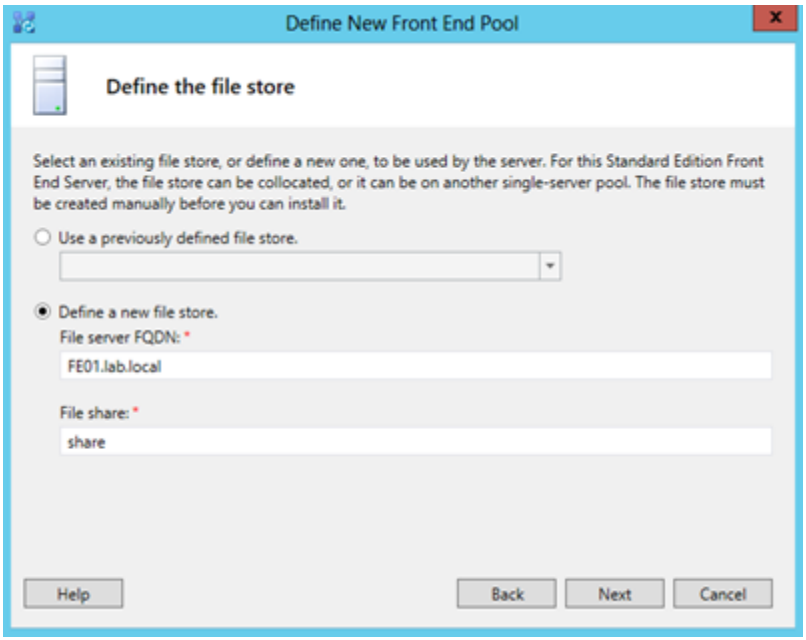


- Associate server roles with this front End pool
    - Enable an Edge pool…: unchecked

Define SQL store



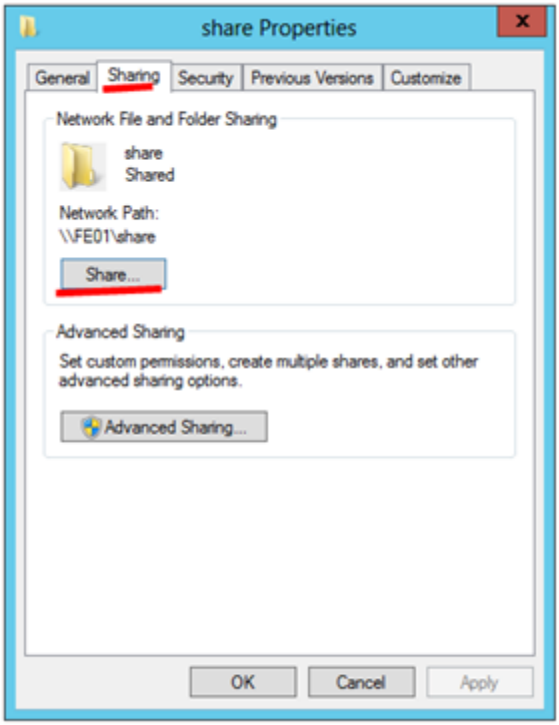
Define the file store: default, next (NOTE: You will need to manually create this network share and give rights to everyone. This wizard will not automatically create it for you)



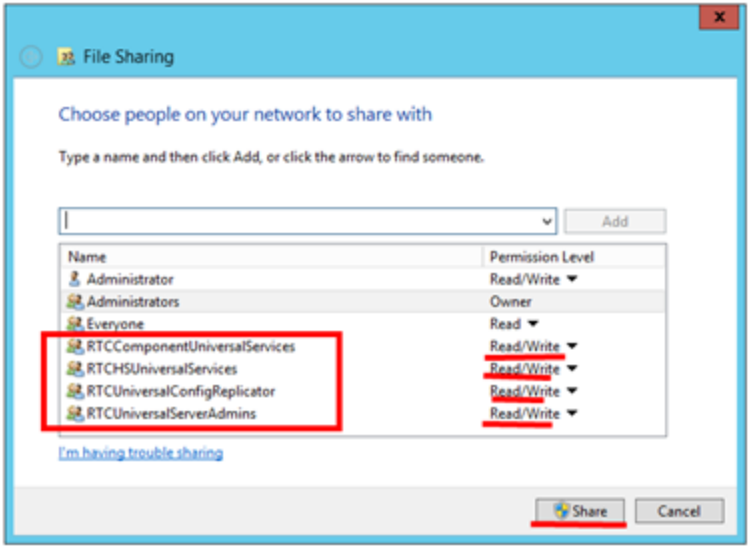
Let create the Lync file store share right now so we don't forget. You can create this folder where ever you want but for this lab we will create a folder called "Share" in C:\ of the Lync Server. Next go into the properties of the folder and give full access permissions to these groups:

- RTCHS Universal Services
- RTC Component Universal Services
- RTC Universal Server Admins
- RTC Universal Config Replicator

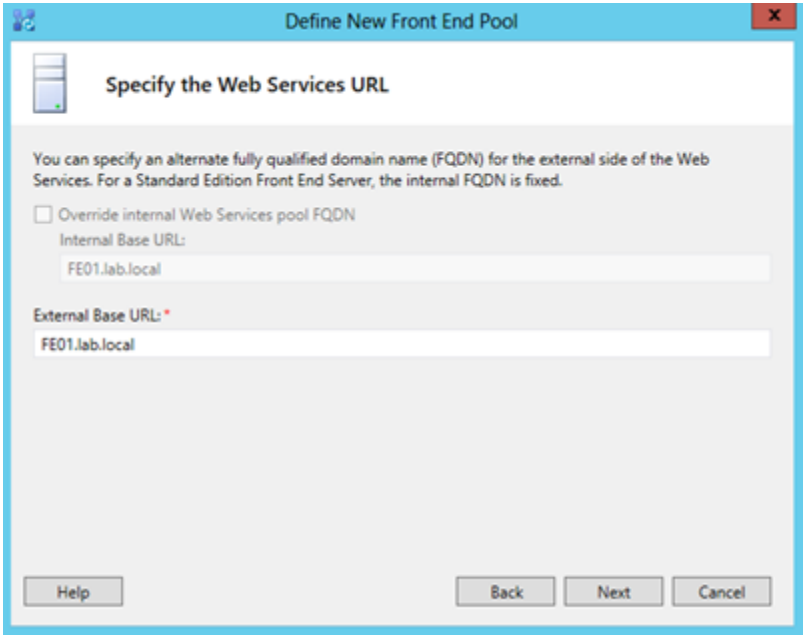
Click on the "Sharing" tab, click on "Share".



In the “File Sharing” Wizard click the dropdown beside “Add” and select “Find People…” and in “Enter the object names to select” type RTC. Now press the CTRL key and select the above groups. Next you will need to change each group to “Read/Write” and click “Share” to finish the sharing Wizard.

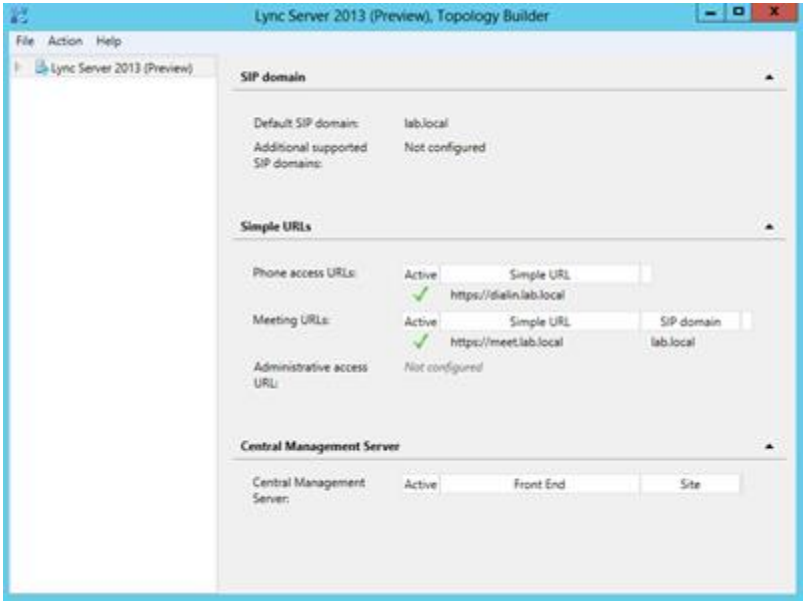


Specify the web services URL: Since this is a lab we can let the External Base URL the default.



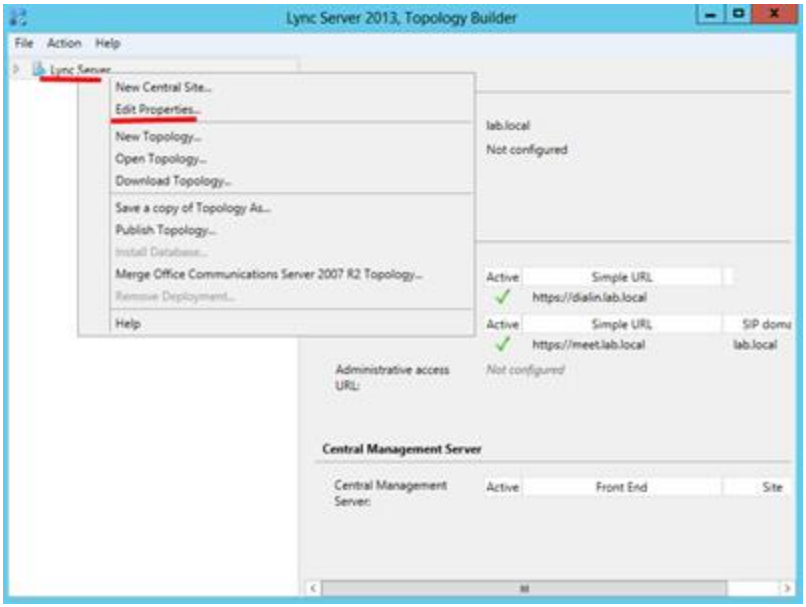
Specify where your Office Web App server is. (you probably don't have one yet, just point to OWA.lab.local)

Now you are finished with the wizard.

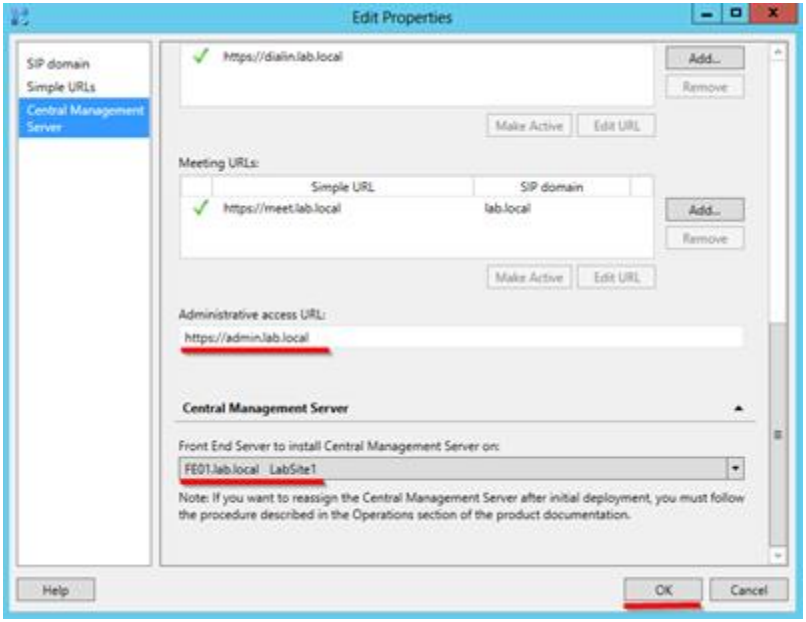


Edit properties of topology

Right click on “Lync Server 2013 (Preview) and then “Edit Properties”

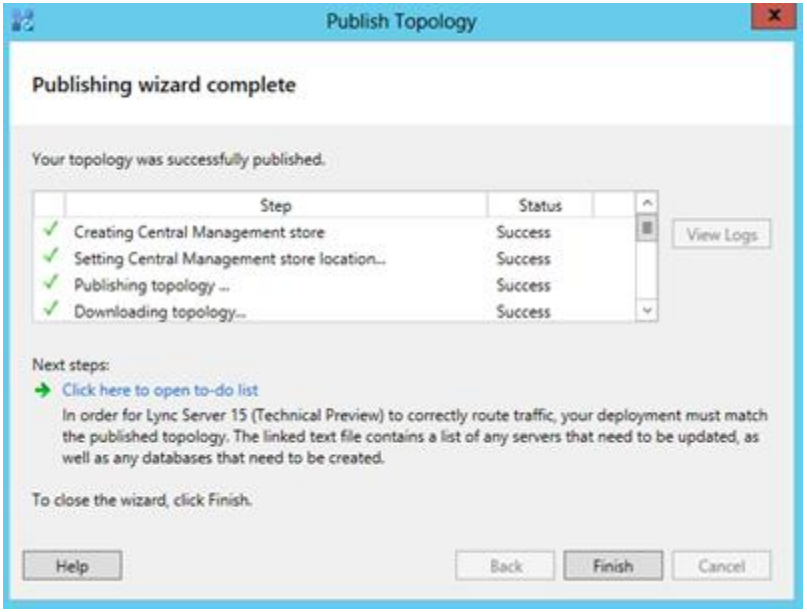


Scroll down to "Administrative access URL" (as shown below) and define the admin url as https://admin.lab.local and select Front End Server (FE01.lab.local in our lab)

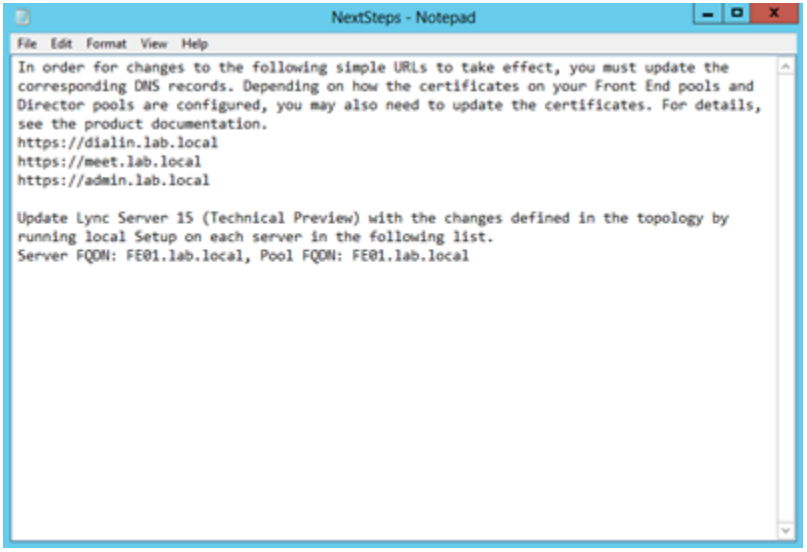


Publish Topology

Action | Publish | Next | Next

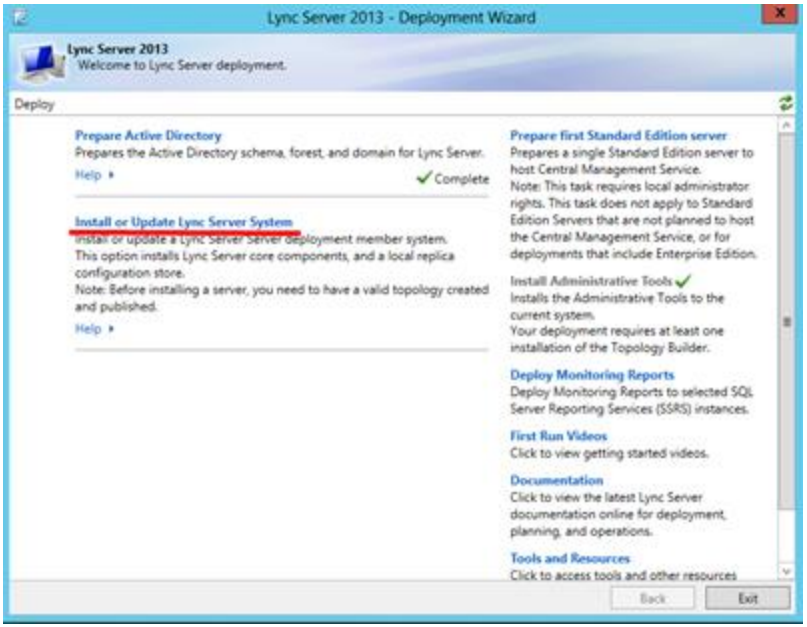


When finished you can "Click Here to open to-do list". *Since we are really good* *we've already done these items. (if you took a shortcut, backup to see detailed step above)*



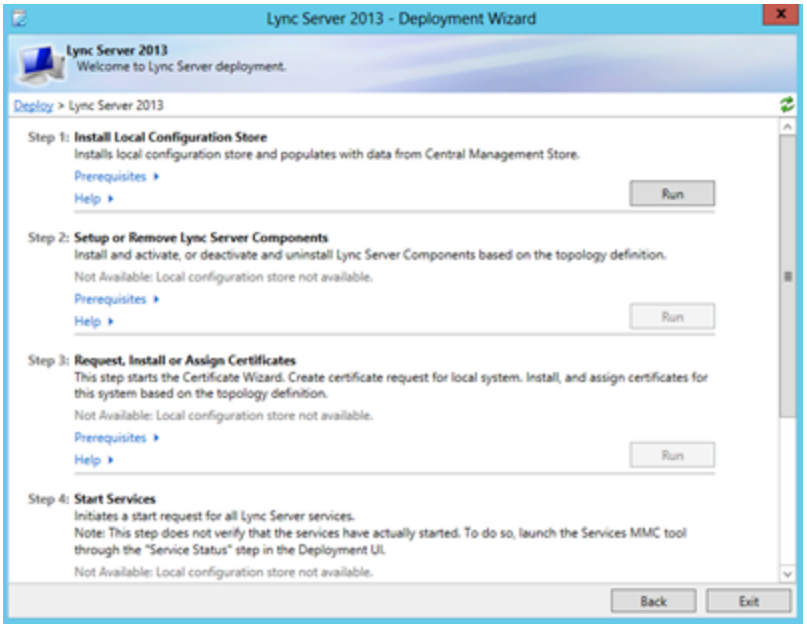
Install Lync Server System

Deployment Wizard | Install or Update Lync Server System



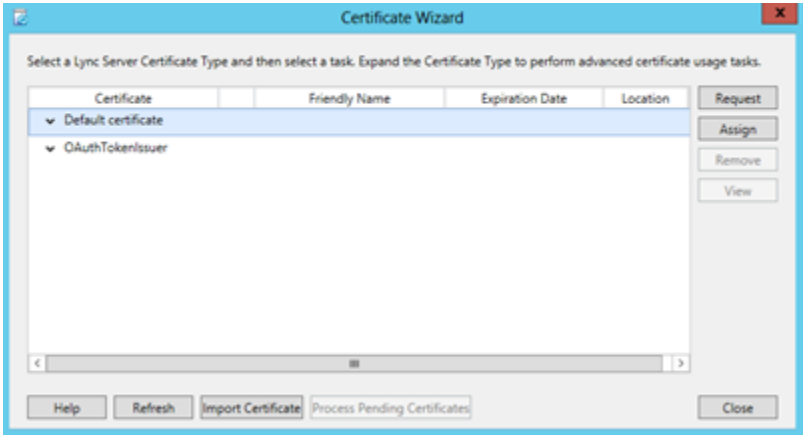
Now we will install some Lync Server System components, put Certs in place and Start Services:

1. Step1 Install RtcLocal database
2. Step2 Install Speechfiles, etc.
3. Setup Certs
4. Start Lync Services



- Step1 Install Local Configuration Store (will install RtcLocal)
  - Run
  - Retrieve Directly from the CMS…
  - Next (5 minutes on new lab system)
- Step2 Setup Lync Server components (will install Speechfiles, etc)
  - Run |
  - Next (15 minutes on new lab systems)
  - (NOTE: if you designated the archive/monitoring server, this will fail because SQL for those stores is not there yet.)
- Step3 Request Certs (Note: if this is a lab setup, and you have parallel installed AD and Lync FE OS's, remember the FE needs to be rebooted *after* you stand up the AD CA so the CA is authoritative)

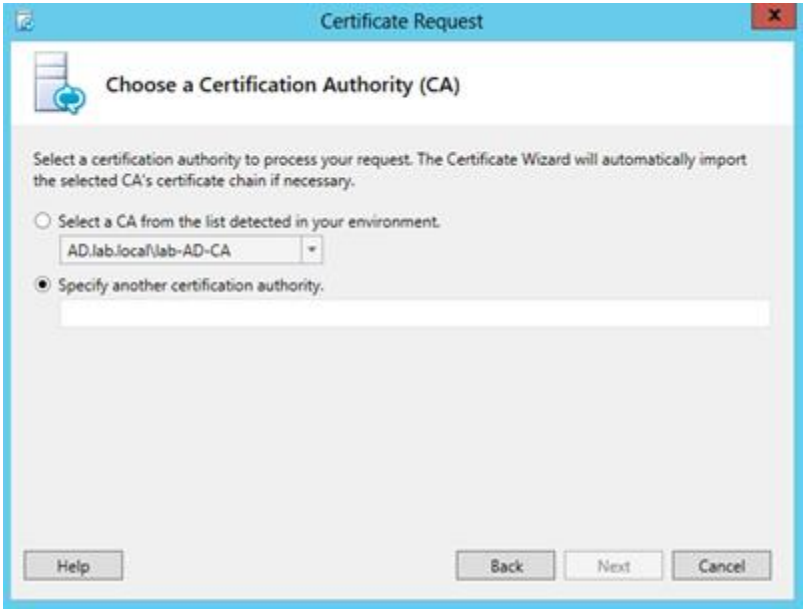
Run, select "Default Certificate" then click "Request"



Certificate Request: Next

Delayed or Immediate Request? Send the request immediately to an online cert authority

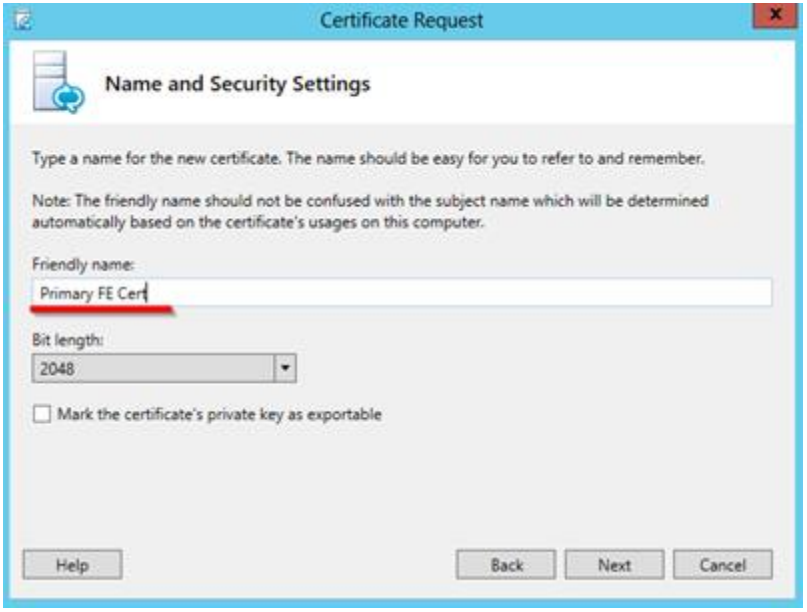
Choose a Certificate Authority (CA): Select a CA from the list



Certification Authority Account: Next

Specify Alternative Certificate Template: Next

Name and Security Settings: some name

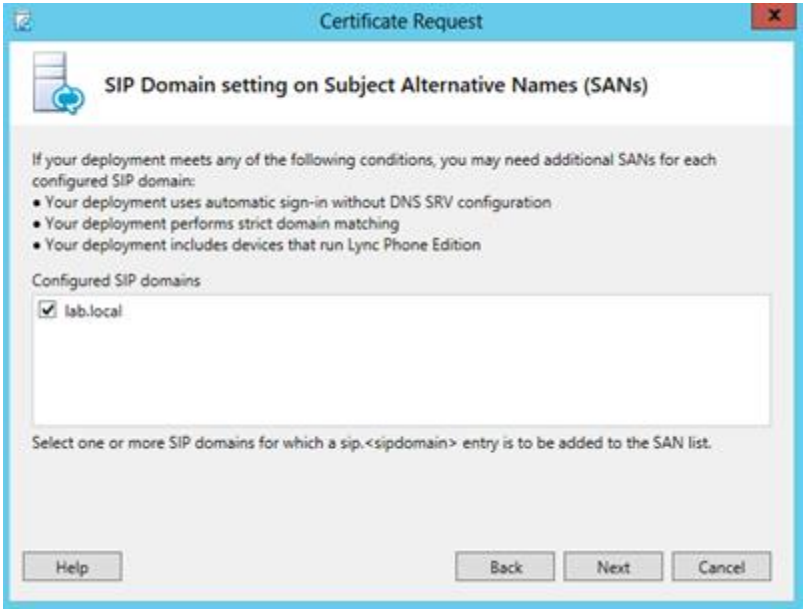


Organization Information: fill in Org and Org Unit

Geographical Information: fill in

Subject Name/Subject Alternative Names: Next

SIP Domain Setting on SAN: Select SIP Domain (example: lab.local) | Next



Configure Additional SAN: Next

Certificate Request Summary: Next

Executing Commands: Completed: Next

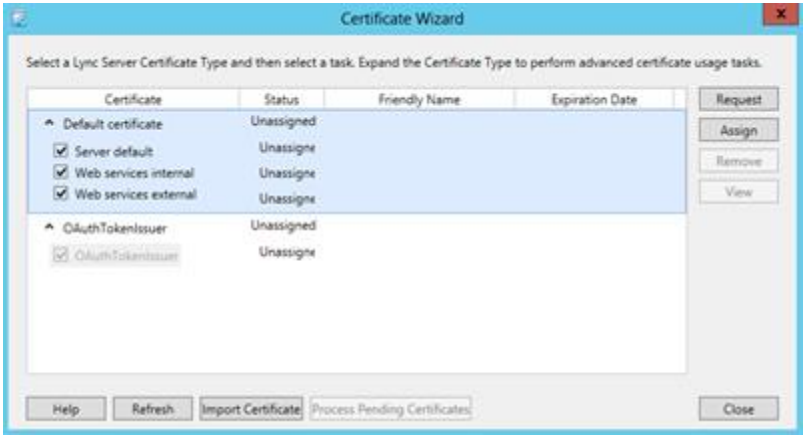
Online Certificate Request Status: Finish

Certificate Assignment: Next

Certificate Assignment Summary: Next

Executing Commands: Finish

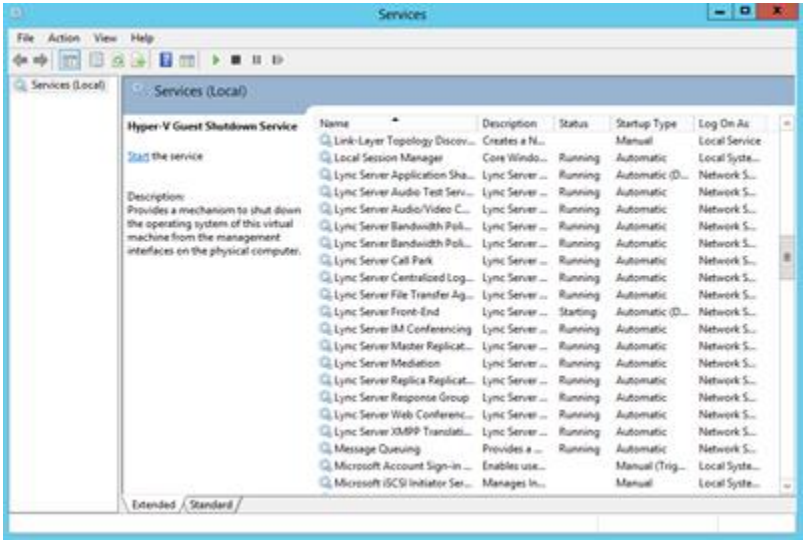
Select “Default certificate” and click Assign certs



Now repeat the Certificate Wizard steps for the OAuthTokenIsuer.

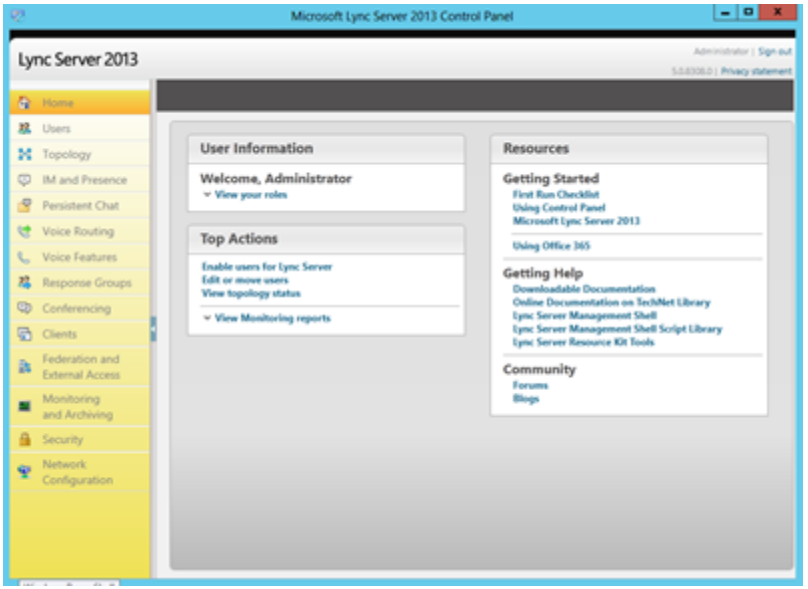
Step 4: Start Services

After services are started you can open the Services to verify all the Lync Services are running.



Goto Start | run Lync Control Panel

you will be asked to type in Administrator credentials. If this is new server you will also be asked to install Silverlight.

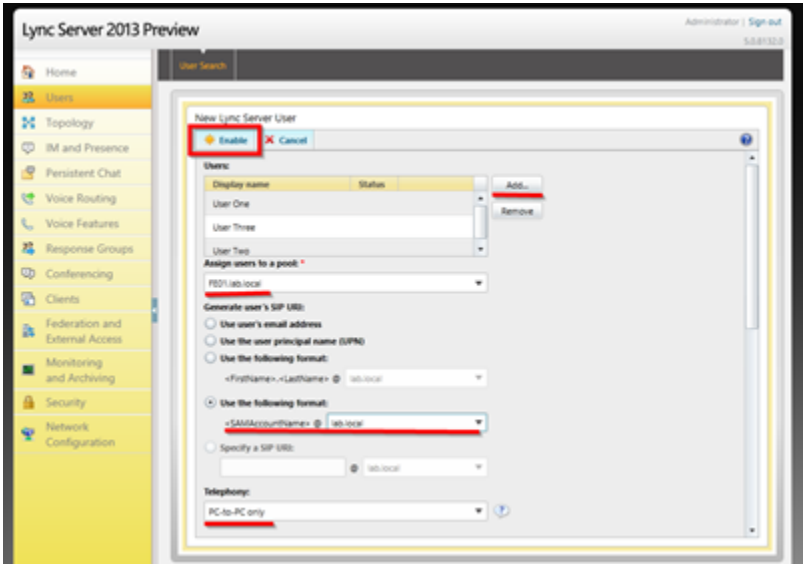


Add and Enable AD Users

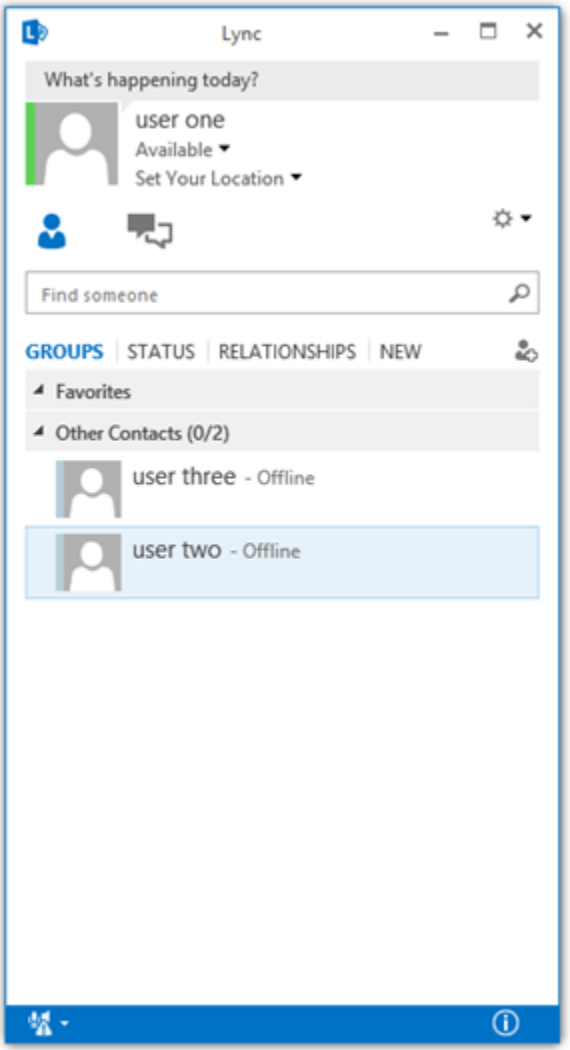
Next, we will move to our AD server and add several users to Active Directory (I suggest for your first test users to NOT use the Administrator, but 3 other users). In our case I added:

- u1@lab.local
- u2@lab.local
- u3@lab.local

Now back to Lync Server Control Panel. Click on User | Enable Users. Now click the “Add” button and Add the 3 users.



Click “Enable” and if you get no errors, you should have 3 Lync users ready to login. Let’s open Lync 2013 and login!



Wow you have installed Lync Server 2013!

Please note some pieces in Lync that you have not configured yet:

- Monitor and Archiving Roles

- Persistent Chat Server
- Sharing PowerPoint requires a Office Web Apps Server deployed

Continue your lab with more articles in this Lync Server 2013 Step by Step Series:

- Part 1 – Step by Step Installing Lync Server 2013 Standard Edition Front End
- Part 2- Step by Step Installing Lync Server 2013 SE Monitoring Server
- Part 3 – Step by Step Installing Lync Server 2013 Persistent Chat Server
- Part 4 - Step by Step Installing Your 2nd Lync Server 2013 SE Server Associated Backup Pool for Resiliency
- Part 5 – Step by Step Enabling Lync Server 2013 Enterprise Voice Features, Response Groups and Managers
- Using Lync 2013 and OneNote 2013 Integration

Special Thanks to Community Contributors to this article:

- Tommy Clarke: for point out "HTTP Activation" required for successful LWA operation
- Syed Nasir Abbas: Notes some Lync prerequisites that will be helpful
  - http://ourgalaxyorg.blogspot.com/2012/12/installingdeploying-microsoft-lync.html#!/2012/12/installingdeploying-microsoft-lync.html
- FortressITX: For pointing out that this article did not list steps to create Lync Share:
  - http://fortressitx.com/blog/microsoft-lync-topology-file-share-error-fix/

Chapter 2

Chapter 2 - Installing Lync Server 2013 Monitoring Role Collocated on Standard Edition Front End

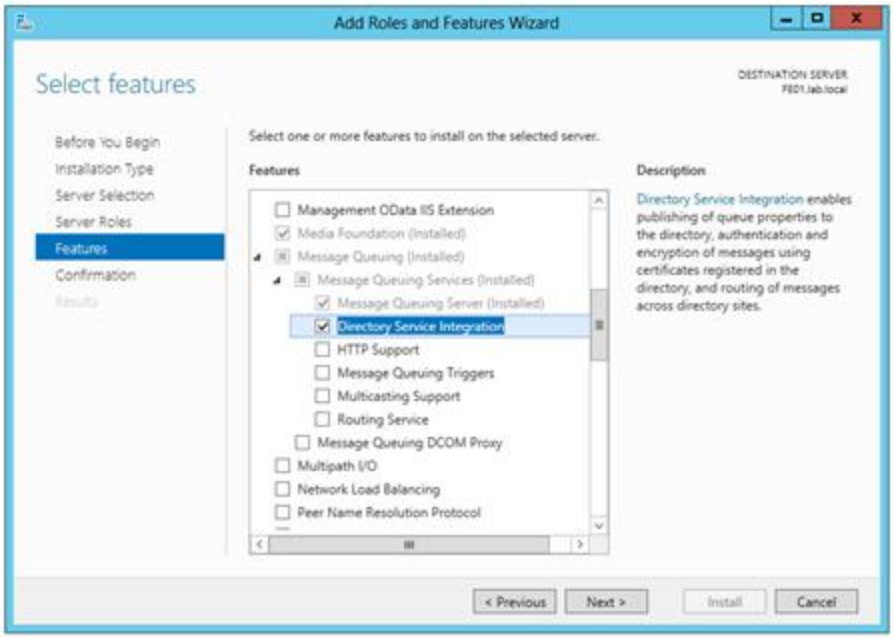
By Matt Landis __on 7/17/2012 10:45:00 AM

In Part 1 of Installing Lync Server 2013 Standard Edition we go our lab Lync 2013 server up and running. In this next step by step we will install the Monitoring role using SQL 2008. In Lync Server 2010 a Monitoring required an additional server. In Lync Server 2013 this has changed and Monitoring will be on your Front End.

This article presumes:

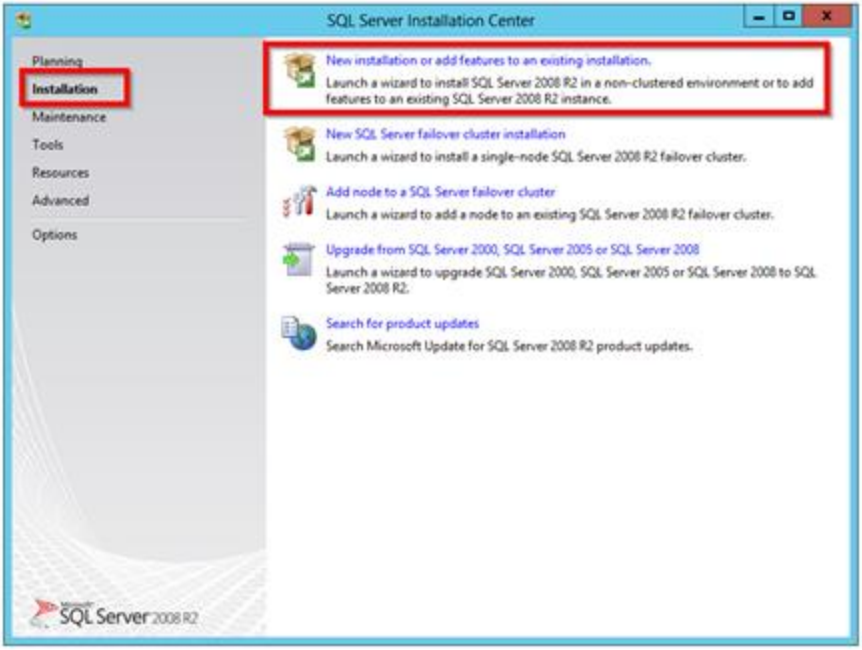
- Server is Windows Server 2012
- using SQL Server 2008
- You have Lync Server 2013 Preview installed Using This Blog

So, to get started, lets prepare our Lync Server Front End (Windows Server 2012) by installing Queuing (you will/may not need this in RTM Lync Server). Do this by opening the "Add Roles and Features Wizard"

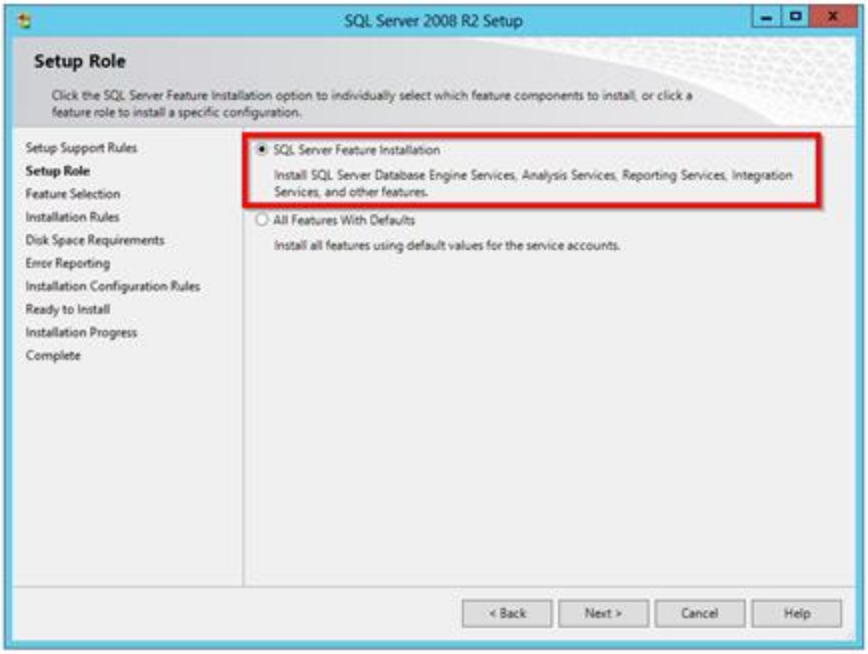


Monitoring role requires installing Full SQL 2008R2 or SQL 2012. (SQL EXPRESS will not cut it)

put SQL 2008 CD in place and run Setup.exe.

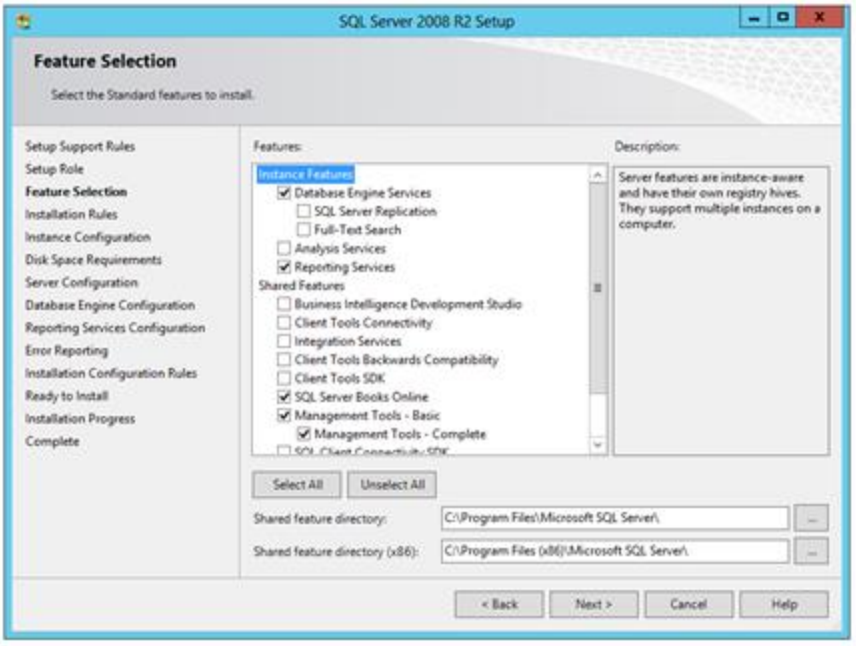


ok | next | next | next…



Feature Selection. Below are the SQL features we need:

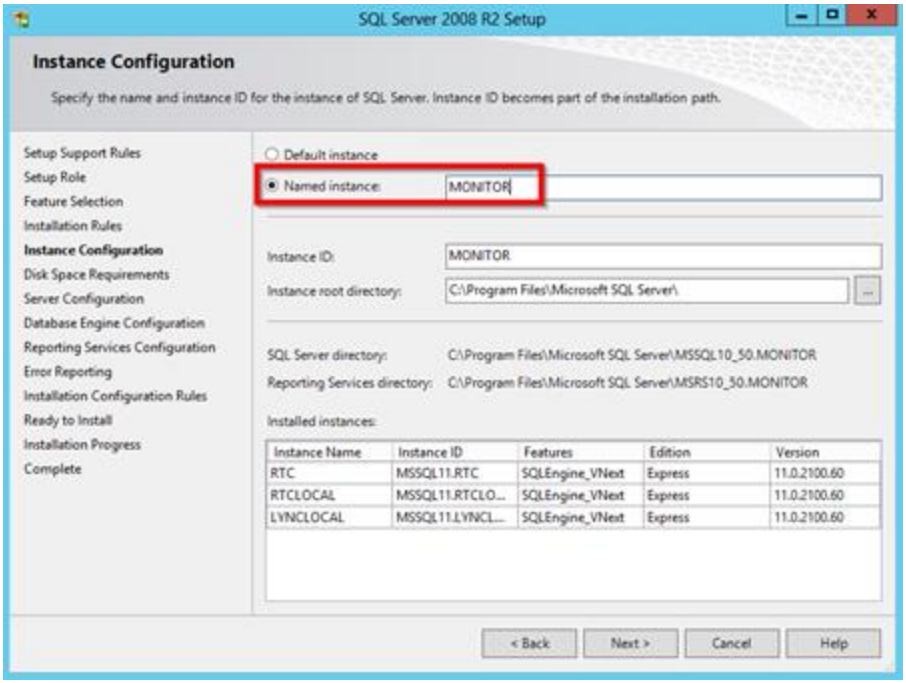
- Database Engine Services
- Reporting Services
- SQL Server Books Online
- Management Tools – Basic
- Management Tools – Complete



Instance Configuration:

Check Named Instance.

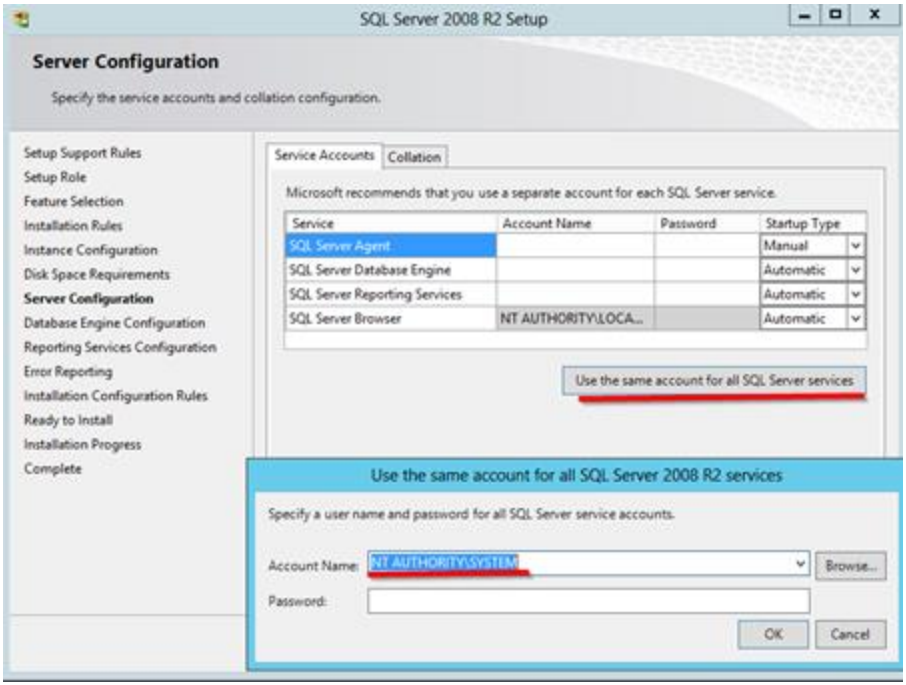
NAMED INSTANCE: MONITOR



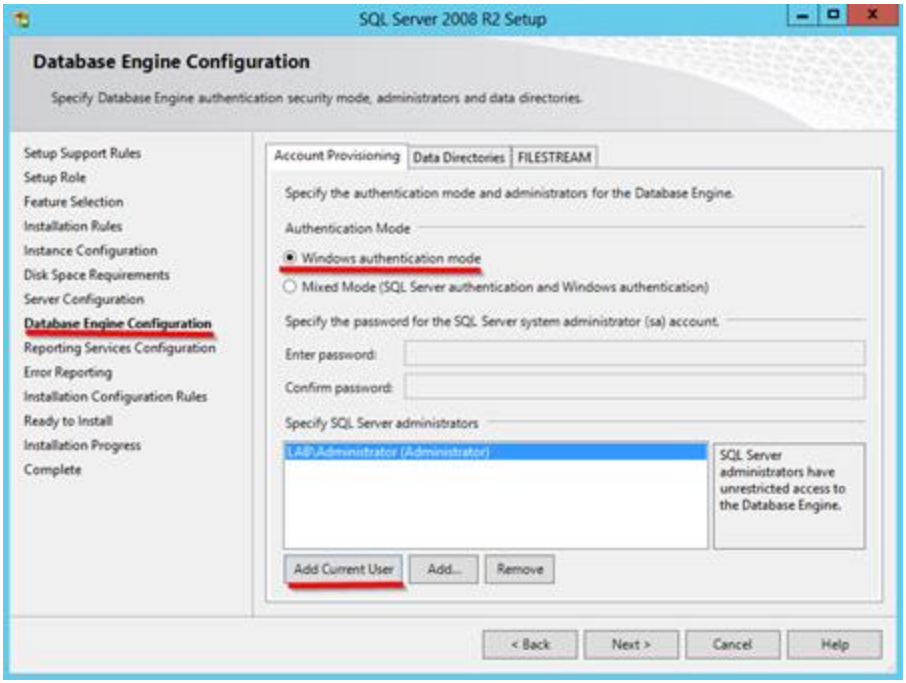
Server Configuration:

NOTE:SQL should run as system account

NOTE: No password required.



Database Engine Configuration:

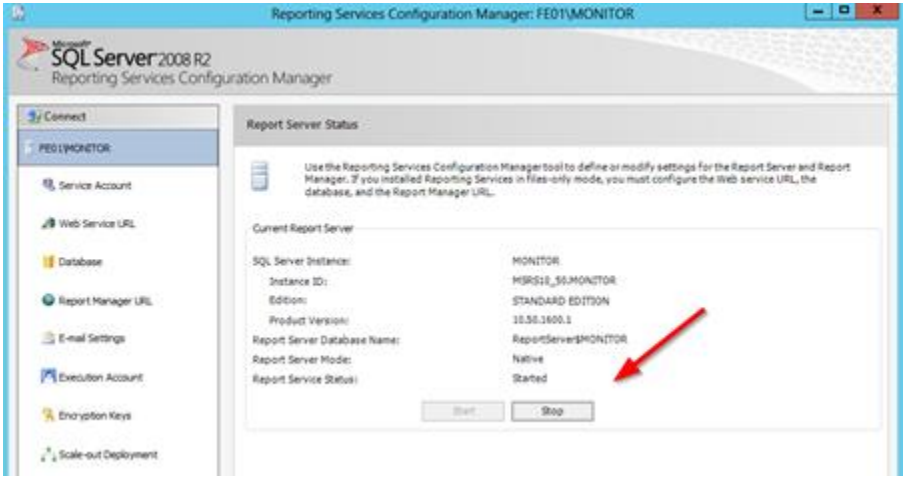


Reporting Services Configuration:

- Native Mode
- Now click Install (15minute install/wait time)

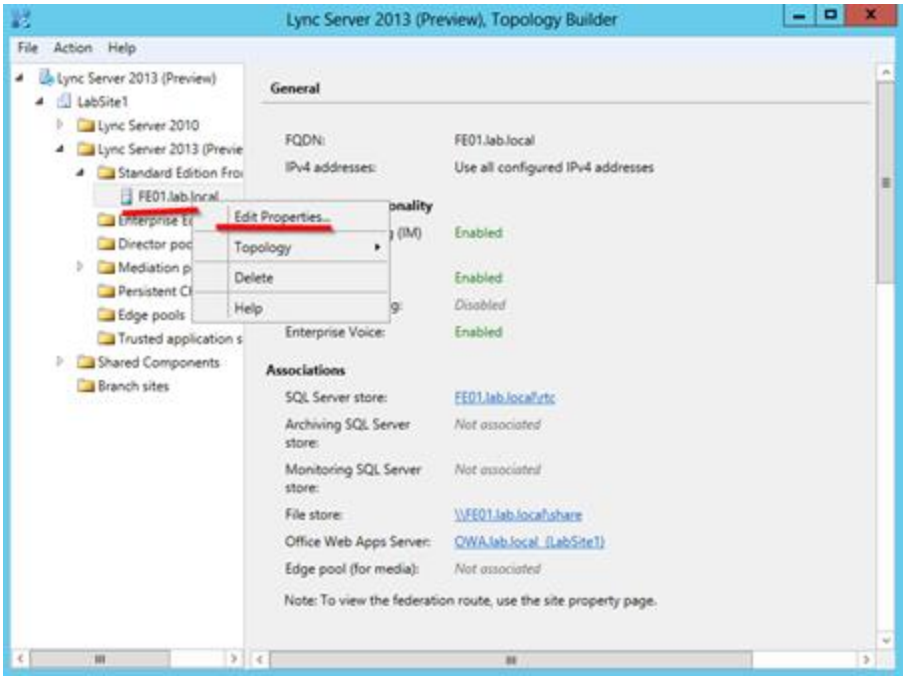
When done test SQL Reporting Services by running “Reporting Services Configuration Manager” (from Start menu)

Sure enough, it running!

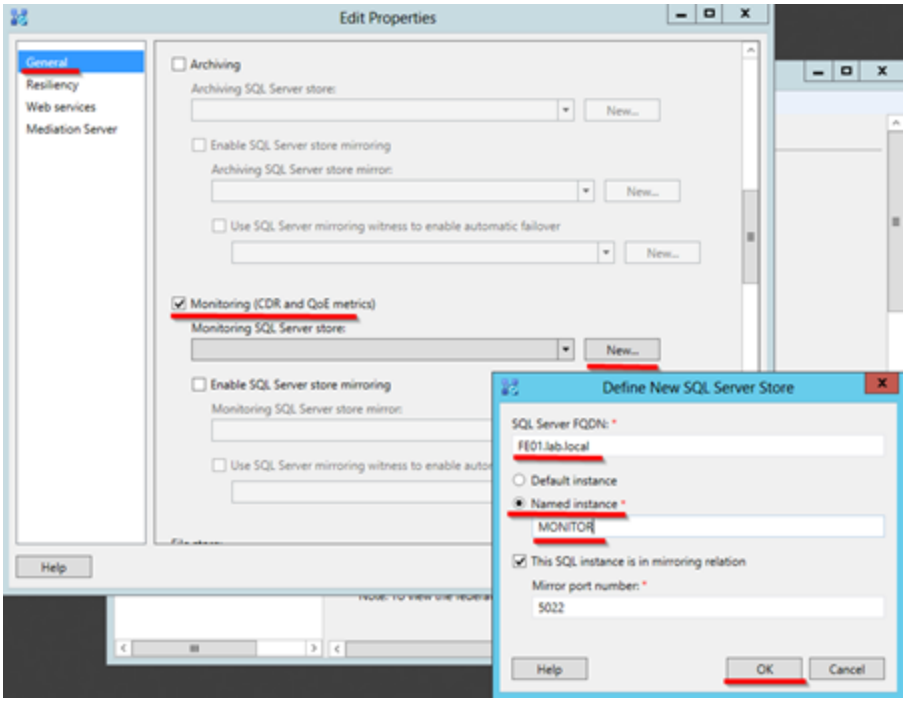


Associate a Monitoring Store with a Front End Pool and Publish Topology

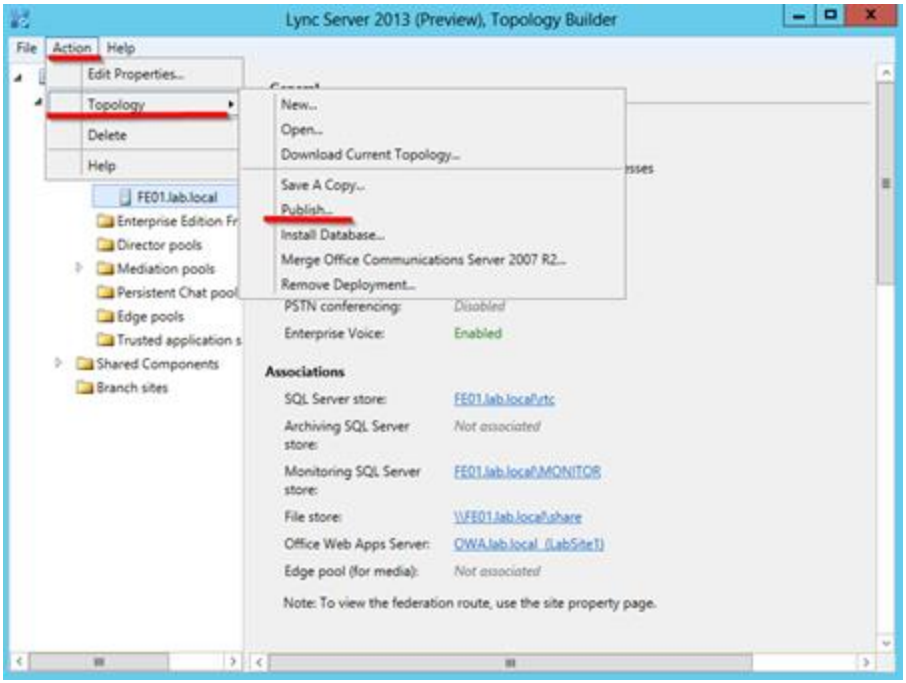
Open Lync topology builder. Drill down to your Standard Edition front (as shown below) then right click and Edit Properties.



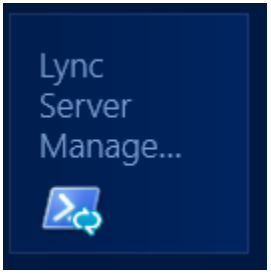
Next we want to add a Monitoring role to this topology by going to General, scrolling down to and selecting “Monitoring (CDR and QoE metrics)” and then click New. We will type input our Front End as the FQDN (as shown), select “Named Instance” and give it the name “MONITOR” (we will later install a SQL instance with this name) and click OK, Ok.



Action | Topology | Publish.



Next we will goto Start and open the Lync Server Management Shell (Powershell).

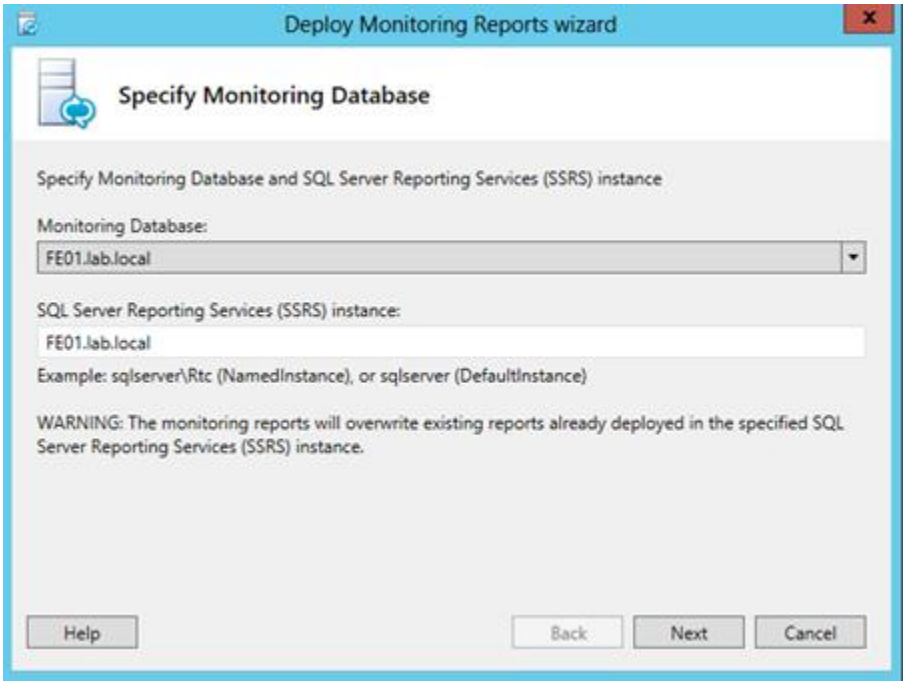


Run the below command:

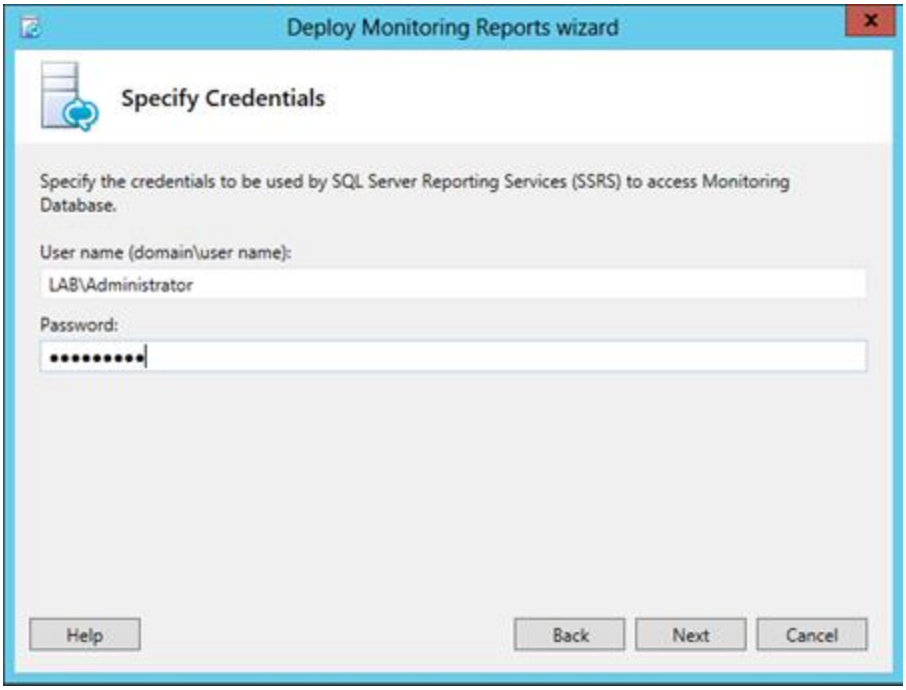
Install-CsDatabase –LocalDatabases

Deploy Monitoring Reports

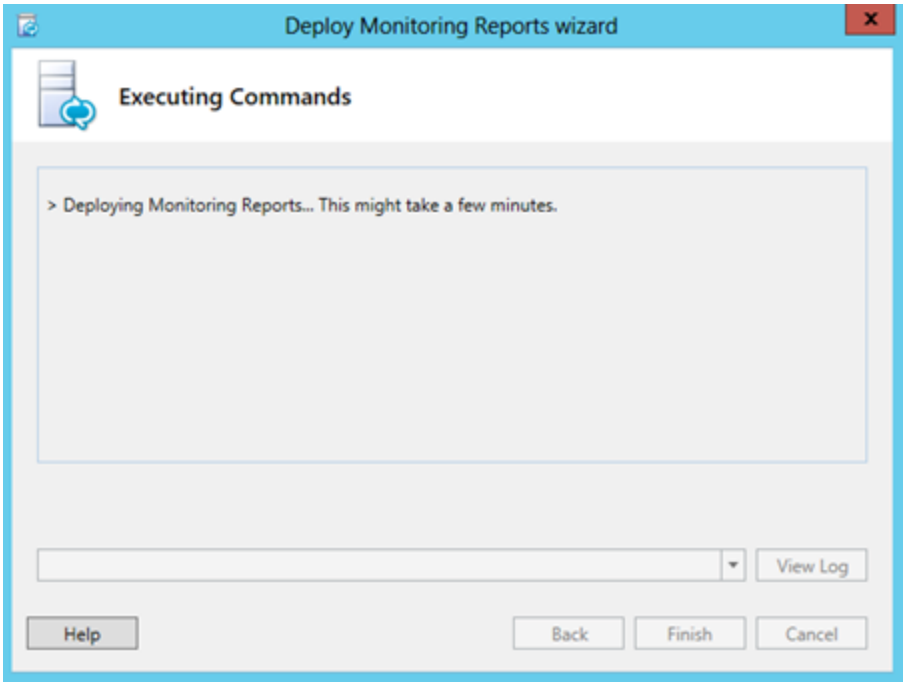
Run the Lync Deployment Wizard again and click “Deploy Monitor Reports”



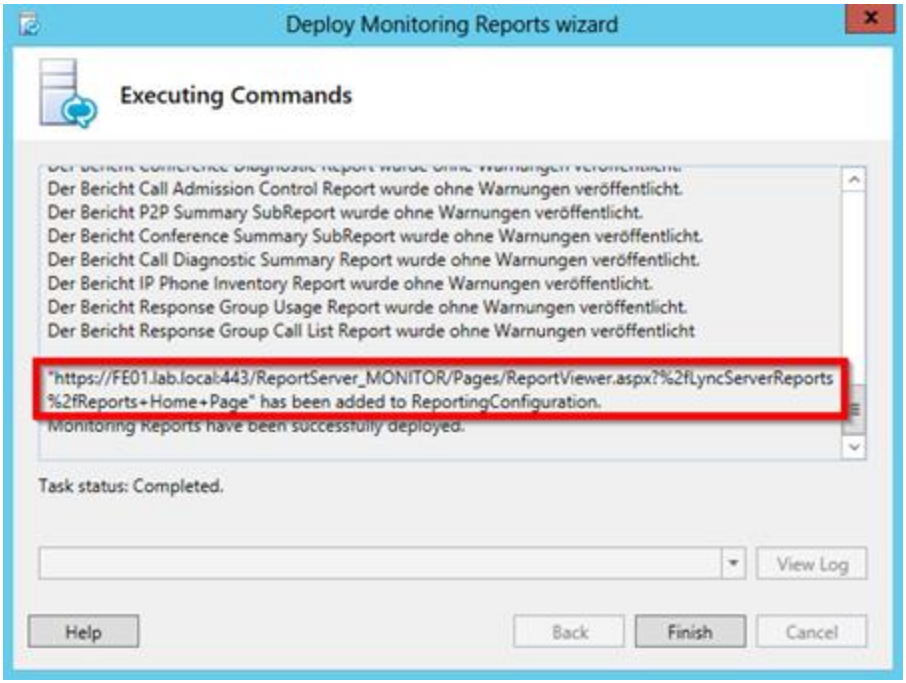
Specify credentials to access monitor SQL database. (for this lab I used domain Administrator)



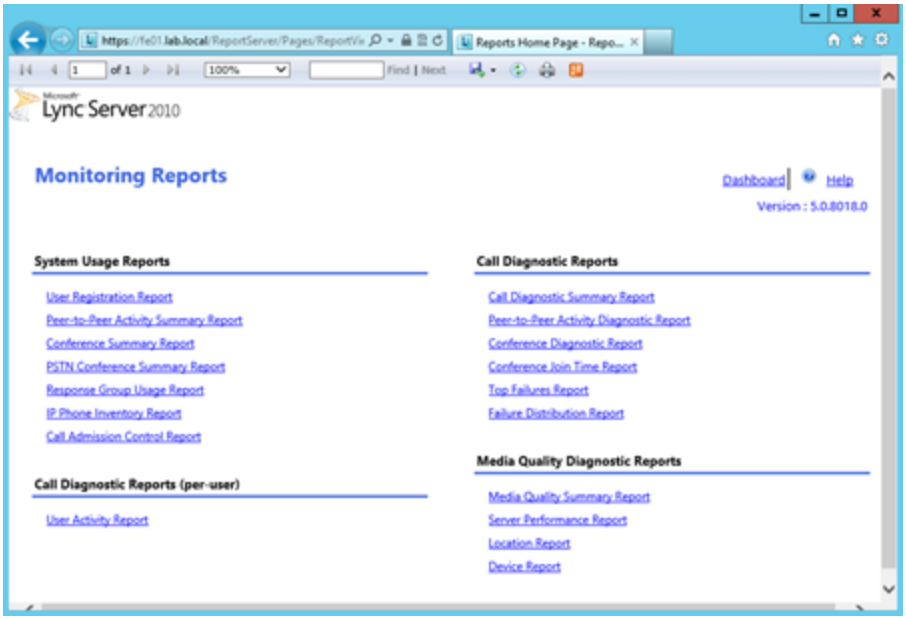
Now reports are being deployed…



Once the reports are deployed you will be presented with URL for reports. You can copy and paste this into Internet Explorer. (grin)



When you click on the reports URL you be presented with:



You have successfully installed Lync Monitoring role!

Note: After rebooting this server, SQL Server Reporting Services (MONITOR) did not seem to auto start and need to go into the SRS Config and start it.

Chapter 3

Chapter 3 - Installing Lync Server 2013 Persistent Chat Collocated on Standard Edition Front End

By Matt Landis __on 7/19/2012 08:41:00 PM

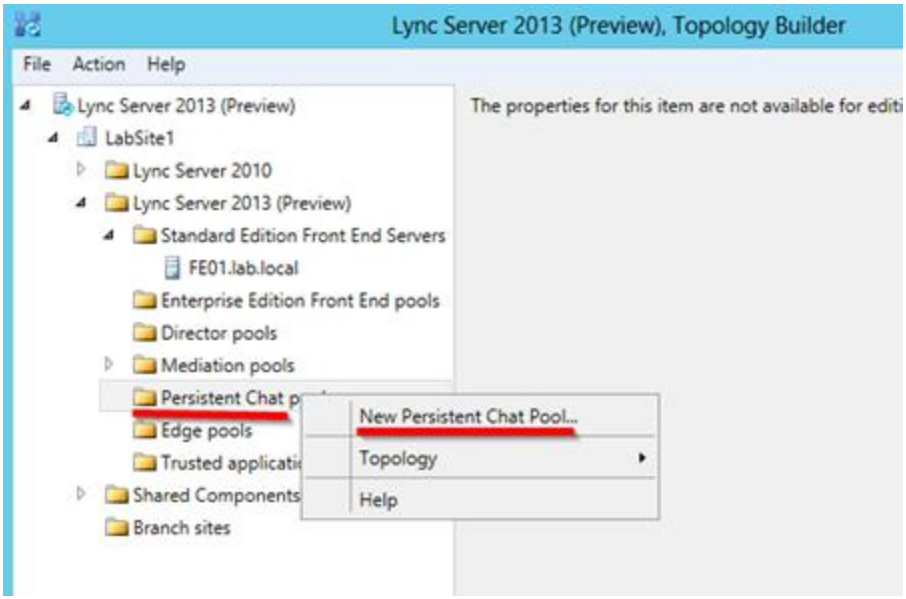
We are on a journey installing the various Lync Server 2013 roles. Today we will install the Persistent Chat role collocated on our Lync Server 2013 Standard Edition Front End! I would like to give Elan Shudnow credit as I read over his excellent Persistent Chat with Enterprise Pool articles before launching on installing this collocated edition.

- Part 1 – Install Lync Server 2013 Standard Edition Front End
- Part 2- Monitoring Server
- Part 3 – Persistent Chat Server

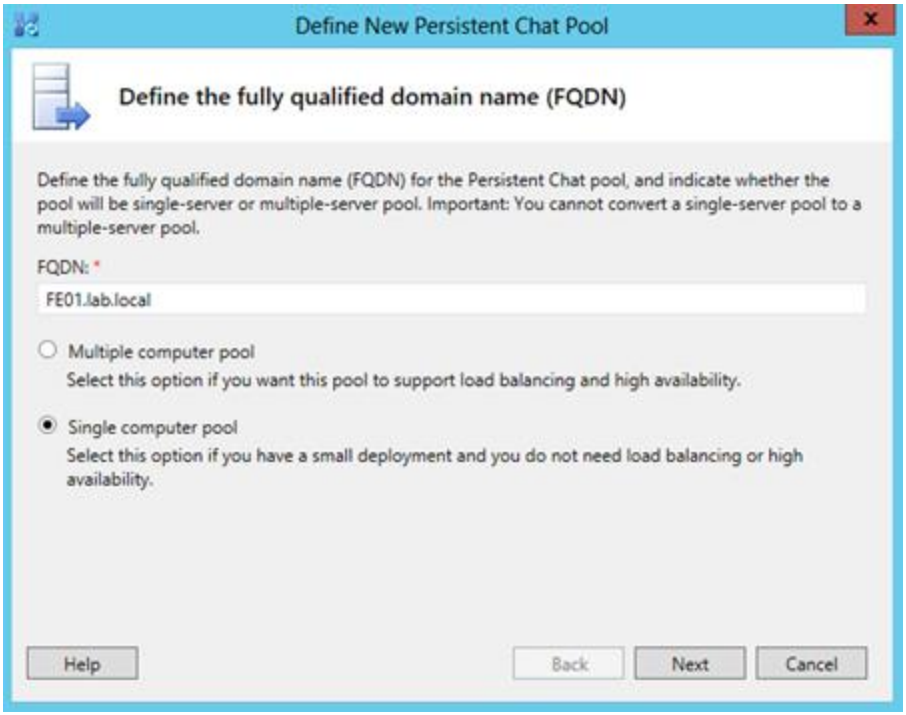
Prerequisites:

- Presumes a Lync Server 2013 Std. FE called FE01.lab.local (see)
- Since we are installing Chat on an existing Std. Front End, most things are taken care of already
- Install full SQL (SQL 2008 R2 or SQL 2012) as a new instance called CHAT. You can follow the instructions here.

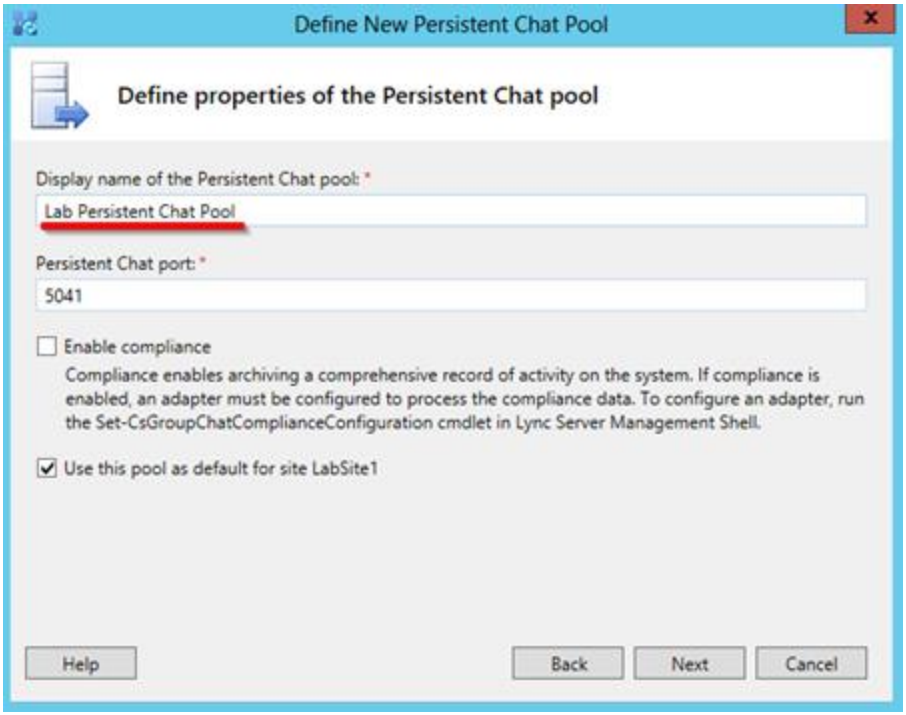
Next we will define a Persistent Chat pool in our topology. Let's Open Topology Builder



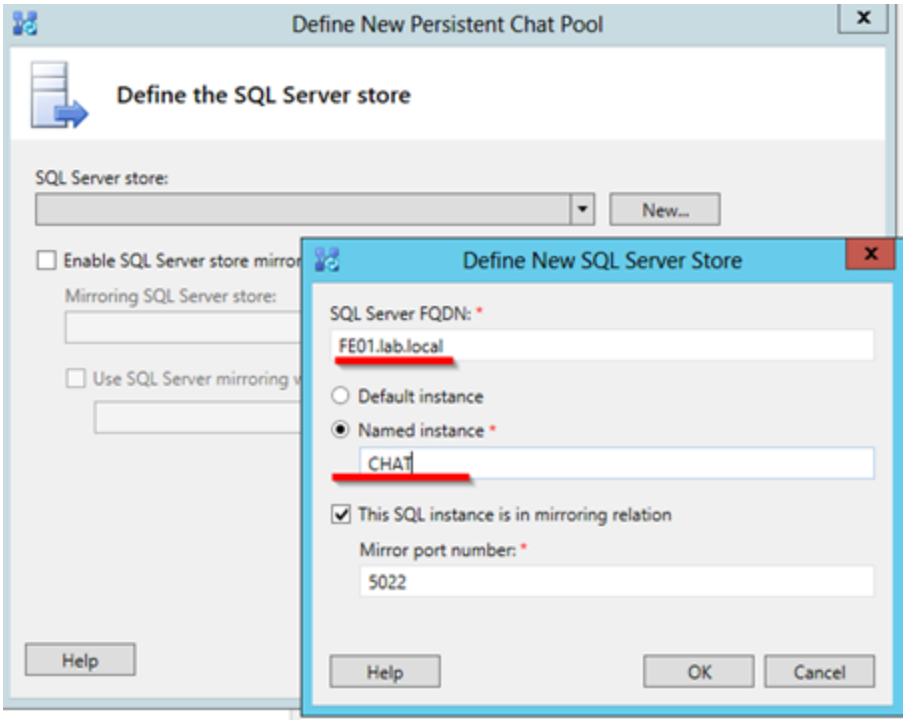
Define the new Chat Pool. Use the FQDN of our trusty Front End: FE01.lab.local and check Single computer pool.



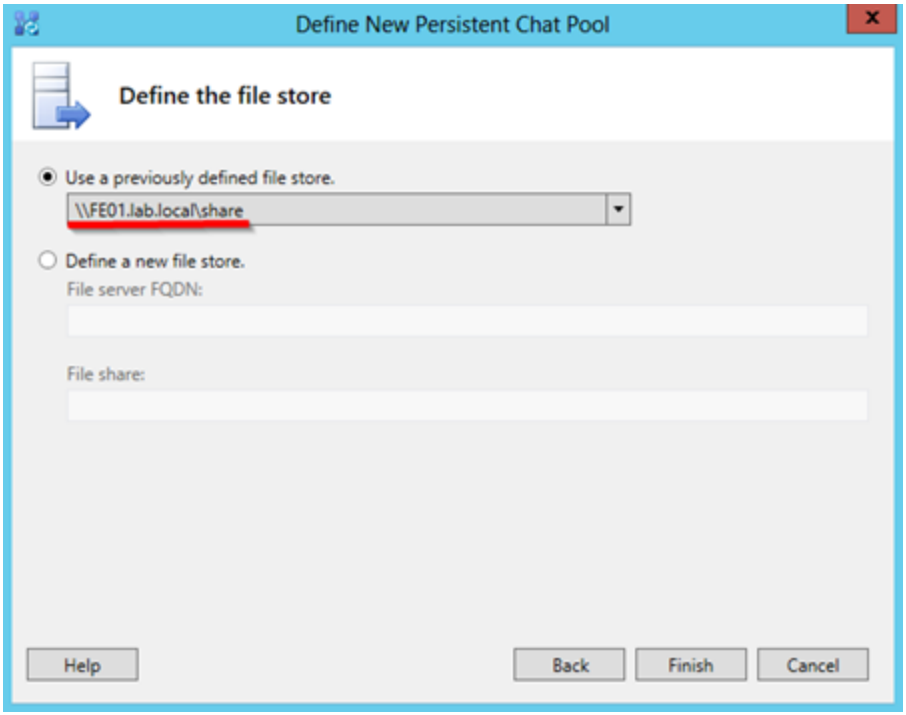
Next. Now give this Chat pool a name. (just anything is fine)



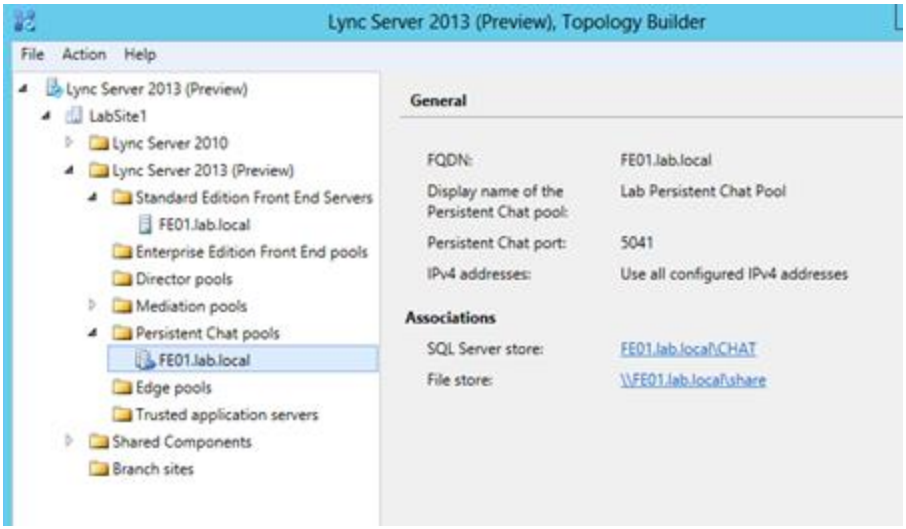
Next. Click new to define a new SQL Server Store. We will use the SQL instance we installed for our chat role, so SQL Server FQDN = FE01.lab.local and Named Instance = CHAT



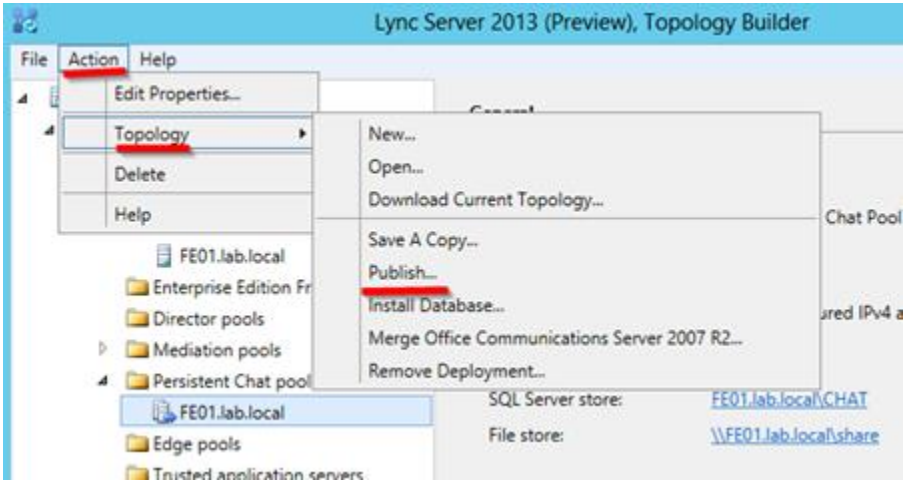
Our next item is defining the file store. Since this is a lab we will just use the existing Front End share we already setup for the FE which is \\FE01.lab.local\share. Click Finish.



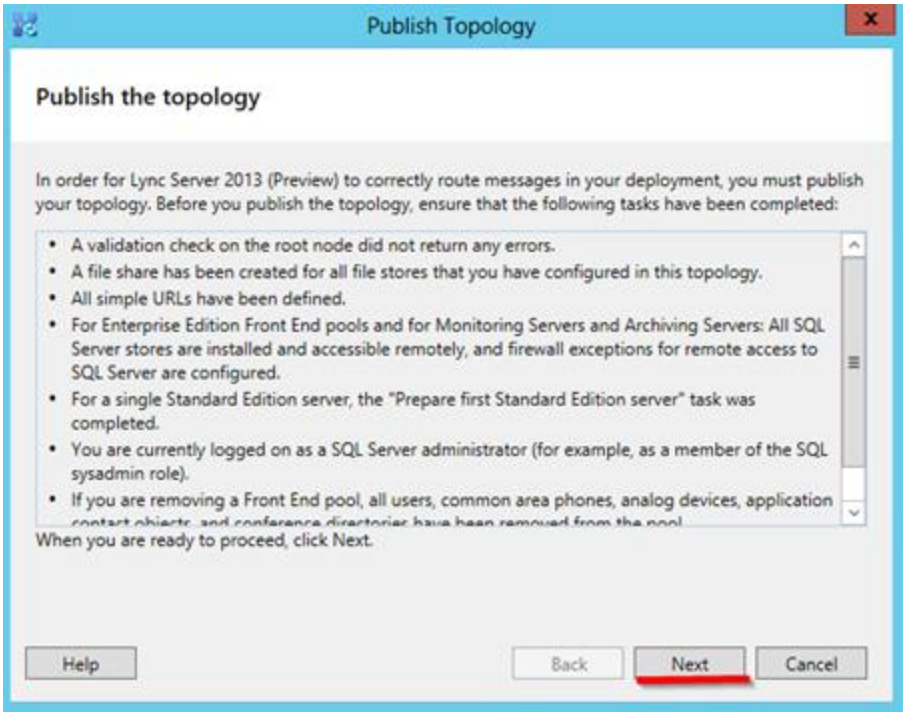
We are done with the topology and you are given a chance to review it—everything looks great!



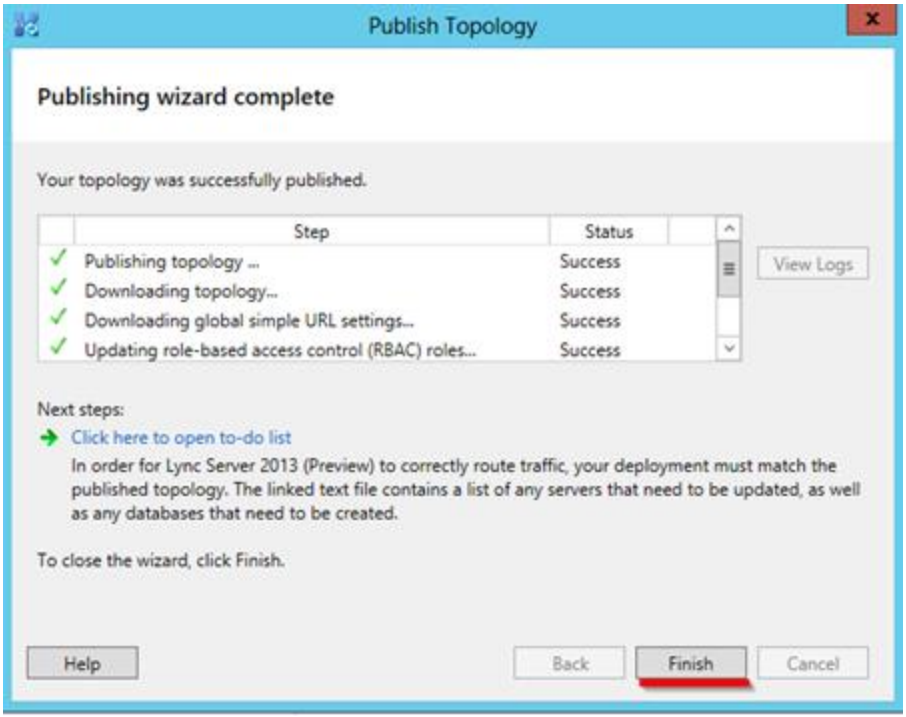
Let's publish our topology by going Action | Topology | Publish…



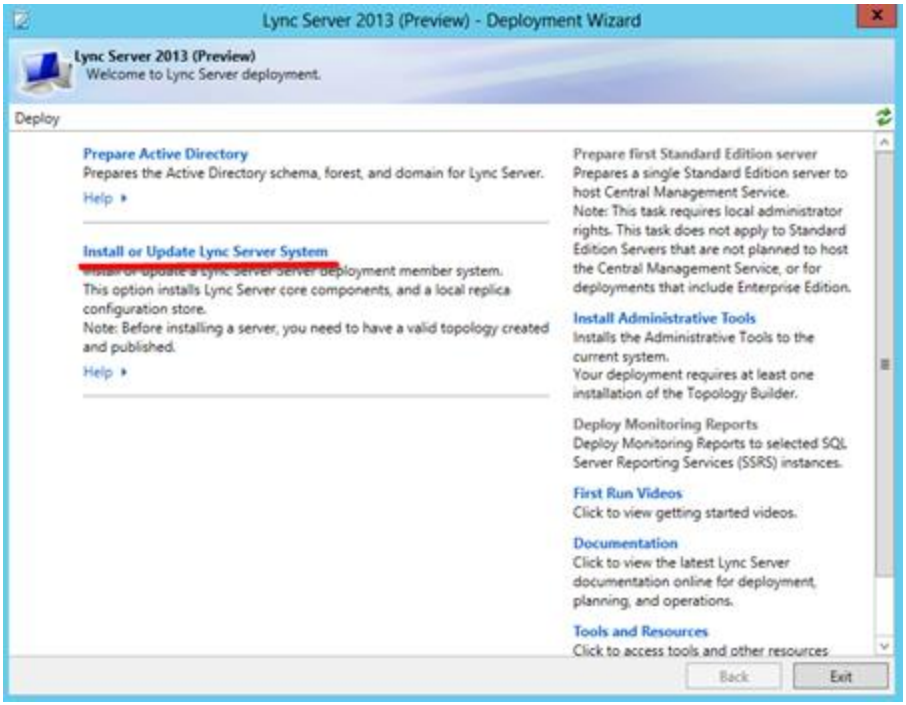
Click Next.



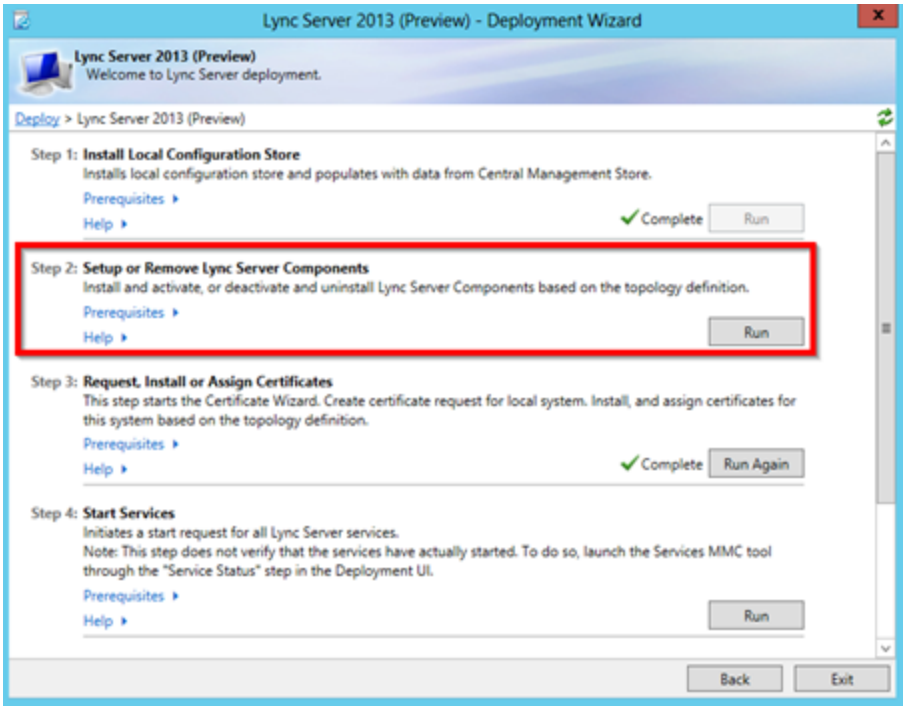
Watch the publish Wizard complete. when done click Finish.



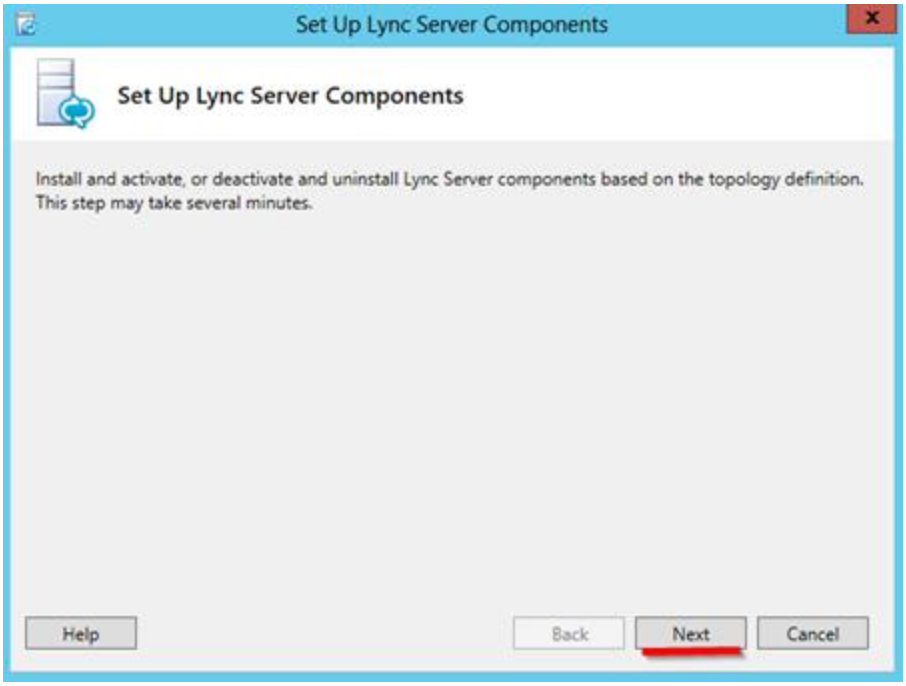
The next thing we will do is open the Lync Deployment Wizard and Update the Lync Server System by clicking Install or Upgrade Lync Server System. (this will install the chat services and install the SQL database)



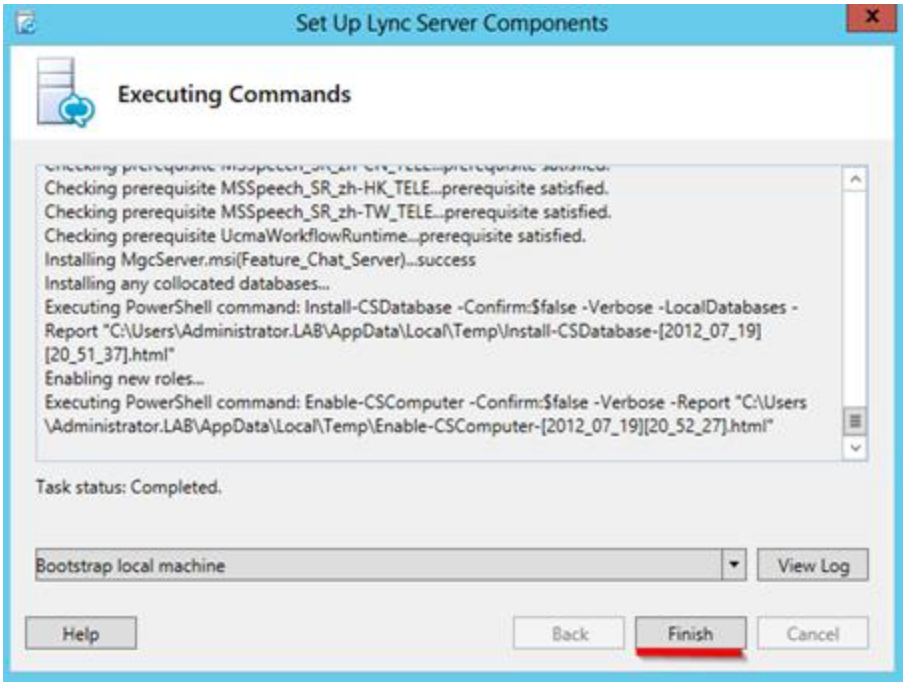
Click the Run button with Step 2.



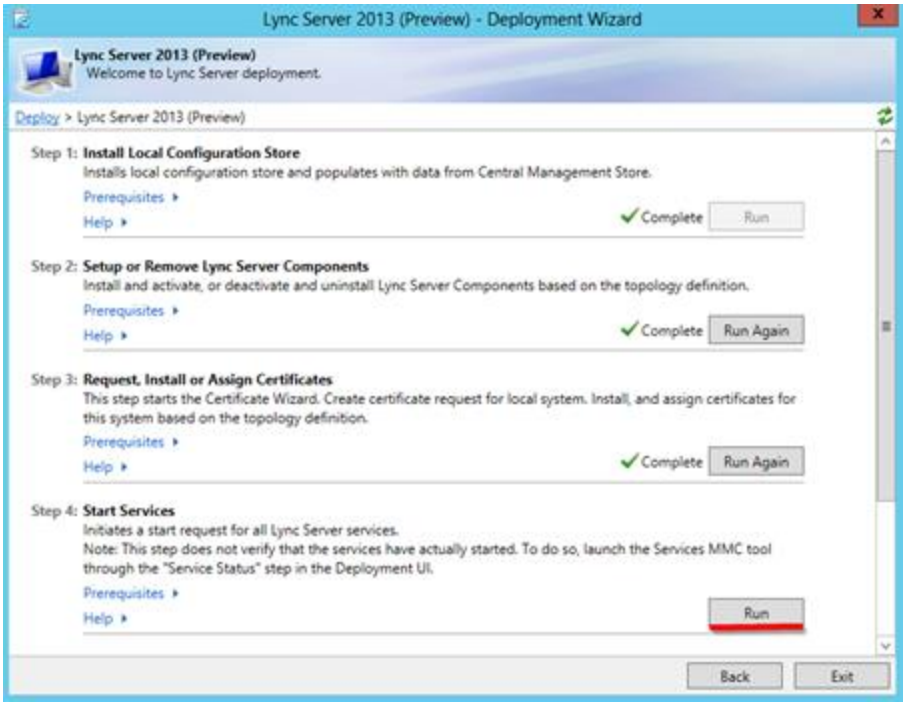
Click Next.



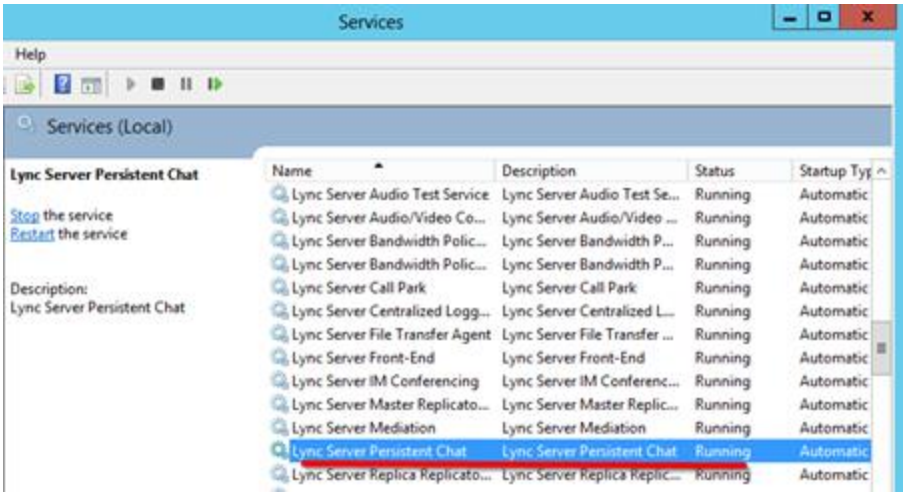
Watch as install happens and click Finish when done.



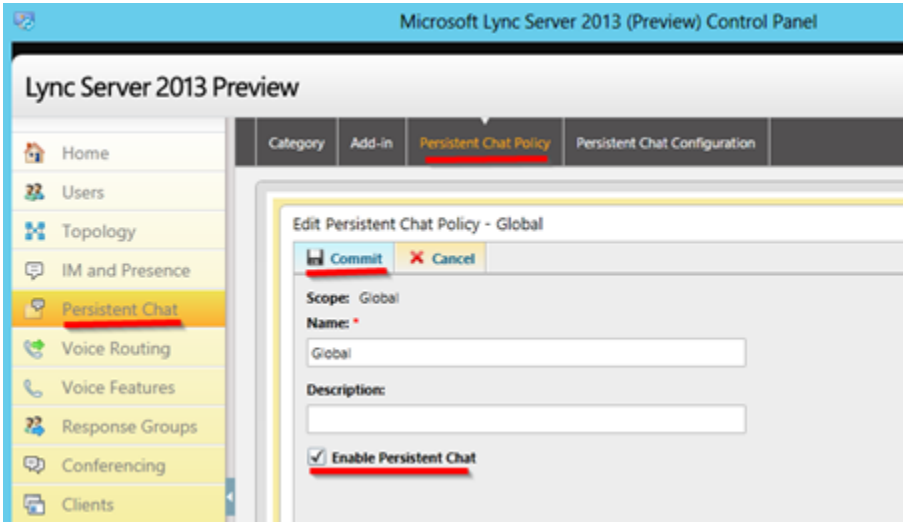
Now we are ready to start our newly installed Chat services. Click Run.



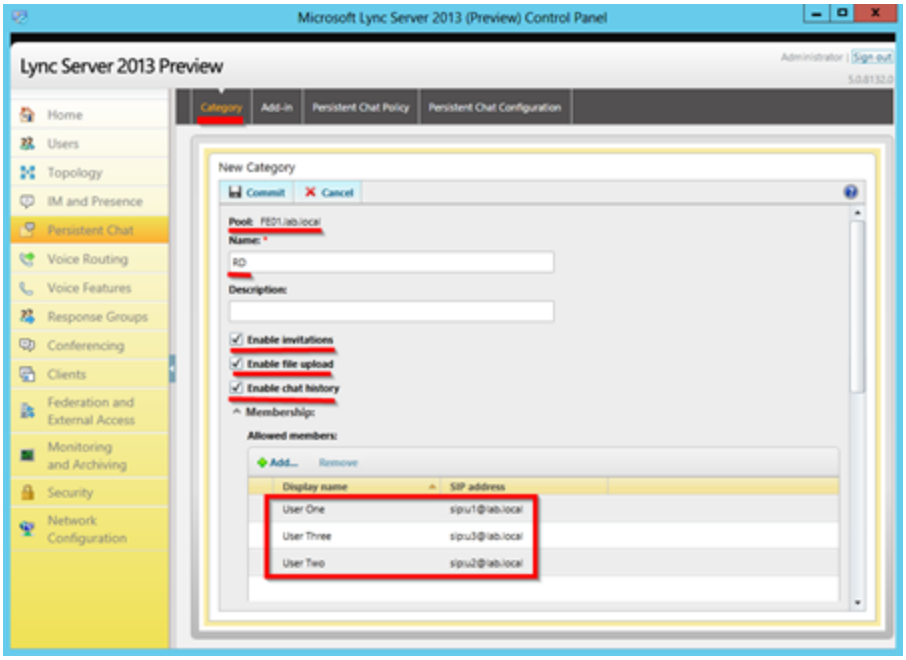
We can checkup that Lync Server Persistent Chat is successfully running…sure enough, great!



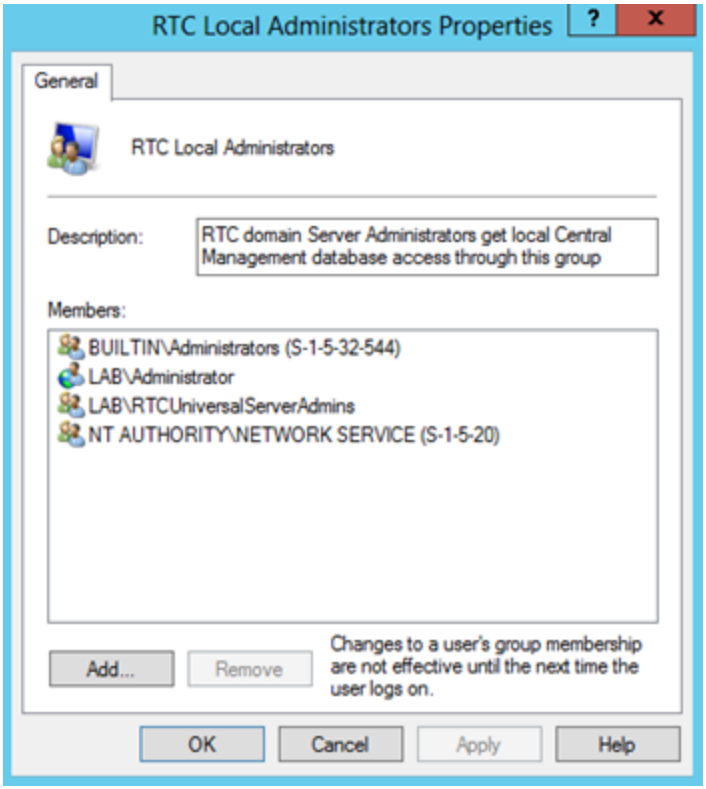
Next we need to login to the Lync Server Control Panel to configure our shiny new Persistent Chat server. Click on Persistent Chat | Persistent Chat Policy and check Enable Persistent Chat and click Commit.



Next we will add a Category. Click Category and New.



Next we need to add our Administrator user (user we are using to run Lync Powershell further down) to the "RTC Local Administrators" group. This is a local group on the Lync Front End Server, so to do this Open the "Computer Management" and open "Local Users and Groups".

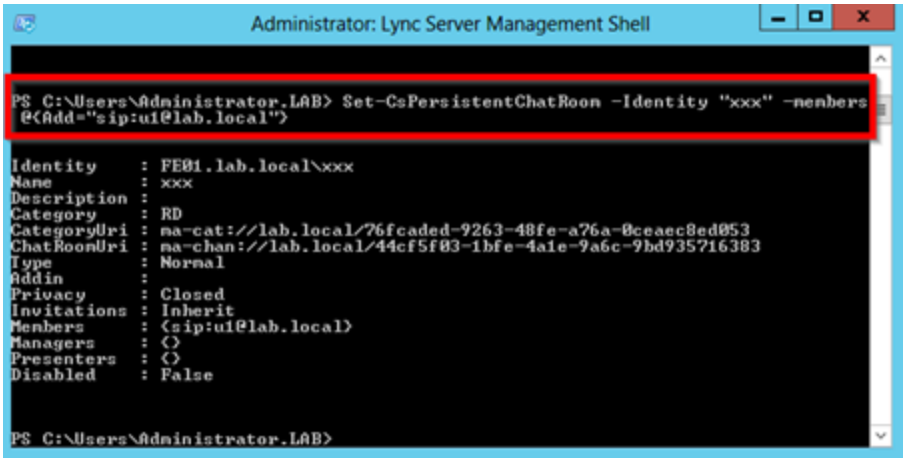


After this, log out and back into Windows get the new rights.

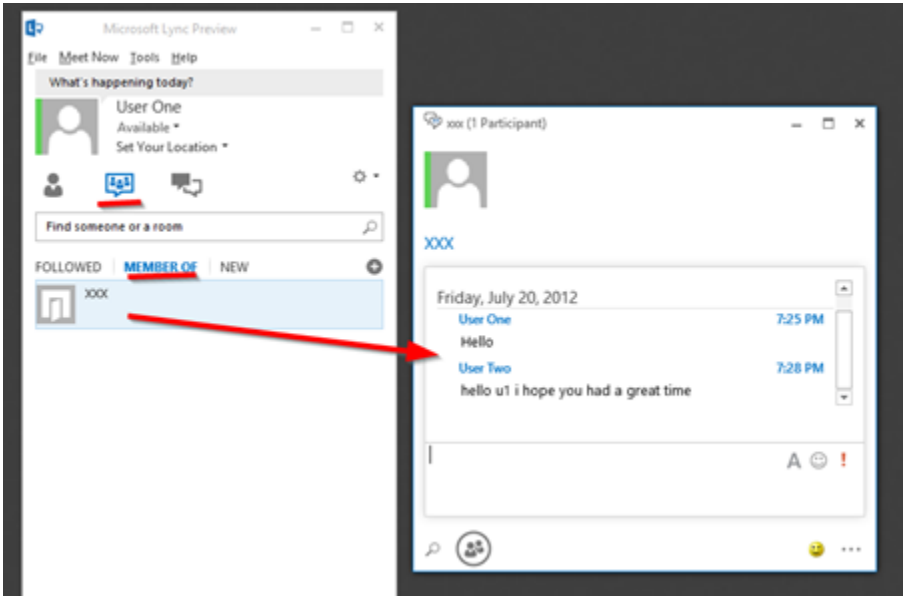
Next we will add a new chat room. Let's drop into Lync Powershell and run

New-CsPersistentChatRoom -Name "XXX" -Category "FE01.lab.local\rd

Next we will add a user to this new Chat room by running the below Powershell:



After this we can login to our Lync client and use the Chat!



Continue your lab with more articles in this Lync Server 2013 Step by Step Series:

Chapter 4

Chapter 4 - Adding Your Second Lync Standard Edition Server 2013 & Creating an Associated Backup Pool for Resiliency

By Matt Landis __on 8/06/2012 10:23:00 AM

We are on a journey installing various Lync Server 2013 roles. In today's step by step, we will setup our 2nd Lync Server Standard Edition pool and then set it up as a Backup Registrar so automatic failover can happen. We will also look at Lync Server 2013's new failover capabilities that allow full client capability to be restored in the event of a disaster. To use this blog the only other lab you need to have done is Part 1.

Previous Articles in this Series:

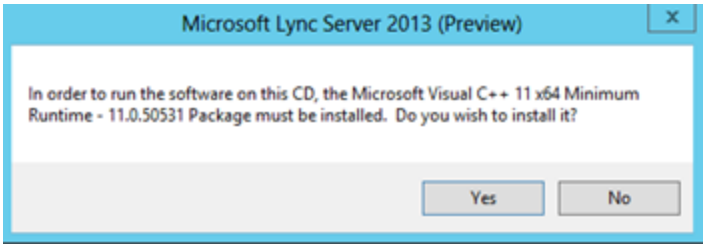
- Part 1 – Step by Step Installing Lync Server 2013 Standard Edition Front End
- Part 2- Step by Step Installing Lync Server 2013 SE Monitoring Server
- Part 3 – Step by Step Installing Lync Server 2013 Persistent Chat Server
- Part 4 - Step by Step Installing Your 2nd Lync Server 2013 SE Server Associated Backup Pool for Resiliency

Prepare the 2nd Front End Server: Prerequisites

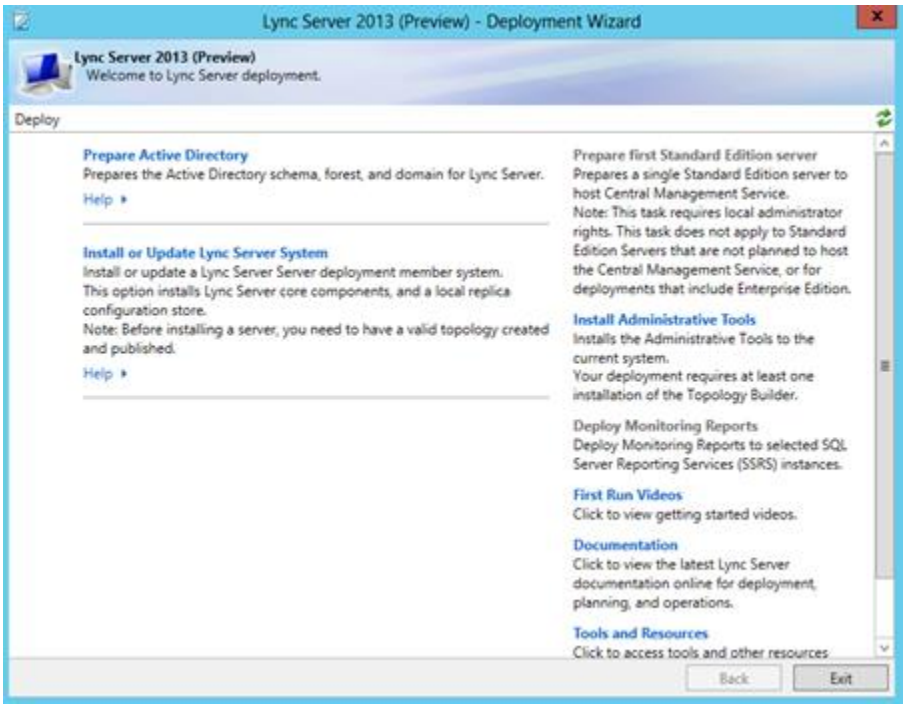
See Lync Server 2013 prerequisites here. Installing your 2nd Lync Pool is much like installing the first. We will go over the steps below briefly, with special notes. But for detailed notes on installing an FE server, just refer to the Part1 blog in this series.

Install Lync Server 2013

Insert Lync Server 2013 CD, and when you see popup below, click Yes



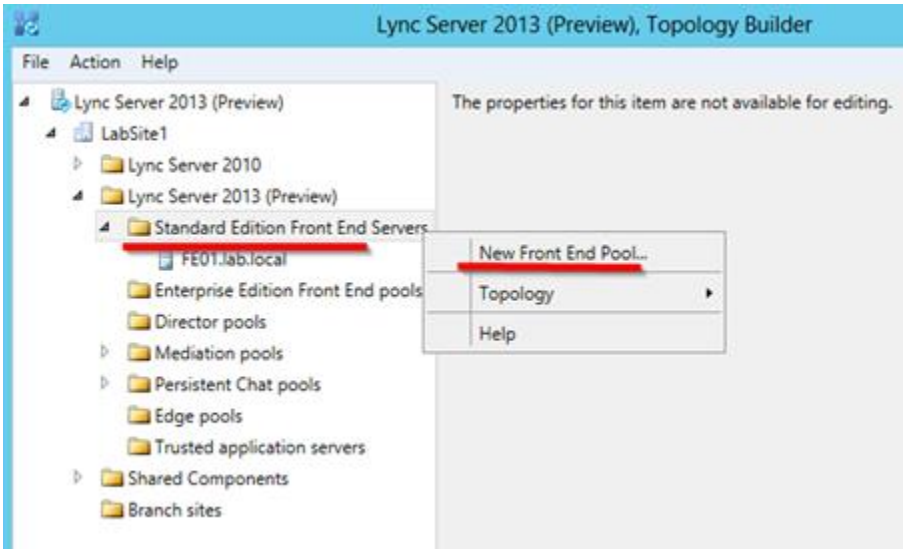
Once the Deployment Wizard appears we are done here for now.



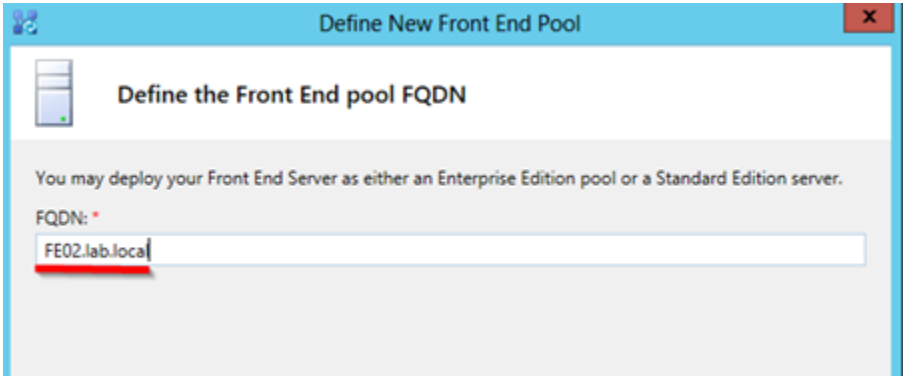
Open Topology Builder to Add Your 2nd Front End Server/Pool

Right Click on “Standard Edition Front End Servers” | New Front End Pool

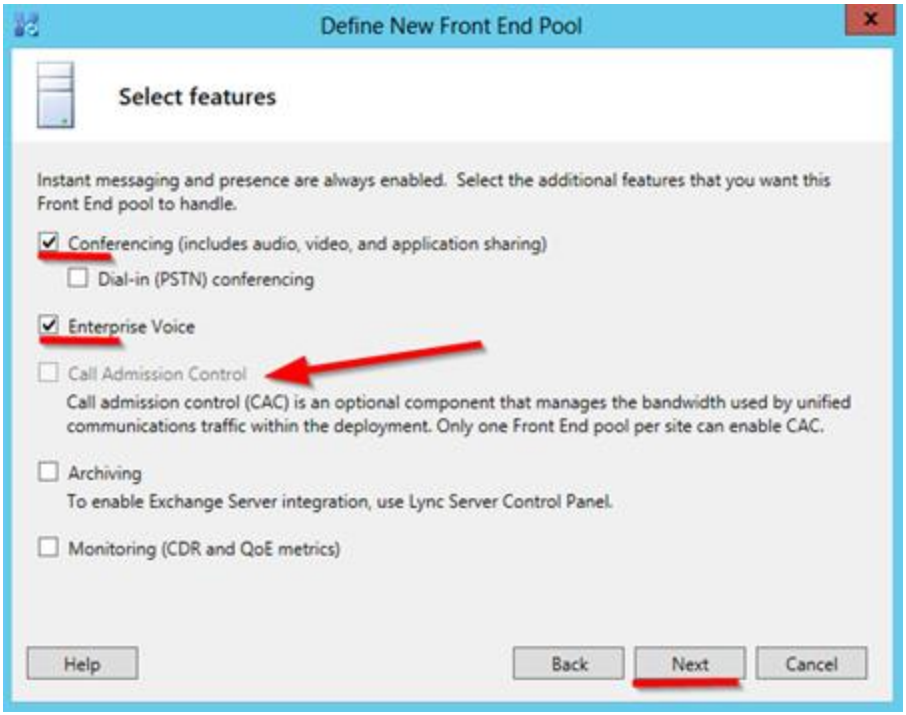
NOTE: While the topology builder and this blog refer to a Standard Edition Front End *Pool*, just be aware that a Standard Edition Front End *Pool* really is just one Front End Server, because there only can be one server in a Standard Edition Pool.



Next | Enter our Backup Front End FQDN (FE02.lab.local) | Next



Check Conferencing, Enterprise Voice. (Note: you will not be able to check CAC because only 1 per Site)



Now instead of screenshots for each screen, we'll just note what we want to check.

- Collocate Mediation = Yes | Next
- Enable and Edge Pool = No | Next
- let defaults | Next
- let Defaults (Note: you need to create this share just like your original share) | Next
- let defaults | Next
- let defaults | Next
- Action | Topology | Publish

Goto the Primary (FE01.lab.local) Standard Server and Open Lync Server 2013 Deployment Wizard

Click on "Install or Update Lync Server System"

step 2 and Run

After it completes, click Finish.

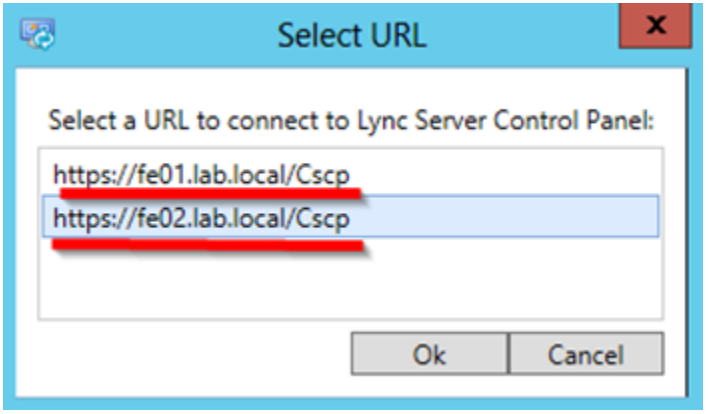
Now Goto the Backup (FE02.lab.local) Standard Server and Open Lync Server 2013 Deployment Wizard

Click on "Install or Update Lync Server System"

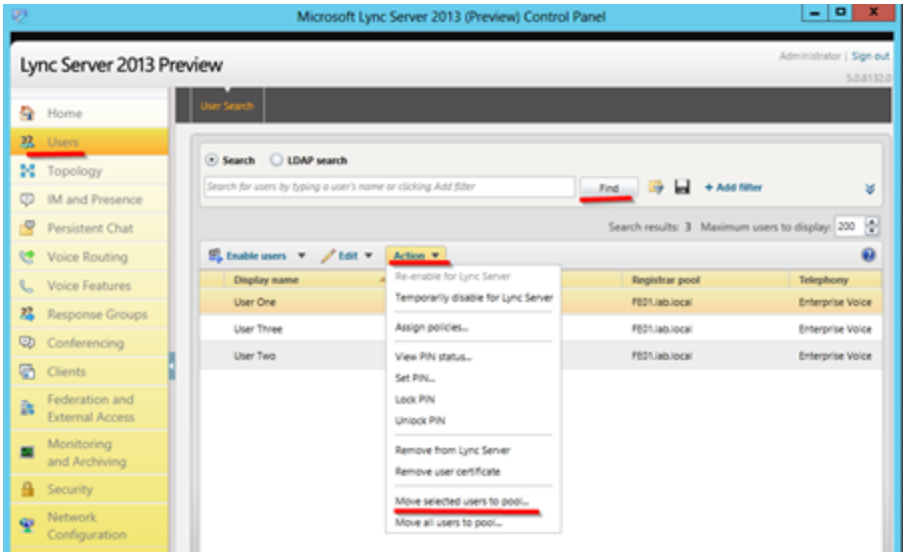
- Step 1 Run (15-30minute wait) Finish
- Step 2: Run | Next (10minutes wait)
- Step 3
- Step 4

We'll Test Our 2nd Pool/Server By Moving Users to It

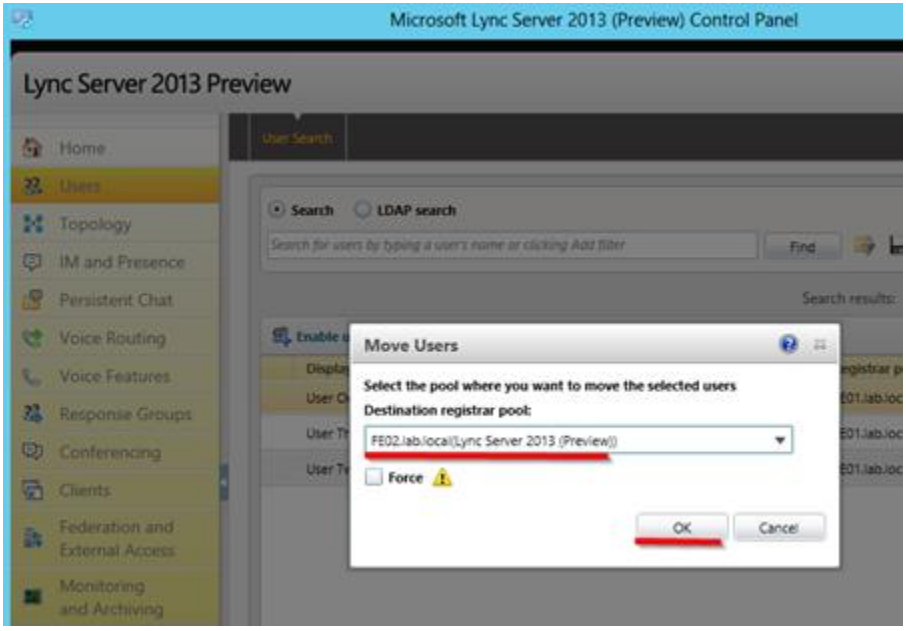
To test, log into Lync Server control panel. Notice you will now be asked which Lync pool you want to log in to. Let's select FE01.lab.local.



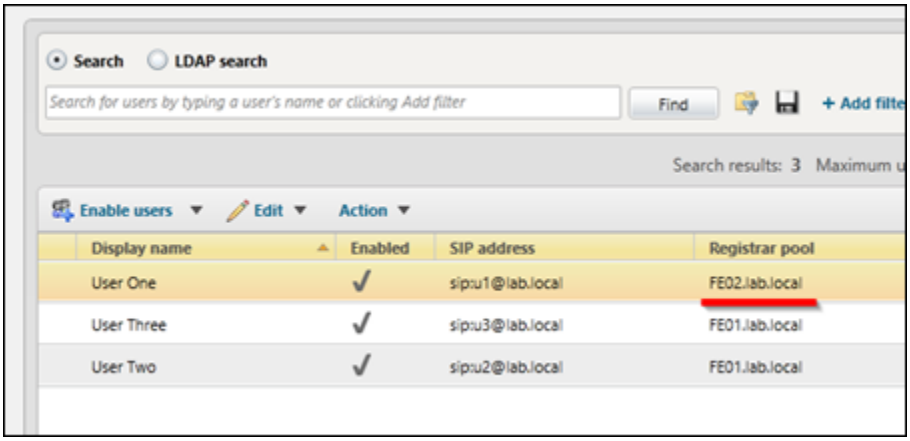
Once the LSCP is open well click Users | Find | Select u1@lab.local | Action | Move Selected Users to Pool… |



Now lets select our new Pool/Server (FE02.lab.local) and click OK.



After you move a user there is no need to refresh the user list, this is automatically done for you. And, sure enough, the u1@lab.local is now on FE02.lab.local! Great.



Now lets open Lync 2013 client and login using user u1@lab.local that we just enabled on our 2nd Standard Edition Front End Pool/Server (FE02.lab.local). Good, our new pool works!

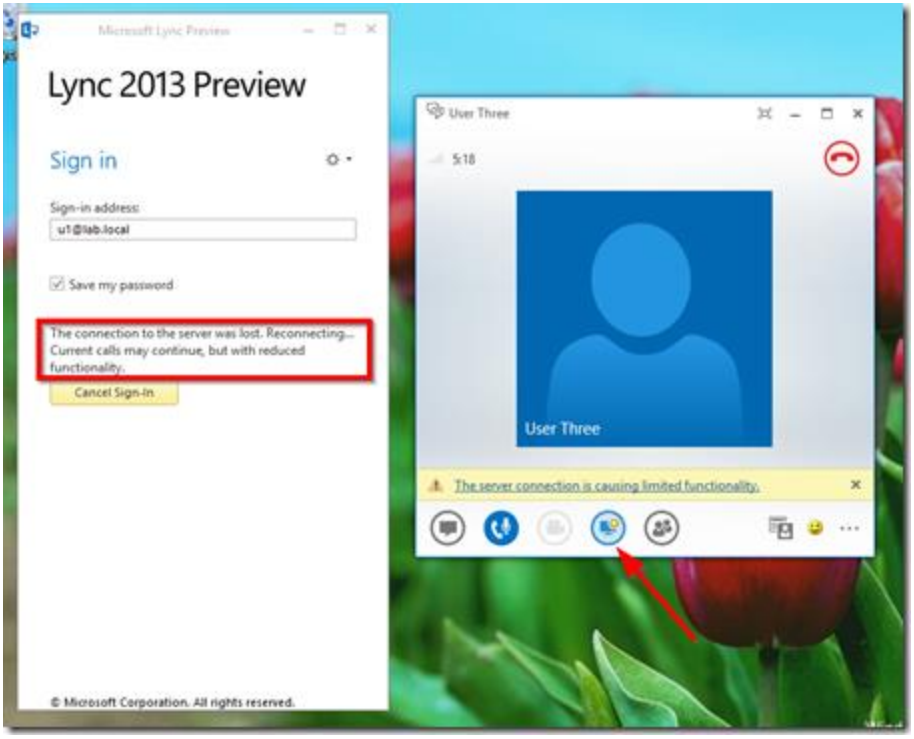
What Happens when we change Pools During an Active *Conversation or Call?*

Since we could easily move user(s) to our new Pool/Server with no sweat, now lets get dangerous. Call someone using u1@lab.local and CHANGE POOLS DURING THE CALL.

Let's repeat the steps we just took above, but do it during a live call and see what happens.

Below is a screenshot of what happens if you change pools/servers during a peer to peer call:

- The Lync 2013 client will momentarily logout and back in again
- During this time (as you see below) the call continues
- Sharing continues
- Video continues
- As noted in the conversation window, functionality is momentarily limited:
    - Video cannot be started during momentary logout/in
    - Sharing limited and below items will be interrupted
        - Polls
        - whiteboard
        - Powerpoint
    -



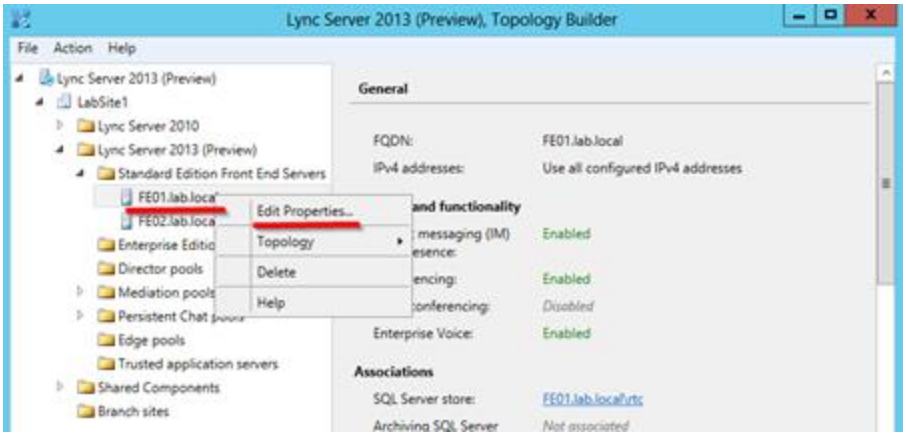
That' pretty cool, right? Yeah.

Setup a Resilient Pool (aka Associated Backup Pool)

Now let's setup our 2nd Front End Pool/Server as an Associated backup pool so that if our 1st Front End Pool goes down the clients can automatically failover to the 2nd Front End Pool.

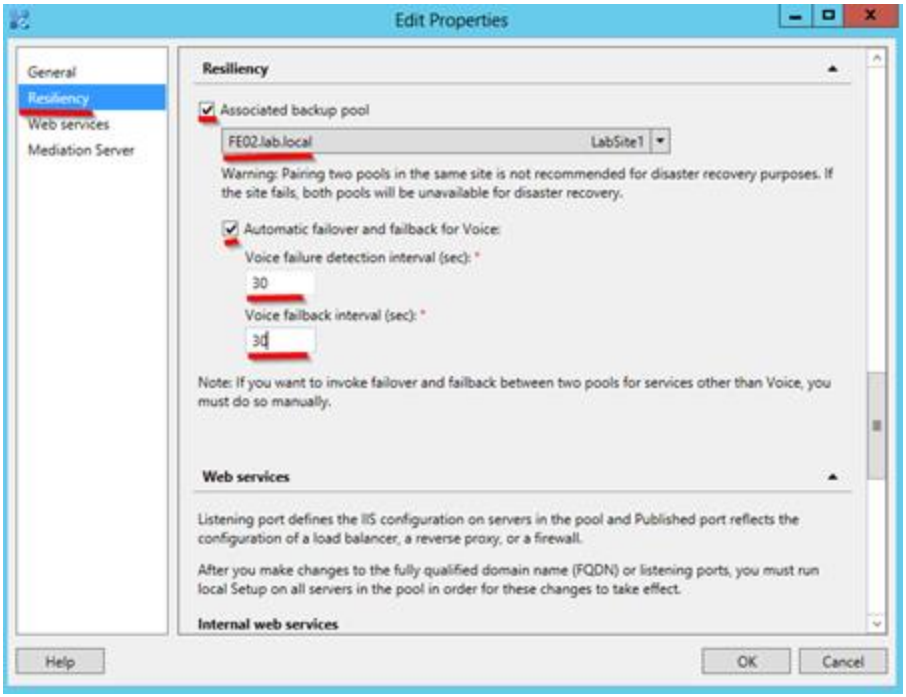
Open Topology Builder and download the topology.

Next, we'll edit the primary "Standard Edition Front End Servers" by right clicking and click "Edit Properties"



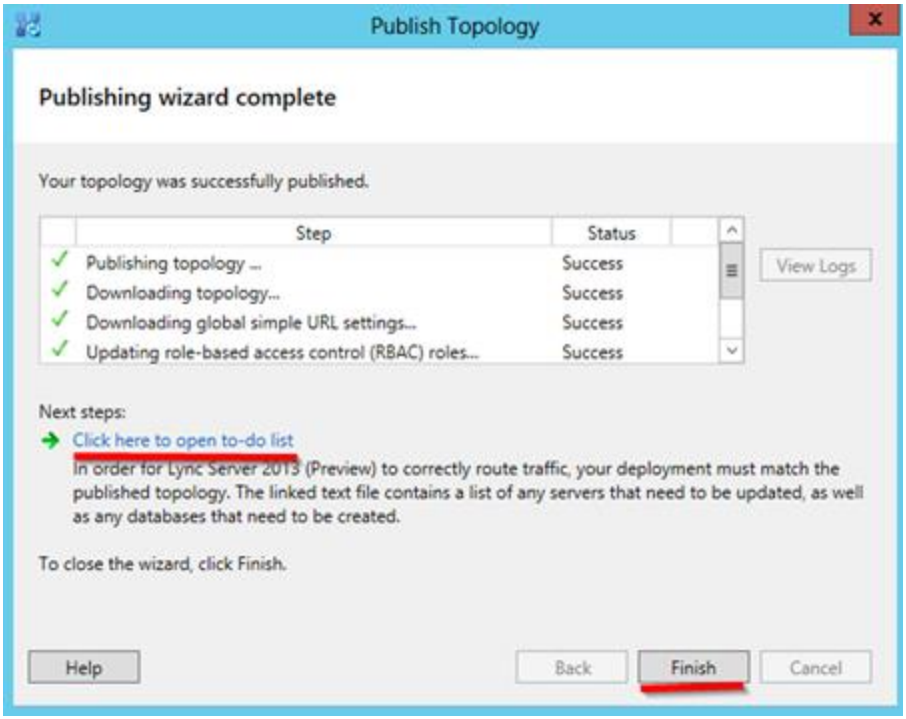
Now we can define our Resiliency settings

- Associated backup pool = FE02.lab.local; (Note the warning about having both FE's in the same site. For our lab, and in some production we can ignore this)
- Automatic = Checked
- Failover = 30secs (for lab purposes, this would be short for production…)
- Failback = 30secs (for lab purposes)
- Then click OK to finish.



Let's Publish the Topology by clicking: Action | Topology | Publish | Next |

Open text file to see what you should do next. In our case we are instructed to run Install or Update Setup/Update on FE01 and FE02. Now click Finish.



Based on our "next steps" instructions noted above, lets open Lync Server Deployment Wizard on FE01.lab.local and click on "Install or Update Lync Server System"

- Step 2 Run | Next |Next
- Step 4 Run | Next | (this will get our new Lync server Backup Service running)

Lets open Lync Server Deployment Wizard on FE02.lab.local and click on "Install or Update Lync Server System"

- Step 2 Run | Next
  - NOTE: If Step 2 fails with "Can not update database XDS" error then we need to manually install the rtc database using the PS command below:
  - install-csdatabase –centralmanagementdatabase –sqlserverfqdn FE02.lab.local –sqlinstancename rtc
  - Now run Step 2 again.
- Step 3 (if necessary)
- Step 4

Run the below Powershell commands on your FE01.lab.local to ensure conferencing data is replicated:

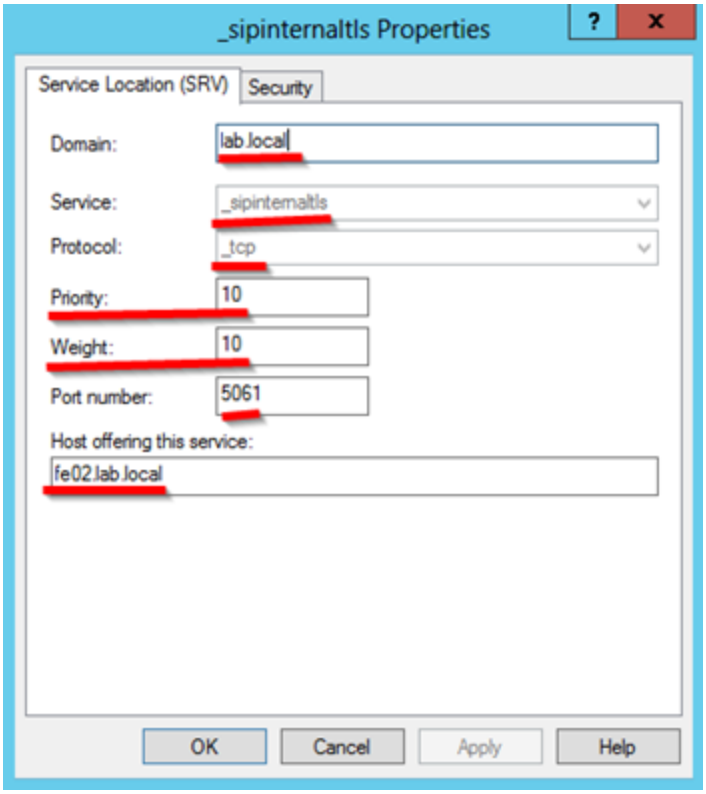
- Invoke-CSBackupServiceSync –PoolFqdn FE01.lab.local
- Invoke-CSBackupServiceSync –PoolFqdn FE02.lab.local

Add DNS SRV Record for Backup Pool/Server

Now lets go into DNS and add a record for our Backup Pool /Server. This SRV record is necessary so that if the first server (FE01.lab.local in our lab) goes down, the client can find the backup Pool/Server.

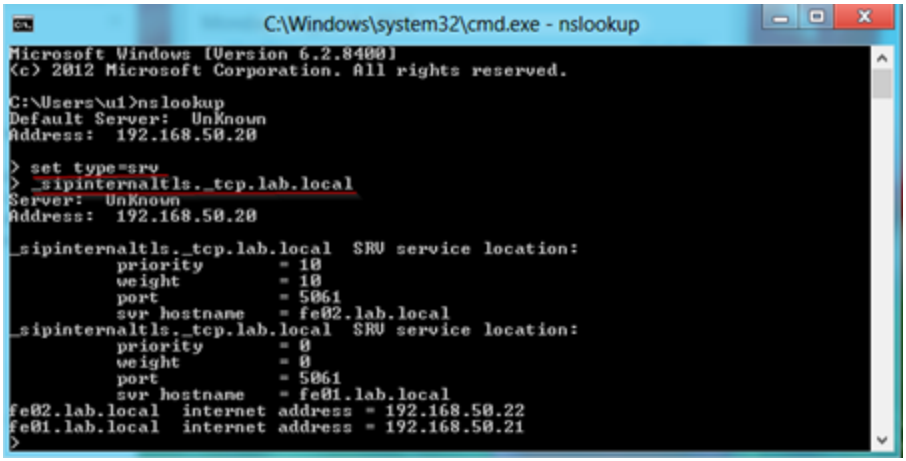
So let open the DNS server management and add the SRV record. The things that are important:

- Service = _sipinternaltls
- Protocol = _tcp
- Priority = 10 (take note: this value is different than your initial SRV record)
- Weight = 10 (take note: this value is different than your initial SRV record)
- Port number = 5061
- Host offering this server = FE02.lab.local



After you have added this DNS record you might want to verify it has taken effect on the client PC by running NSLookup on the clients you will be testing.

- NSLookup
- set type=srv
- _sipinternaltls._tcp.lab.local



~~You Might Need This Step, But Only do it if Needed: Remove The Cert Without the Backup Server Name in it~~

~~NOTE: Please, take a minute and thank Dustin Hannifin and Jason Lee for providing this crucial step in this blog post.~~

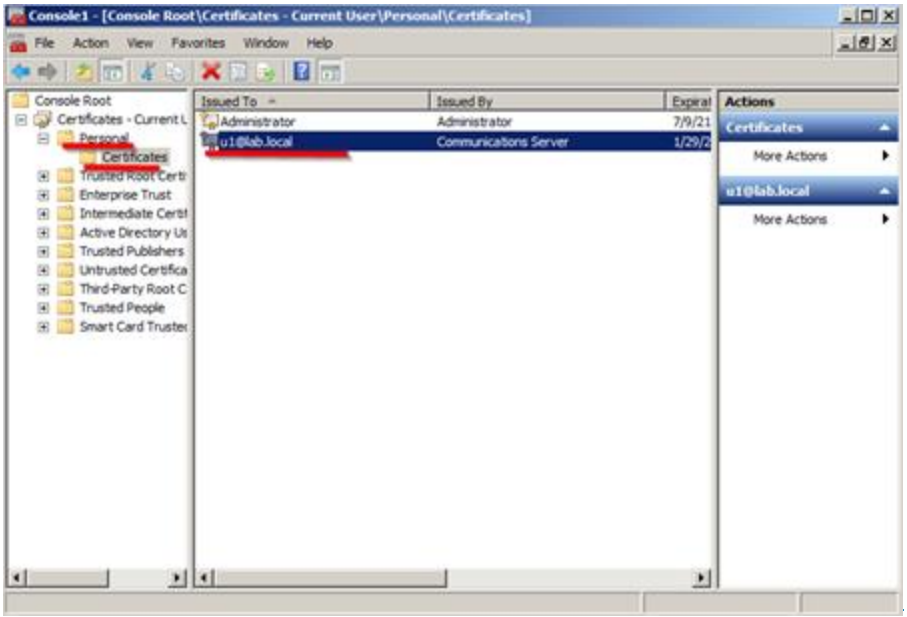
~~With both Primary and Backup Front End Server running do the following:~~

~~Exit Lync 20013 client on client machine.~~

~~On same client machine: Open MMC~~

~~File | Add/Remove Snap-in… | Certificates | My User Account | Ok~~

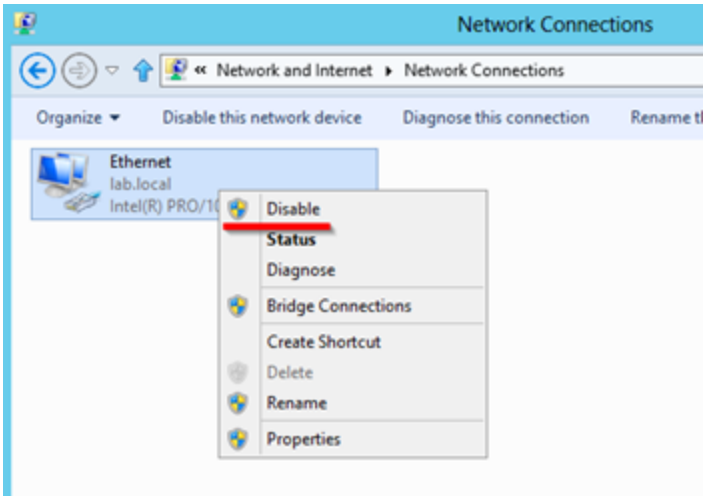
~~Navigate to: Personal | Certificates and delete the cert named same as your Lync username.~~



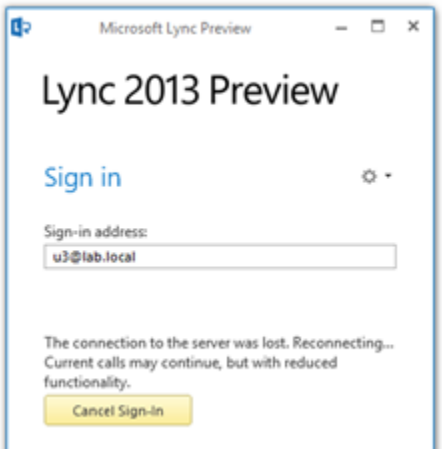
~~Now let log back into Lync 2013 client.~~

Now, Let's Test Resiliency by Disabling NIC on Primary Front End (FE01.lab.local)

Make sure all your users (that you want to test resiliency for) are homed on FE01.lab.local. Next, we'll simulate our FE01.lab.local machine being down by disabling the NIC.



Now around 30 seconds, our client(s) should log out. Sure enough!



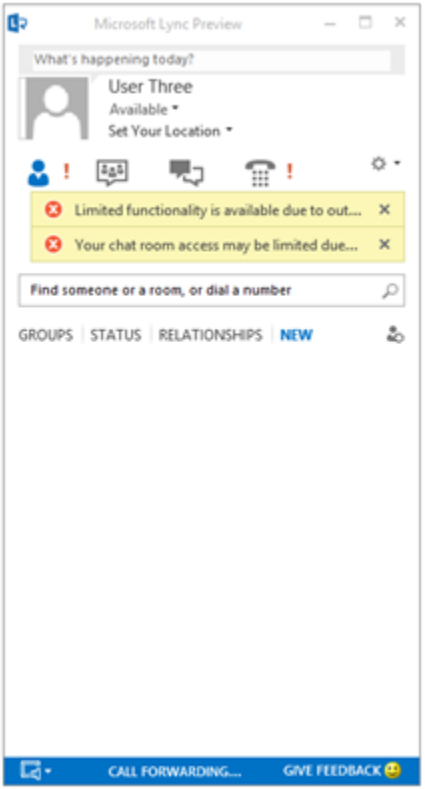
Now they will try to login to the backup pool (in this case FE02.lab.local)…

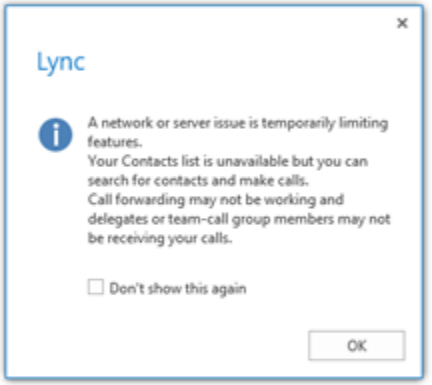
NOTE: We setup our failover to happen in 30seconds. I've noticed in my lab the failing Lync clients will logout very near 30 seconds, but it could take several minutes till the clients are able to log back into the Associated Backup Pool/Server (FE02.lab.local). (ie: be fully failed

over) I haven't taken the time to investigate if this is my lowly lab's performance , or something built into Lync. (if someone knows, please post a comment)

But sure enough, it logged into backup pool! You will notice the Lync 2013 client let's you know you have some limitations:

- Contact List is unavailable
- Call Forwarding may not be working
- Delegates and Team-Call may not be receiving calls
- Limited chat room access
- Etc.





Now if we enable the NIC on FE01.lab.local the clients should Failback to FE01.lab.local in 30 seconds. (NOTE: on my lab some clients would failback as soon as 10 seconds.)

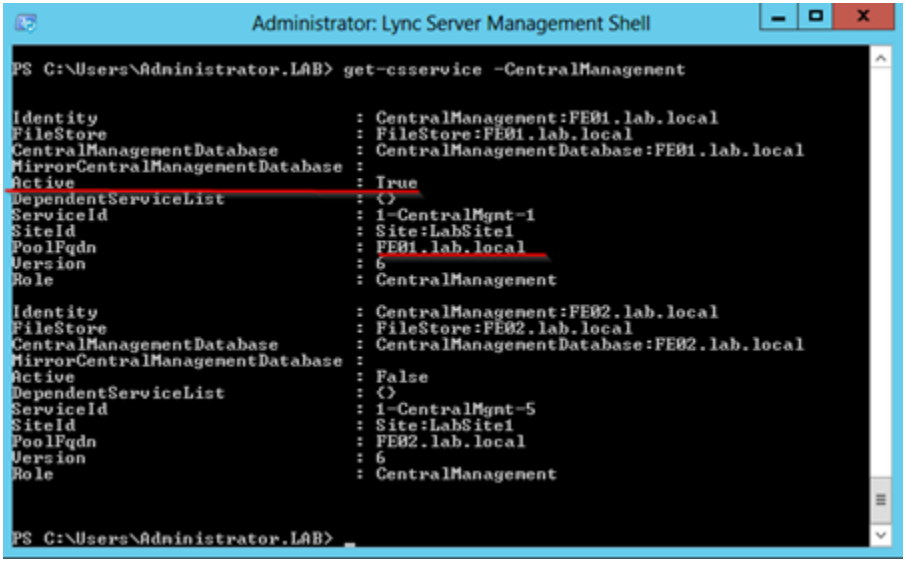
Next We Will Take a Look at New Lync Server 2013 Failover Options

Much of what we have discussed in this blog so far is largely the functionality you will find in Lync Server 2010. (I suspect you could use most of the above steps in Lync 2010.) But with Lync Server 2013, the Lync Server administrator can now failover the CMS and the failed pool so that the "Limited Functionality due to outage" is removed. Let's get started with our failover.

Our first step is to find out where the Active Central Management Database is hosted. To do this we run the PowerShell:

- Get-CsService –CentralManagement

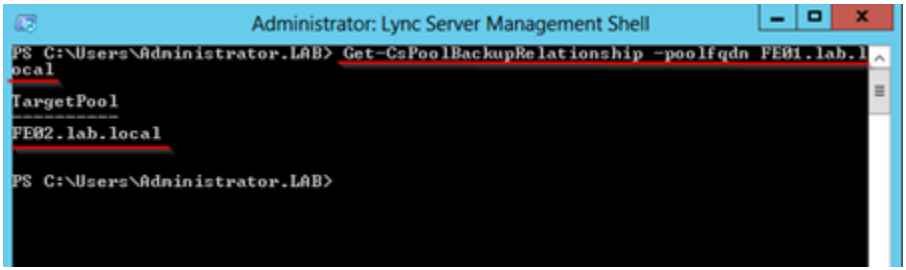
As shown below, FE01.lab.local is the PoolFqdn (we will refer to this as $CMS_Pool) of the currently Active CMS.



The next step is to check if the the $CMS_Pool is running Lync Server 2013. You can do this in Topology Builder (in our lab we know it is, but in a live environment we might not) If the $CMS_Pool is running Lync 2013 we can use this PowerShell to see who it's backup pool is:

Get-CsPoolBackupRelationship –PoolFQDN $CMS_Pool

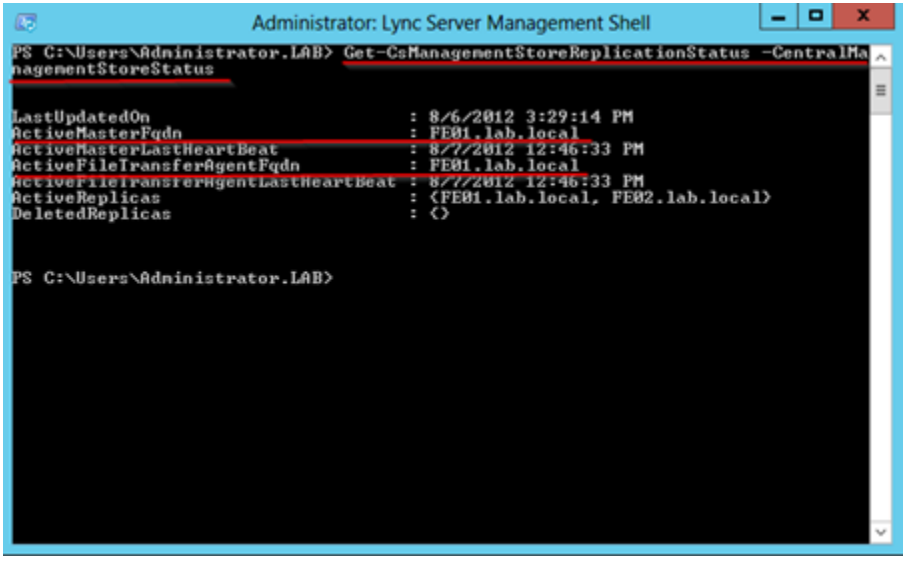
As shown below we can see the $Backup_Pool is FE02.lab.local



Next we will see if the $CMS_Pool is available right now:

Get-CsManagementStoreReplicationStatus –CentralManagementStoreStatus

Below we have an example how this command will look with the $CMS_Pool available.



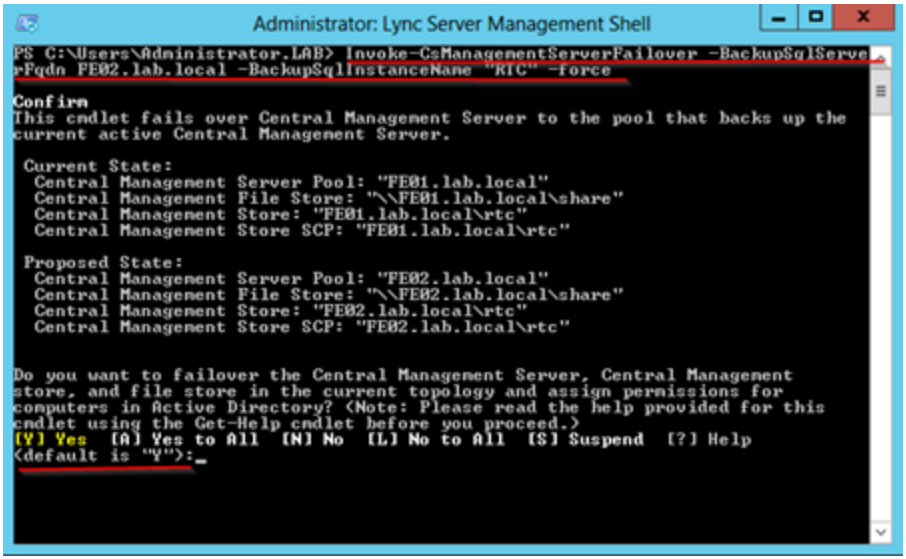
Now lets disable the NIC on $CMS_Pool (ie FE01.lab.local) to simulate server down. Our primary Lync FE is now down! (shown below)

Now run the Get-CsManagementStoreReplicationStatus –CentralManagementStoreStatus command again. Note that the command will fail/error out if the $CMS_Pool/FE01.lab.local is not available.

(NOTE: If this is a Ent. Edition server you will need to check which Back End holds the primary CMS using: Get-CsDatabaseMirrorState -DatabaseType CMS -PoolFqdn <Backup_Pool Fqdn> . Read more about this command by Clicking Here. Running this command on Std. Edition will fail. On a Std. Edition server there is only one server so we know which it is.)

Next we will run the command to failover the Central Management Server to our Backup Server:

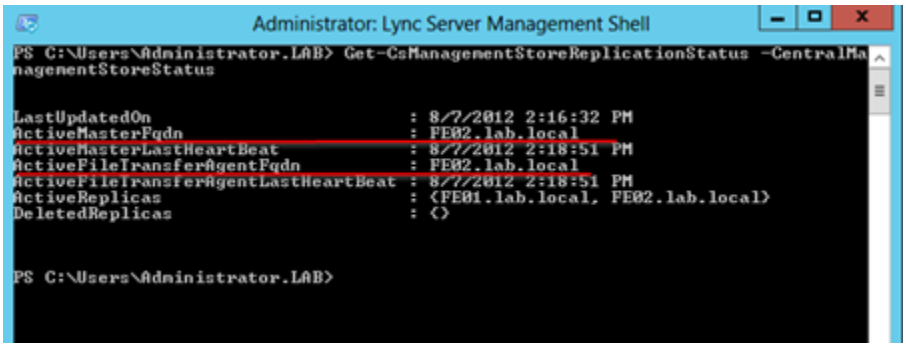
- Invoke-CsManagementServerFailover -BackupSqlServerFqdn FE02.lab.local BackupSqlInstanceName RTC –Force



Now lets verify the move happened by running:

- Get-CsManagementStoreReplicationStatus –CentralManagementStoreStatus

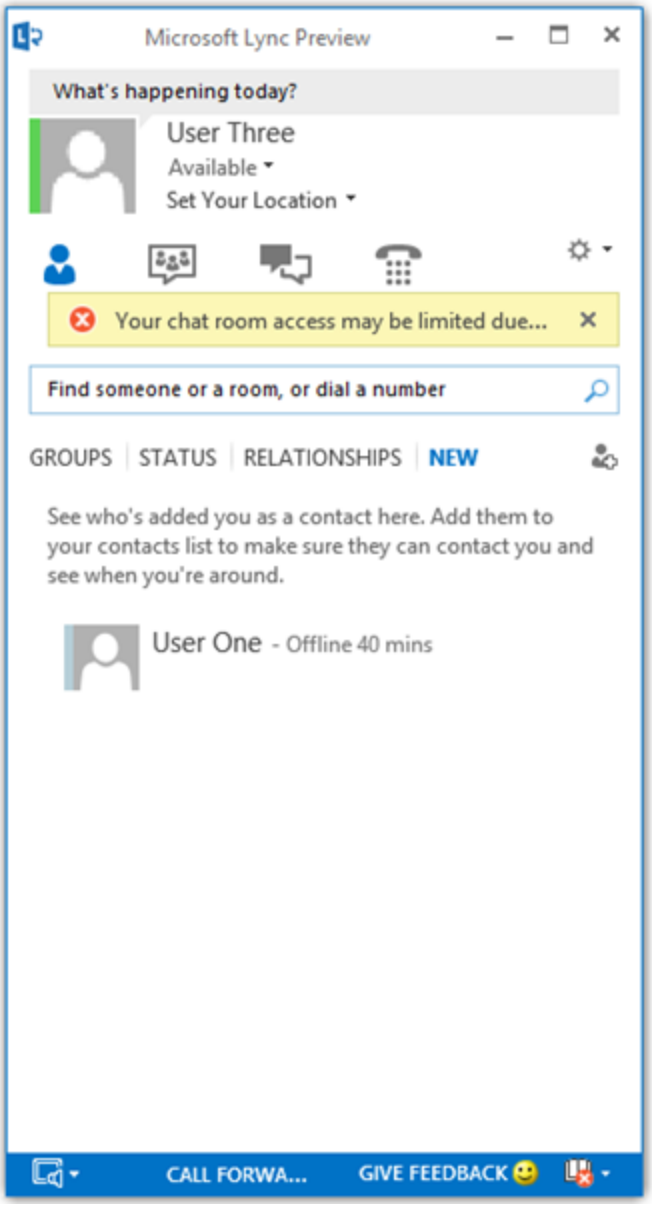
Sure enough! the new ActiveMasterFQDN is now FE02.lab.local (as shown below). Great!



Now we can fail over the Pool by running:

- Invoke-CsPoolFailOver –PoolFqdn FE01.lab.local –Disastermode –Verbose

After running…Voila! The Lync Client services are automatically restored to Lync 2013and the “Limited Functionality” notice disappears with no user interaction!



Notes:

- On my 3 user lab this script took about 50 seconds to complete. After it completed I waited a little over a minute until full capability was restored to the Lync client!
- The Chat service was not restored because resiliency was not setup in our lab for this service.

Conclusion

Well--yahoo! We have successfully setup a Lync Standard Edition Associated Backup Pool and we have demonstrated Lync Server 2013's very improved complete Failover resiliency.

Continue your lab with more articles in this Lync Server 2013 Step by Step Series:

- Part 1 – Step by Step Installing Lync Server 2013 Standard Edition Front End
- Part 2- Step by Step Installing Lync Server 2013 SE Monitoring Server
- Part 3 – Step by Step Installing Lync Server 2013 Persistent Chat Server
- Part 4 - Step by Step Installing Your 2nd Lync Server 2013 SE Server Associated Backup Pool for Resiliency
- Part 5 – Step by Step Enabling Lync Server 2013 Enterprise Voice Features, Response Groups and Managers
- Using Lync 2013 and OneNote 2013 Integration

Special Thanks to Elan Shudnow and his great article on Lync 2010 Resiliency: http://www.shudnow.net/2012/05/04/lync-2010-central-site-resilience-w-backup-registrars-failovers-and-failbacks-part-3/

http://social.technet.microsoft.com/wiki/contents/articles/9289.second-lync-standard-edition-server-to-provide-a-limited-high-availability-en-us.aspx

http://jasonmlee.net/archives/459

- See this post
- And this post

If you want to Fail Back to FE01.lab.local

- Invoke-CsPoolFailback -PoolFQDN FE01.lab.local –Verbose (may take 10-15minutes; Lync will logout/in near end)

- Invoke-CsManagementServerFailover -BackupSqlServerFqdn FE02.lab.local BackupSqlInstanceName RTC –Force (this just takes 10secs)

Chapter 5

Chapter 5 - Enabling Lync Server 2013 Enterprise Voice Features, Response Groups and Managers

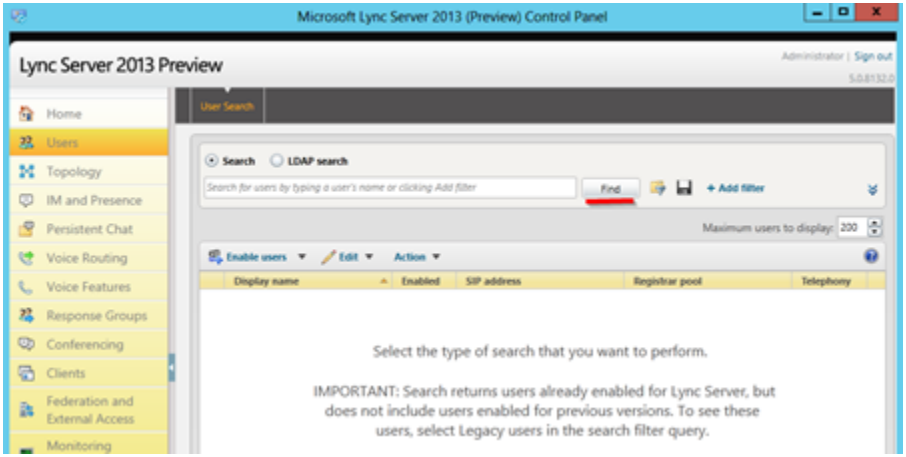
By Matt Landis __on 8/16/2012 09:35:00 PM

In this step by step we will look at enabling Enterprise Voice features in Lync Server 2013. If you are interested in the new Response Group Manager feature in Lync 2013 click here .

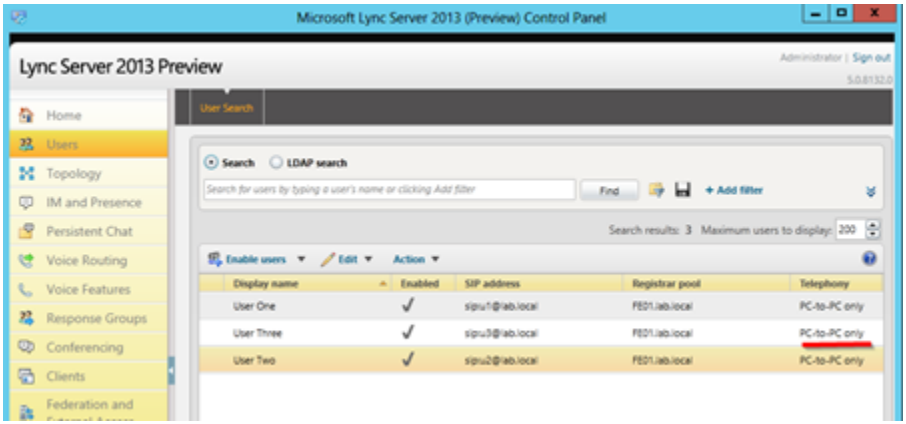
To get by in Part 5 you need to have done at least Part 1 of Our Lync 2013 Lab.

Enable Users for Enterprise Voice

To enable our users for Ent. Voice lets open the Lync Server Control Panel. Now click on Users. To save on CPU no users are shown by default so just click on Find to show all your currently enabled Lync users.



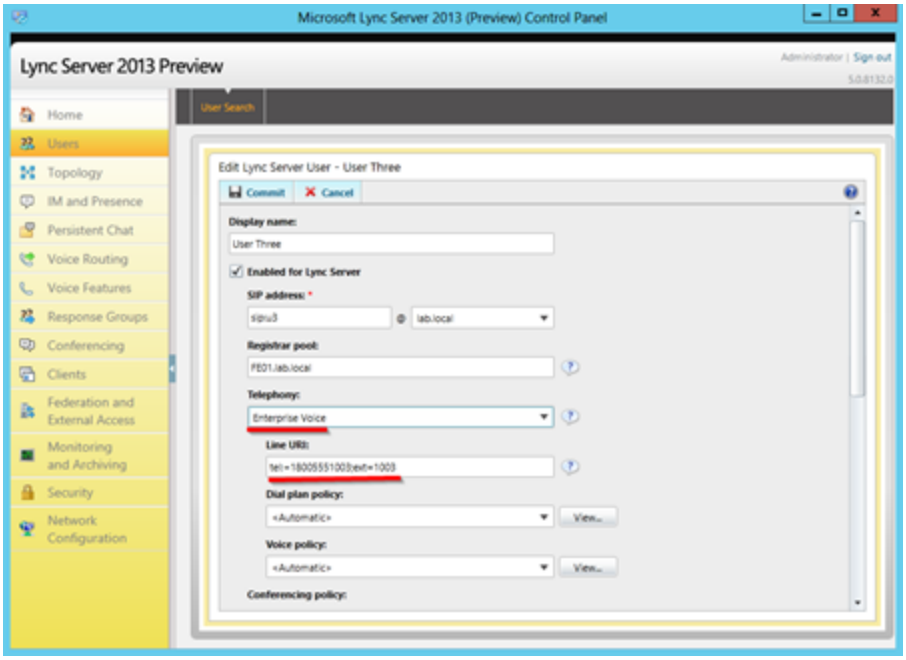
Now We will see a list of Lync enabled users. Note in the Telephony column that our users are enabled for “PC-to-PC only”. Let’s changed that by double clicking on a user to edit.



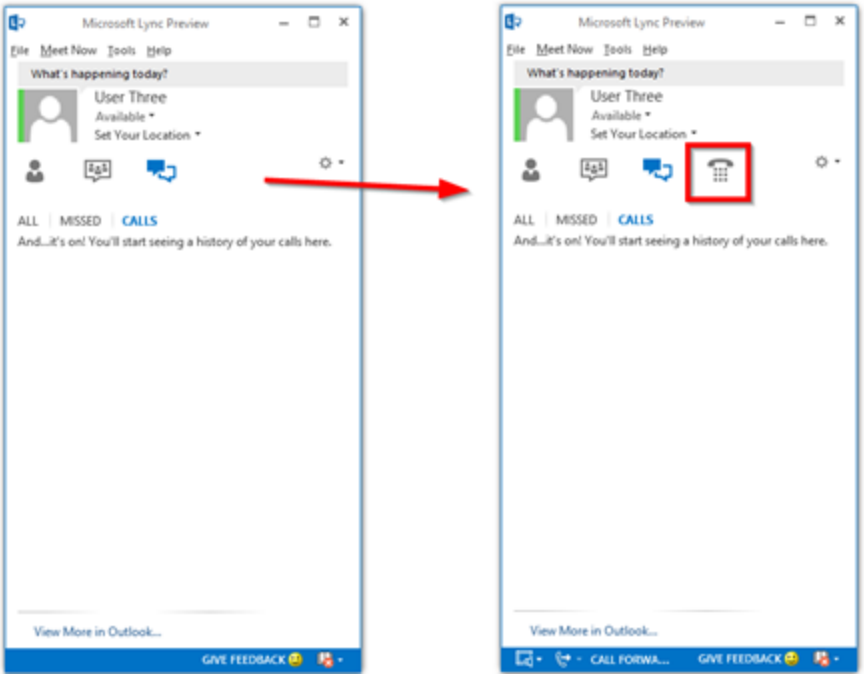
Now we can change a few setting

- Telephony:Enterprise Voice
- Line User: tel:+18005551003;ext=1003

Now click “Commit”.



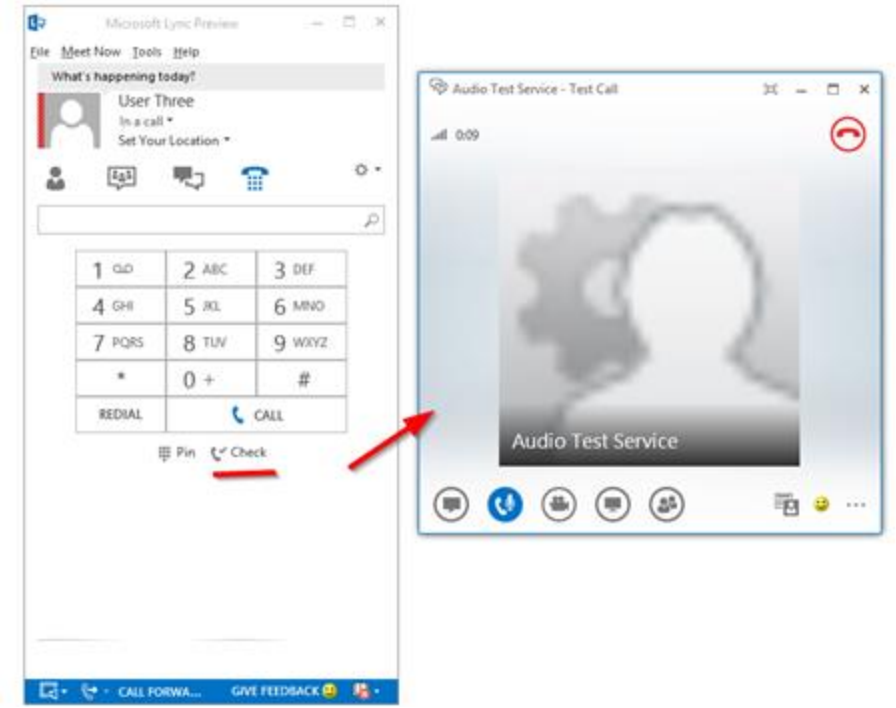
Now you can repeat this step for each user. (or use powershell). Now if we give our Lync clients a few minutes a new "Phone" tab will show up inside our Lync 2013 client! (NOTE: there is no need to log out or do anything on the Lync client side. This will automatically show up.)



Alright, now your users should be enabled for Enterprise Voice.

Trying Out the Audio Test Service

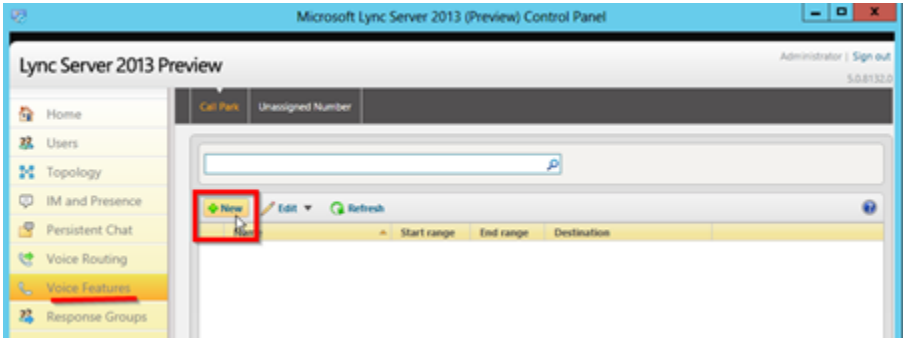
If we click on the Phone Tab/Button we will see our phone dial pad. From here we can make our first "Voice" call. If we click the "Check" button Lync will call the Lync Audio Test Service. Go ahead.



test

Enabling and Using Call Park

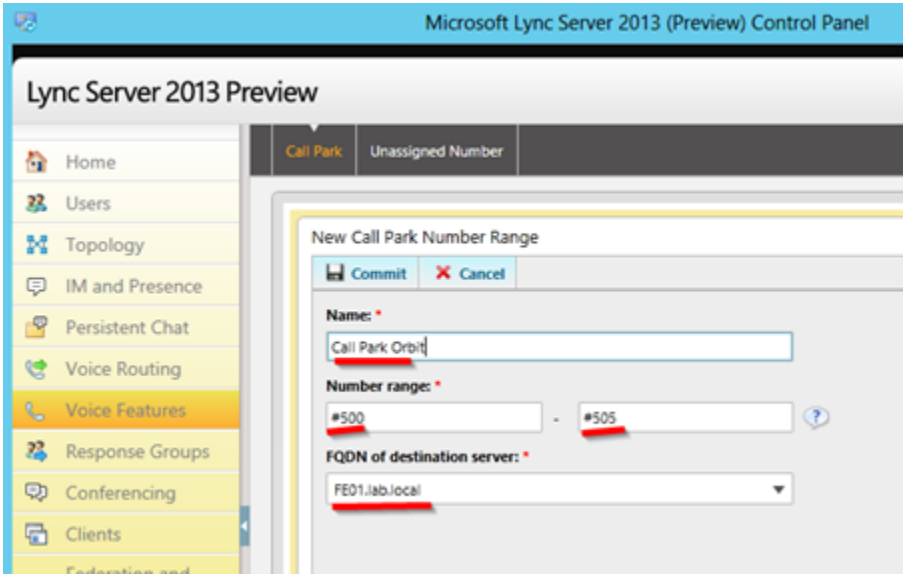
To enable the call Park feature go to Voice Features | Call Park | New



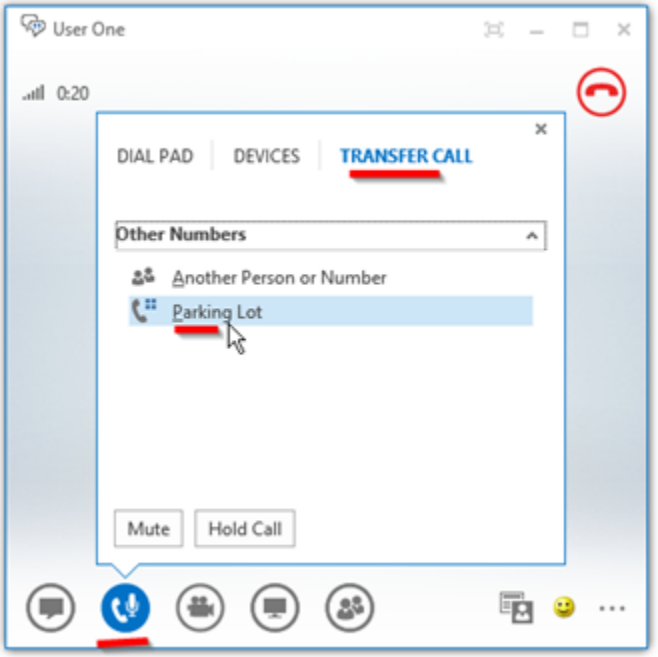
Configure a Park using the below example. In our example we are making 5 parking "slots" or spaces so we can park up to 5 calls. We could make this the amount we want to, but for this lab we'll make it 5.

- Name: Call Park Orbit
- Number Range: #500
- Number Range: #505
- FQDN of destination server: FE01.lab.local

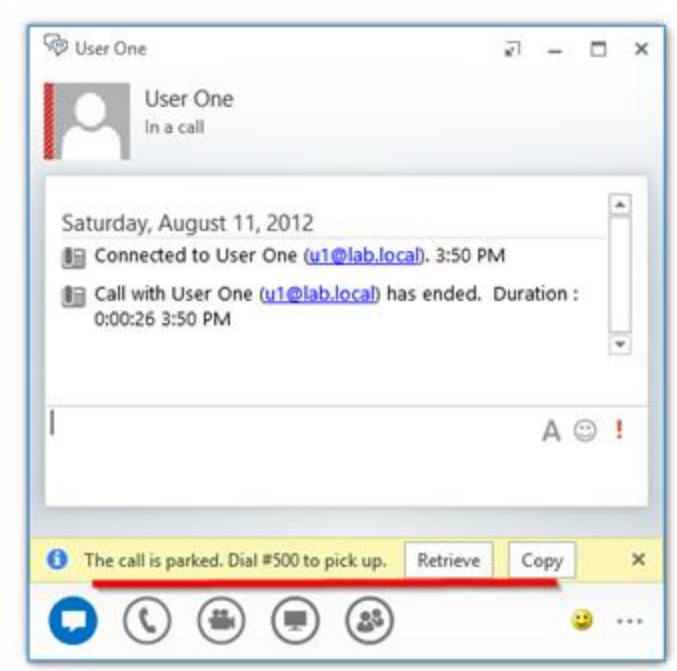
Now click "Commit"



Now let's call another rLync user and test our new Park feature. After we are connected, hover over "Call" then click "Transfer Call" and then "Parking Lot"



Once the call is Parked, you will be notified which of the "slot" the call is in. In the below case it is in #500. Anyone on Lync with Ent. Voice enabled can pick up this call Parked by dialing #500. You can click "COPY" to IM this to someone or verbally.



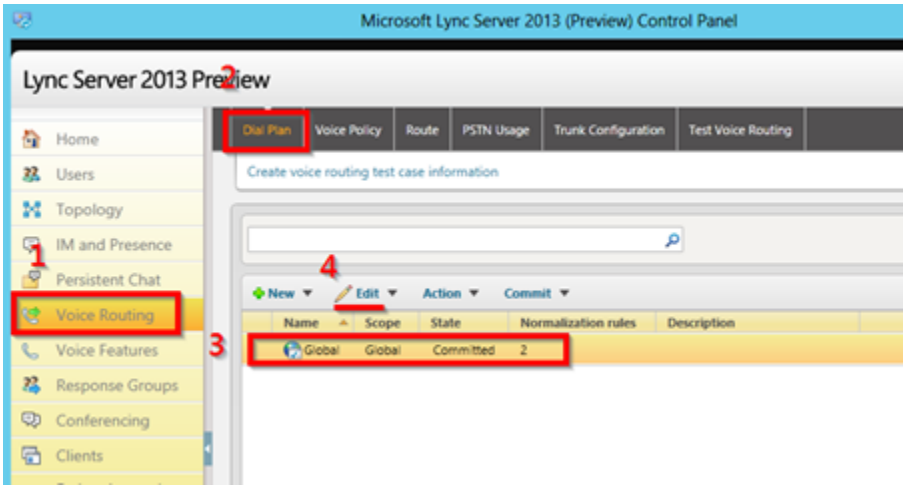
Some Quick notes about Call Park

- By default, if no one picks up the park xx minutes, the call will ring back to the person who parked the call.
- You can only have 1 call park orbit per user/deskphone. So, for example, you can not have a Park for Sales and a Park for Service.
- Unlike some PBX systems, you will not be able to see if someone is currently in Park via a light/button on a phone

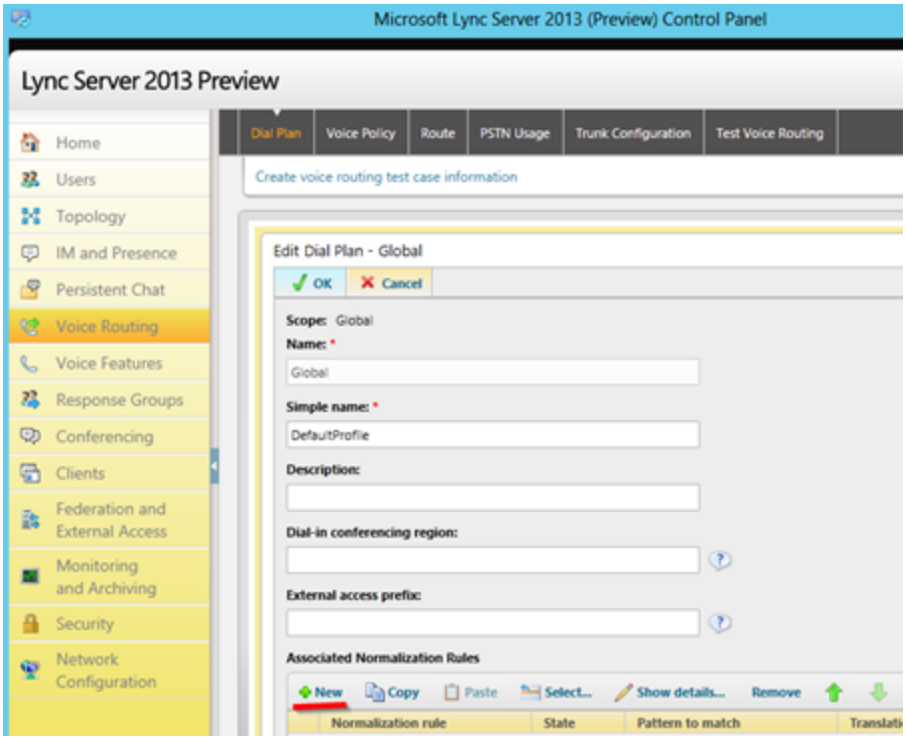
Setting Up Normalization

Since we probably don't want to be walking around dialing things like "tel:+18005551003;ext=1003" to reach another extension, (I suspect our users would suspect us of being insane? ;-) we need to make a Normalization rule that turns "1003" into "tel:+18005551003;ext=1003" for us automatically.

In the Lync Control Panel we'll make this new Normalization Rule under "Dial Plan". To do this Click "Voice Routing" | "Dial Plan" | select the "Global" dial plan | "Edit" | "Show Details" as shown below.



Now under "Associate Normalization Rules" click "New".



Now define the New "Normalization Rule" like below.

- Name: Extensions
- Length: Exactly 4
- Pattern to match: ^(1\d(3))$
- Translation rule: +1800555$1;ext=$1
- Internal extension = checked

To save this "Normalization Rule" click "OK" | "Commit" | "Commit All".

Note: The normalization rule we just setup will only take care of extensions in the 1000-1999 range. In our lab exercises we'll make sure we stay in that range, but if you to a little "exploring" just be aware.

Update Address Book

Because of the way Lync Server is designed the changes we made above will take some time to propagate out to all the clients if we just let the process happen normally. We can "push" this process by taking the below steps on each client we want to test "right now".

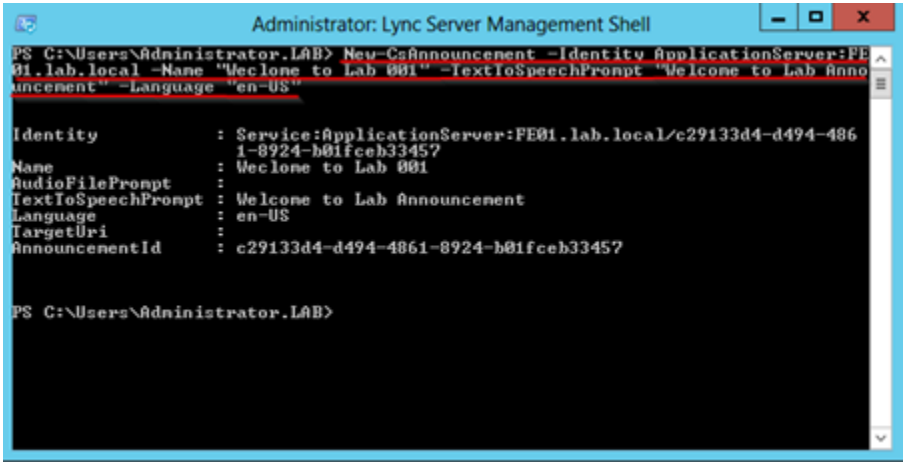
- Run Update-CSAddressBook from the Lync PowerShell and wait about 5 minutes
  - you can check Lync Server event log to see when this happens
- Signed out of the Lync 2013 Client and delete everything under:
  - C:\Users\%username%\AppData\Local\Microsoft\Office\15.0\Lync
  - Lync 2010 = C:\Users\%username%\AppData\Local\Microsoft\Communicator

Now you should be able to dial Lync user's by their Ent. Voice 4 digit extension number.

Unassigned Number

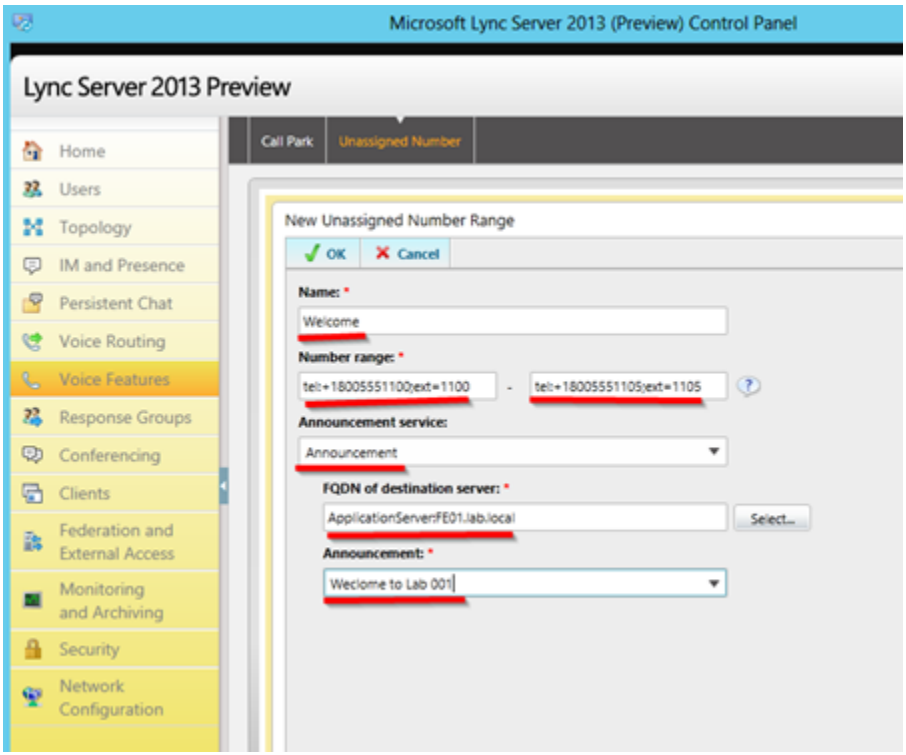
The first thing we need to do to create a "Unassigned Number" is to create an announcement. This requires Powershell New-CsAnnouncement command. Here is an example:

- New-CsAnnouncement –Identity ApplicationServer:FE01.lab.local –Name "Welcome to Lab 001" –TexttoSpeechPrompt "Welcome to Lab Announcement" –Language "en-US"



New we will define the new Unassigned Number in LSCP. After filling the form below click OK. Then "Commit all"

ERRATA NOTE: the 2nd number in the number range below should be exactly the same as the first. If you are using the ext=xxxx suffix you can have only 1 extension per range. If using plain jane DID number you can have a range.



http://technet.microsoft.com/en-us/library/gg398522

Quick Notes About Unassigned Number

- If you have an "ext" LineURI you can only have 1 number in Unassigned Number range. If a normal DID you can have a range.
- If you have a legit number that falls inside an unassigned range you will still be able to call it

Response Group

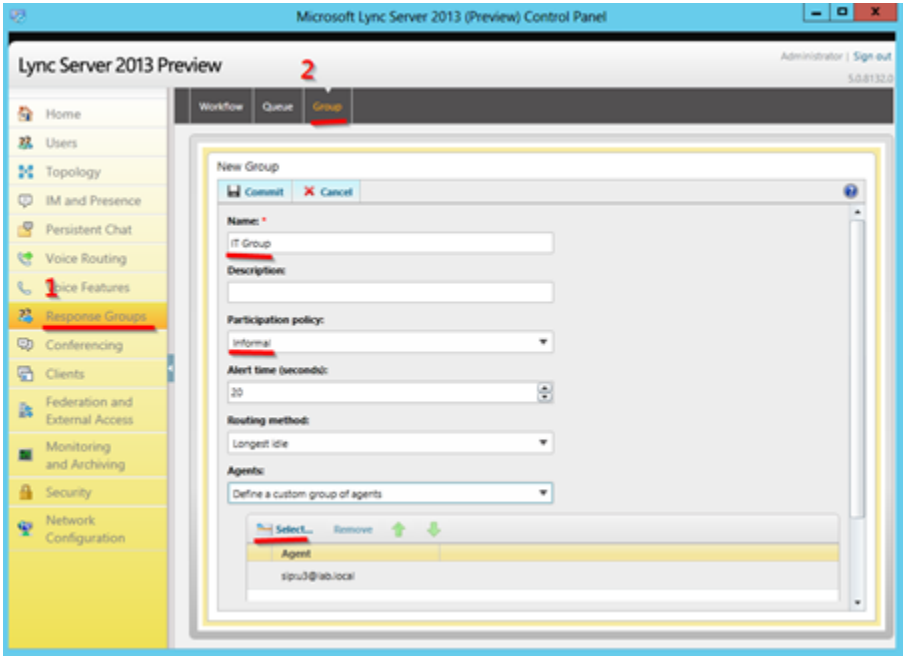
Response Groups…

The overview to setting up a RGS is

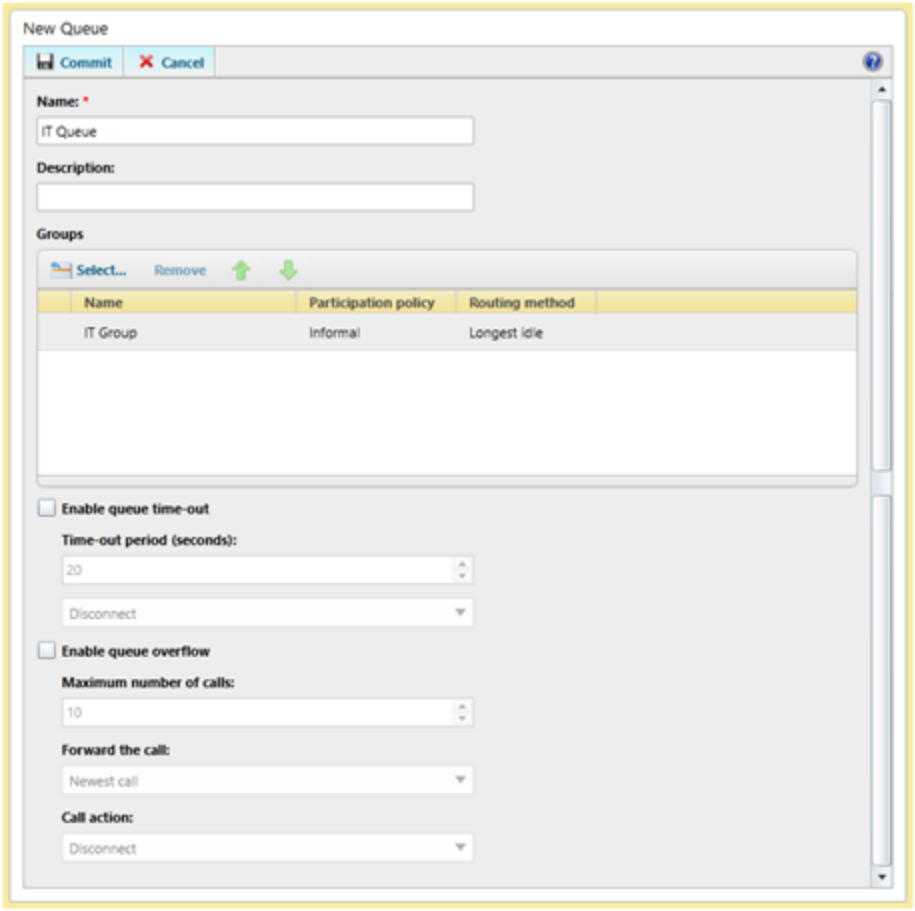
- Assign specific Lync users to a Group
- Assign Group(s) to a Queue
- Define a Workflow and assign the Queue to the Workflow.

Group | New | Select a pool (FE01.lab.local)

Commit

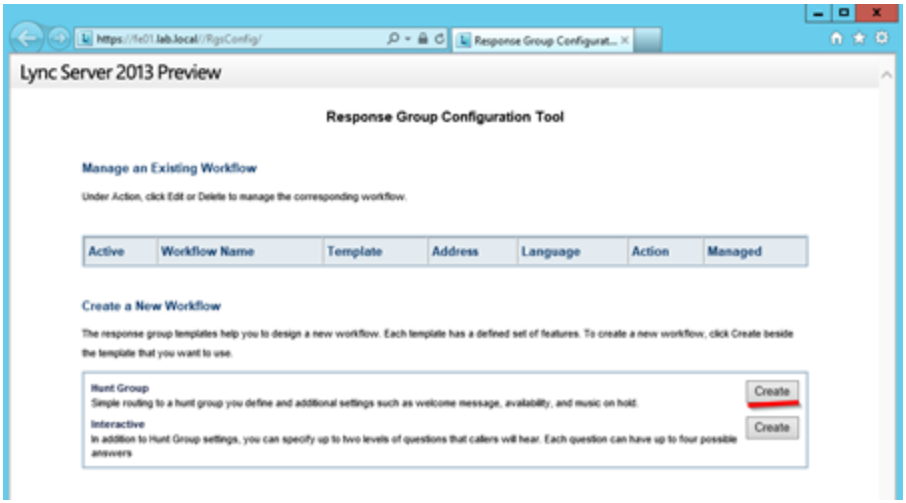


Next we'll setup a Queue. Queue | New | Select a Service (Front end Pool. In our case FE01.lab.local) |

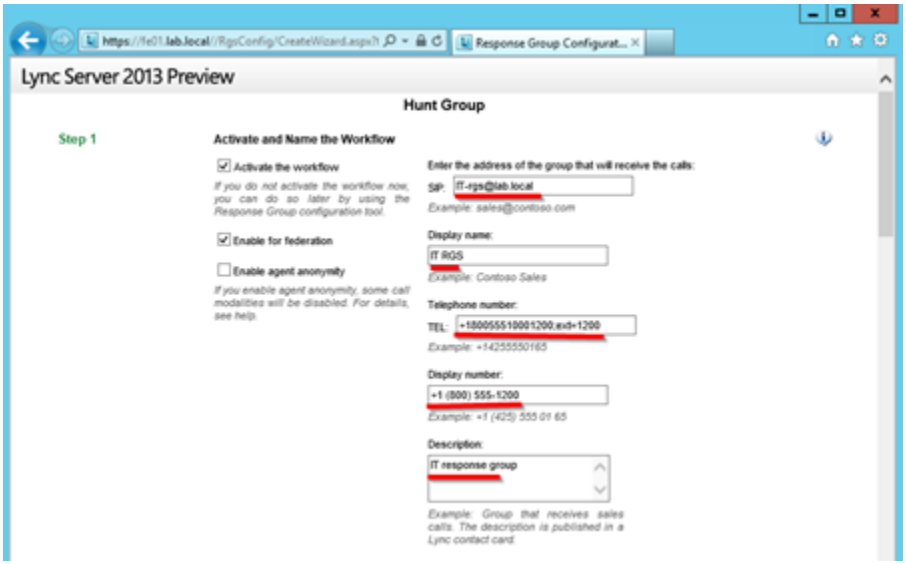


Create or Edit a Workflow | select a Service (or FE pool)

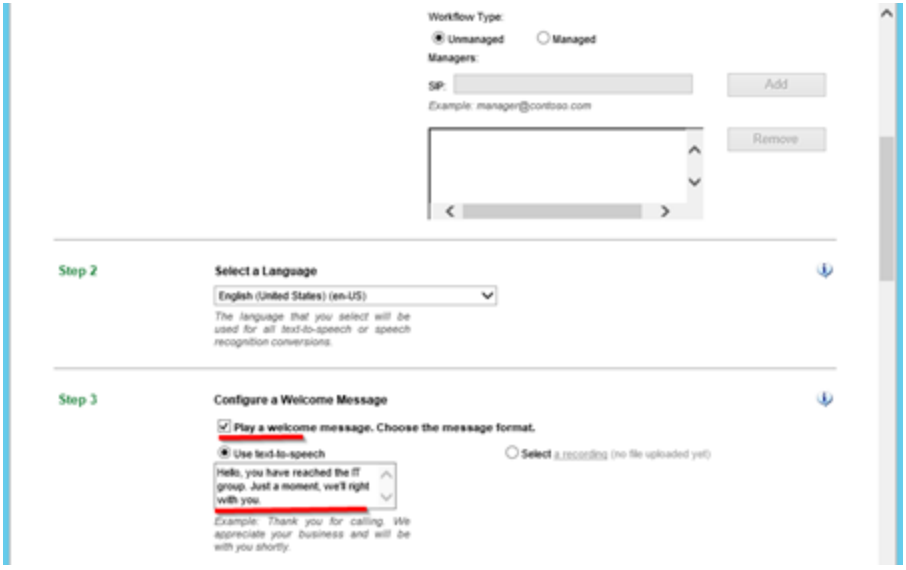
Lync will now pop out a browser window will pop up. From here you can create a new workflow/response group. Let click on “Create” beside “Hunt Group”.



Now configure your Hunt Group as shown below:

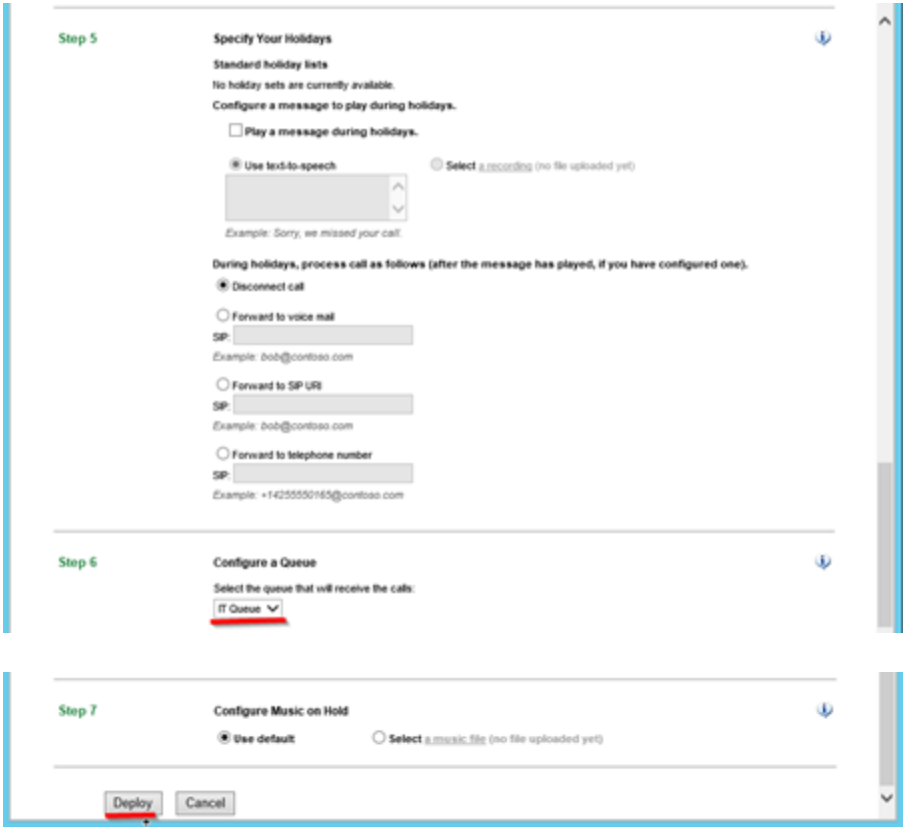


next



next

next



Now your response group will be deployed and you will see the below when it is. NOTE: I've you may need to wait several minutes after the RGS is deployed till you can actually dial it. So, don't get too worried if you get "Your organization does not support calling this number."

Now we can call this response group.

RGSManager

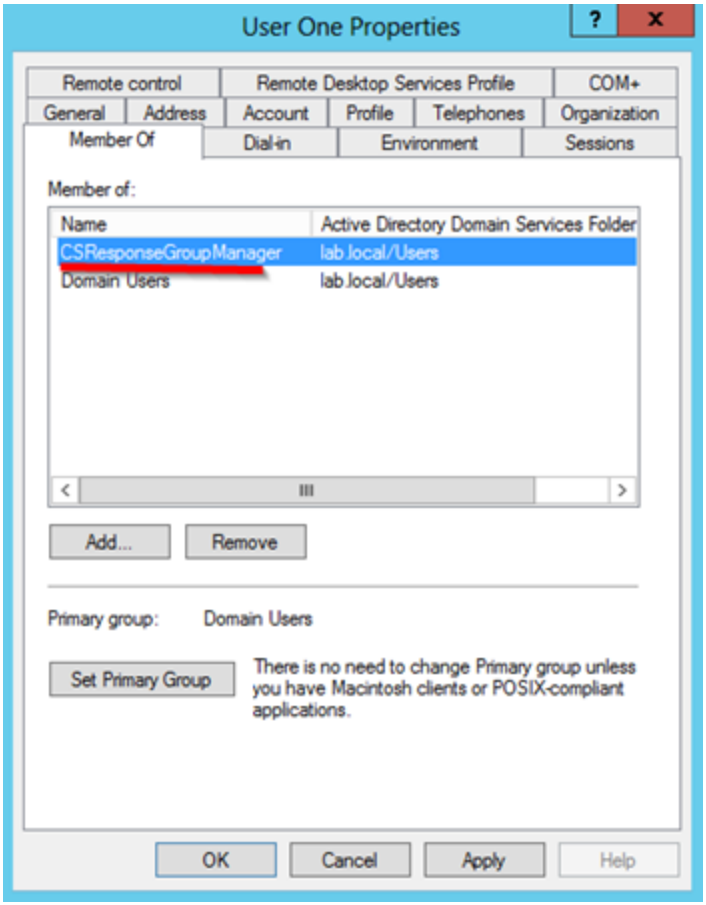
Setup a Response Group Manager

Now that we have tested our response group, let's circle back and look at a new feature in Lync Server 2013: Response Group Managers. RGS managers allows us to configure otherwise normal Lync users as RGS managers that can login to Lync Server Control Panel, Response Group Config web page or PowerShell and only have access to appropriate response group(s) and configuration.

Response Groups in 2013 can be Managed by a manager or UnManaged, which means they are administrated by the Lync Admin.

To setup a Response Group Manager is to add our Response Group manager user to the CSResponseGroupManager AD Group. We'll ad u1@lab.local.

Note: this user needs to be enabled in Lync



Next, lets edit our Response Group/Workflow and add our user as a Response Group Manager.

Remember several things:

- The Queues and Groups cannot be used in another Response Group if we are going to make this a managed RGS

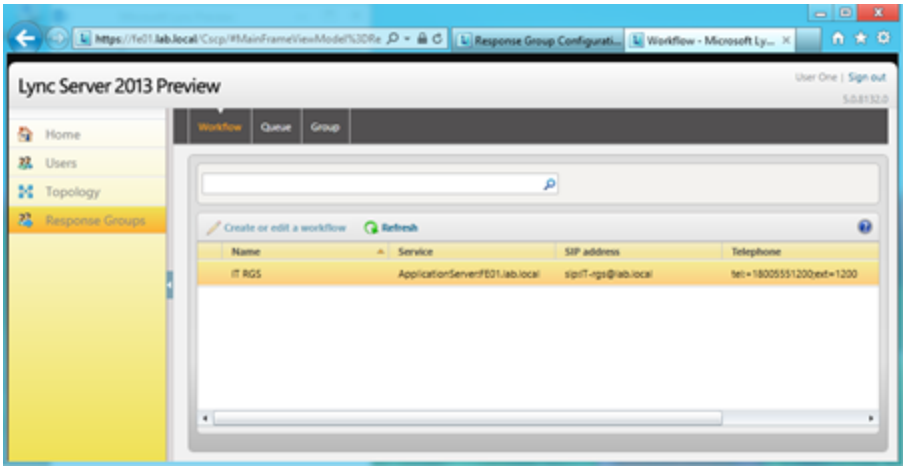
After we add our user, scroll to the bottom and click Save.

Now lets move to the Manager user's machine (or log onto a machine with the manager credentials). The manager will be able to login to these Admin tools, but they will ONLY see RGS info they can manage:

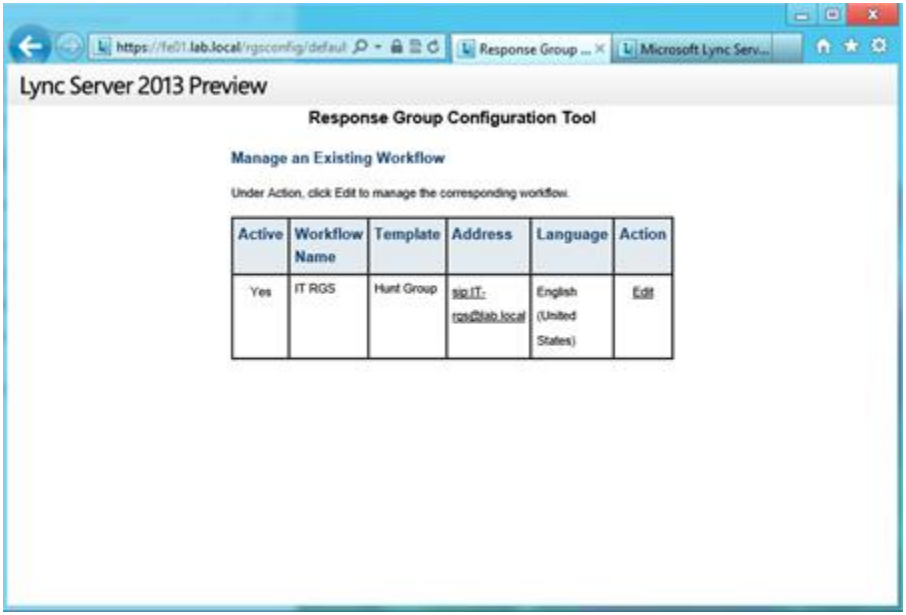
- https://FE01.lab.local/cscp
- https://FE01.lab.local/rgsconfig/default.aspx
- and Lync Powershell

Lync Control Panel: Only Manager related items are enabled.

- In Users tab, Manager can see users, but not edit them
- In Response Group tab Manager can see only their own Response Groups, Queues and Groups.
- They can not add new RGS, but can add new Queues and Groups.



Response Group Config: Note the manager can't add a new RGS.



To read more about RGS Managers, see below:
http://technet.microsoft.com/en-us/library/gg398513(v=ocs.15).aspx

Some General Notes:

- Lync Attendant 2010 Seems to crash on Windows Server 2012 RC
- Lync Attendant 2010 seem to run fine on Windows 8 Release Preview

Continue your lab with more articles in this Lync Server 2013 Step by Step Series:

- Part 1 – Step by Step Installing Lync Server 2013 Standard Edition Front End
- Part 2- Step by Step Installing Lync Server 2013 SE Monitoring Server
- Part 3 – Step by Step Installing Lync Server 2013 Persistent Chat Server
- Part 4 - Step by Step Installing Your 2nd Lync Server 2013 SE Server Associated Backup Pool for Resiliency
- Part 5 – Step by Step Enabling Lync Server 2013 Enterprise Voice Features, Response Groups and Managers
- Using Lync 2013 and OneNote 2013 Integration

Chapter 6

Chapter 6 – Testing Lync Server 2013 Lync Web App and Looking at Functionality and Features

Dfd

The Lync Web App (aka LWA) gives external users (even without credentials) ability to connect to Lync 2013 meetings without having Lync client installed on their pc. Users with organization credentials might use LWA when they are at a PC that doesn't have the Lync 2013 client installed.

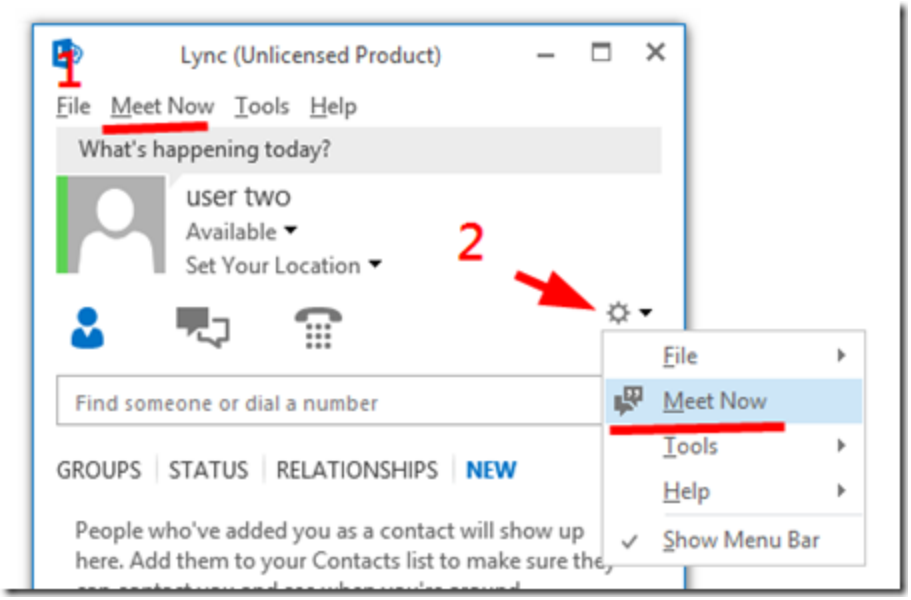
If we followed the steps in Part 1 of this series then the Lync Web App should be installed and ready to use. By installing the pre-requisites on your FE and enabling Conferencing when defining the Lync Topology you did everything needed to install and configure LWA.

In this blog we will test to make sure the LWA is working correctly.

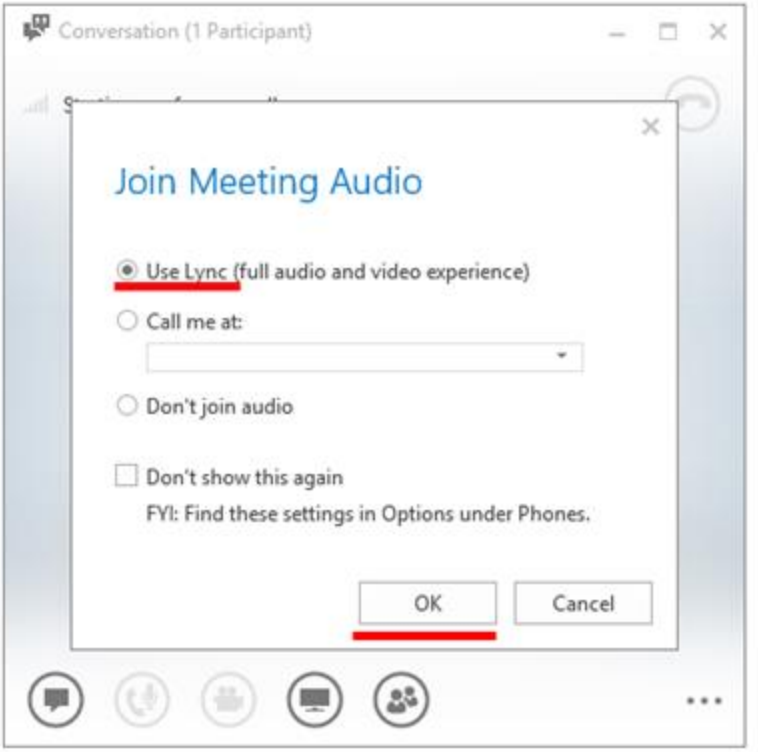
Before starting, if you are using a server or virtual machine to test LWA, make sure your audio devices are properly configured

- right click on speaker beside clock, click on "Playback Devices" and you be asked if you want to enable Windows Audio Service, the answer is Yes.

To start a meeting, go to a computer that has the Lync 2013 client installed and logged in and start a meeting by pressing ALT+M or clicking Options | MeetNow



Next you will be prompted on how you want to join the Meeting Audio. Let's click to use "Use Lync (Full Audio and video experience)"



Now click on More Options | Meeting Entry Info and copy/email/type the meeting URL to the PC you want to join the meeting using LWA. The meeting join URL will look something like:
https://meet.lab.local/u2/NVCKCK1G

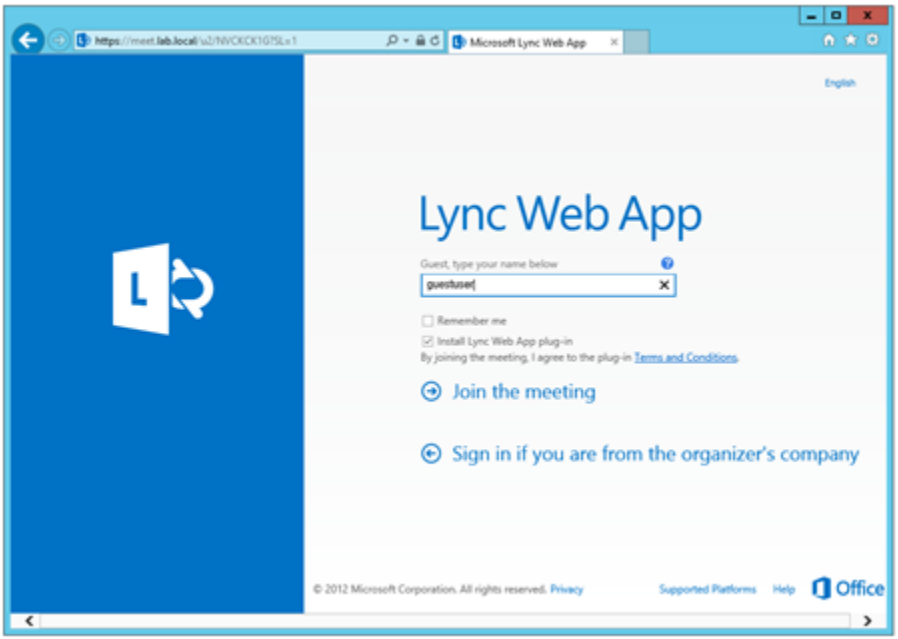
Open Internet Explorer and enter the above URL. (Note: actually LWA will work on select versions of Internet Explorer, Firefox and Safari, depending on O/S and Version. See this page for details.

NOTE: If this PC has Lync client installed on it, suffix the URL with ?SL=1. This will force the PC to use the browser instead of the Lync

client.
Example: https://meet.lab.local/u2/NVCKCK1G?SL=1

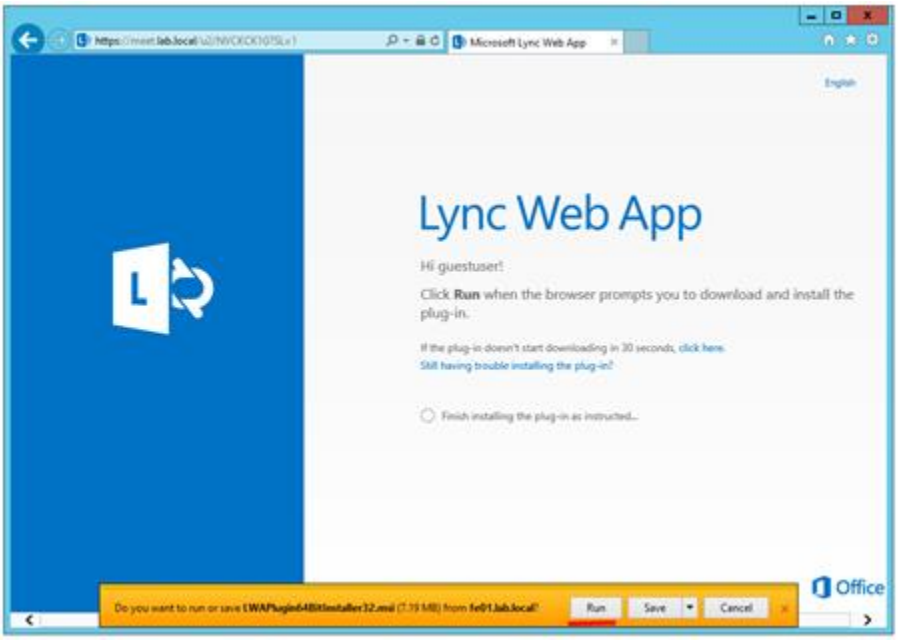
NOTE: When you browse to the meeting url in your lab, you may get a Windows Security logon request, you can click Cancel.

Next you will see the Lync Web App sign in screen. Since our first test will simulate a guest external user, let's click on "Sign in here instead". Now we see the guest login screen below. Now we can type any guest name and click Join the meeting



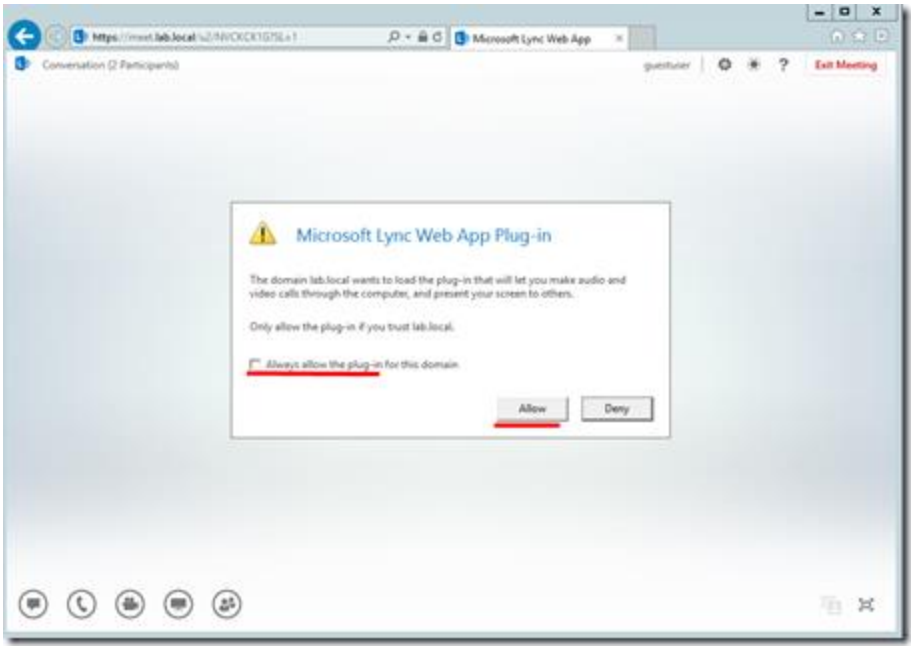
If this is the first time you ran LWA on this pc you will be prompted to download and install a small 7MB LWA plugin. Click Run

NOTE: if you do not install the plugin you will still be able to connect to the meeting, just the media based part of the meeting (audio, video, application viewing)

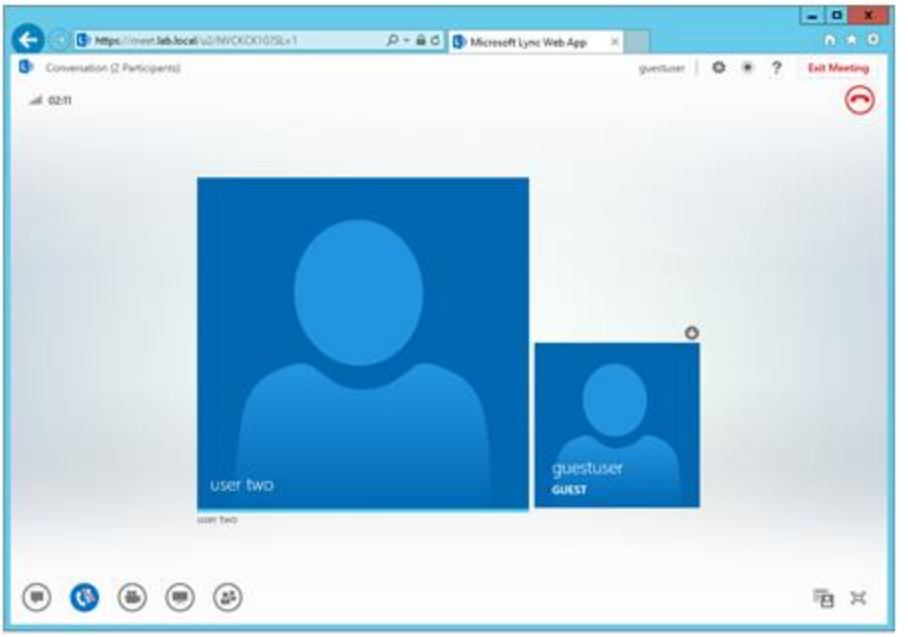


you may need to click Join. next you will be asked to allow the Plugin

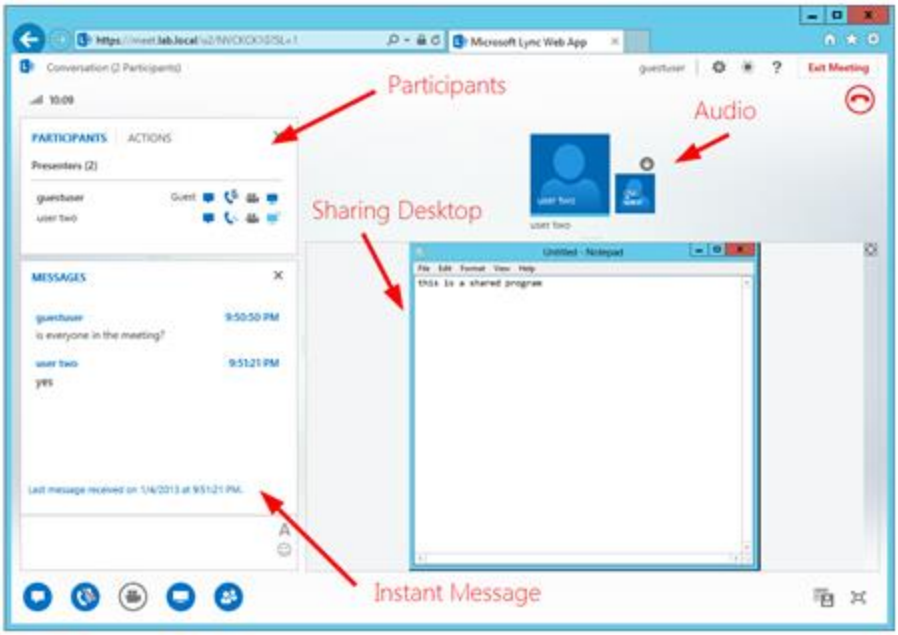
you may be prompted to allow the plugin



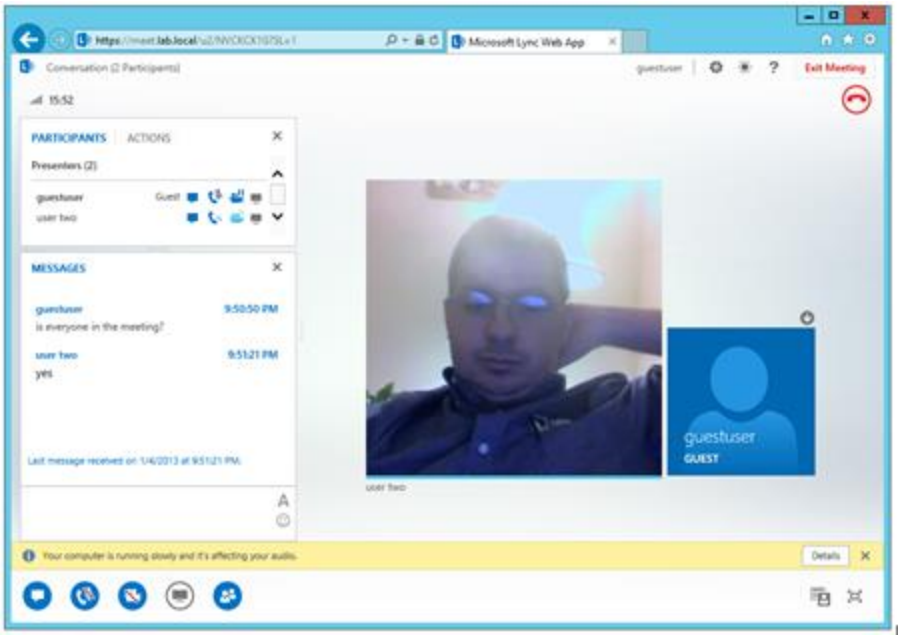
Now you will be joined to the meeting!



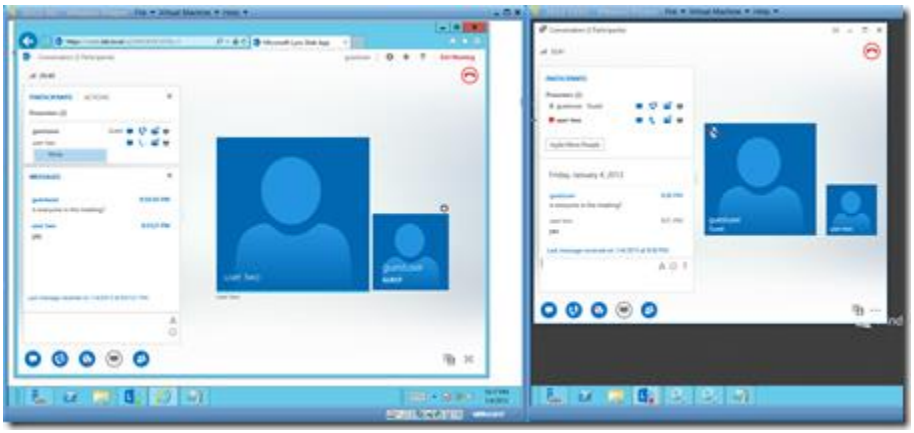
Now that we are in the meeting and see that, Yes, the Lync 2013 web client does do audio (and video) lets turn Instant Message and desksharing…



and Video along with multi-view video (not shown on the screenshot below)



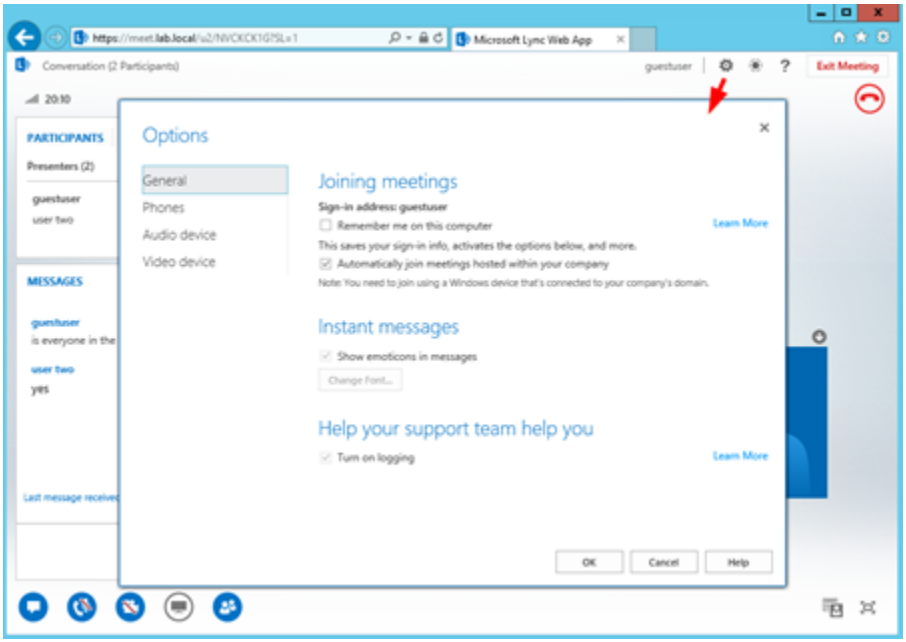
Just to demonstrate how similar the Lync 2013 conversation/meeting window and LWA are, below is a screenshot side by side.



As you can see, the LWA experience is very similar to the full Lync 2013 client meeting join experience. With LWA users can

- participate in Audio and Video
- View and Share desktop
- See multi view video
- configure audio and video devices settings

Below is the Options and settings screen, which we will note is similar to the Lync client Options.



What happens if we try to run the LWA on a platform that is not supported? (Say Ubuntu Linux?) Let's take a look:

[screen shots]

LWA is quite a good experience, some might ask: Why even install the Lync 2013 client? Some things the LWA does not do

- It is not designed to log into to use as your client because there is no contact list, presence, search for contact
- no meeting recording
- you can think of LWA as the conversation window part of the Lync client

Some final notes:

- due to the functionality of the LWA there is not a Lync 2013 branded Attendee client for Lync
- LWA does not require Silverlight

Continue your lab with more articles in this Lync Server 2013 Step by Step Series:

- Part 1 – Step by Step Installing Lync Server 2013 Standard Edition Front End
- Part 2- Step by Step Installing Lync Server 2013 SE Monitoring Server
- Part 3 – Step by Step Installing Lync Server 2013 Persistent Chat Server
- Part 4 - Step by Step Installing Your 2nd Lync Server 2013 SE Server Associated Backup Pool for Resiliency
- Part 5 – Step by Step Enabling Lync Server 2013 Enterprise Voice Features, Response Groups and Managers
- Part 6 - Step by Step Testing Lync Server 2013 Lync Web App and Looking at Functionality and Features – Part 6
- Using Lync 2013 and OneNote 2013 Integration

LWA Supported Platforms:
http://technet.microsoft.com/en-us/library/gg425820.aspx

Chapter 7

Chapter 7 - Installing Lync Server 2013 Edge Server on Windows 2012

The steps overview:

- Prepare the Windows Server 2012 R2 OS
- Define Edge Pool in topology
- Install Lync Components
- Install Certificates
- Start Lync services
- Testing

Prepare the Edge Windows Server

Server requirements:

- 2 physical NICS
- Minimum of 2GB RAM and 40GB Hardrive
- Do NOT join Server to Domain
- 3 Public IP addresses

Some stuff about our setup:

- Edge PC name: LYNCEDGE1.lab.local
- LAN IP: 192.168.50.30 (same subnet as our FE)
- DMZ IP's: (must be separate subnet from FE subnet)

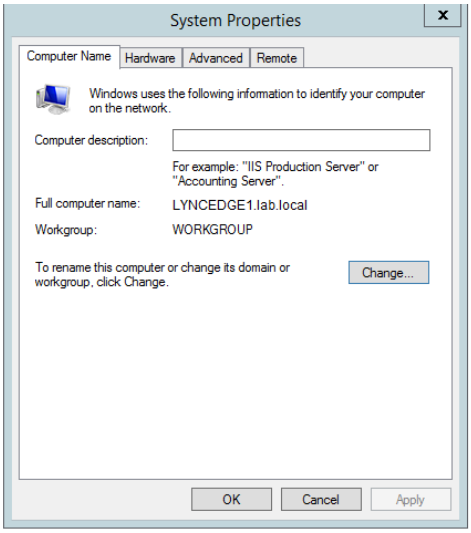
    - Access: 172.16.8.60
    - WebConf: 172.16.8.61
    - AV: 172.16.8.62
- All IP addresses are fixed IP address
- Your DNS Server will need a record pointing at the name/netbios name of the LAN IP of the edge
- Our Lync Front End IP address is 192.168.50.21
- Public IP addresses
    - Access Edge: xx
    - WebConf Edge: xx
    - A/V Edge: xx

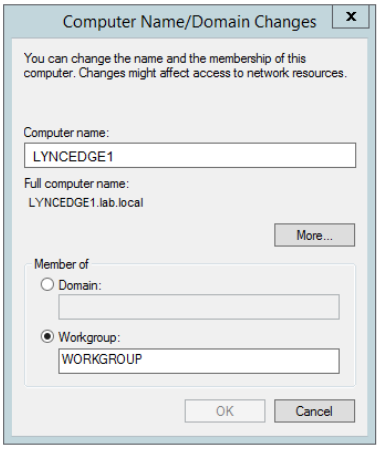
Install Windows Server 2012 R2 with 2 NICS which will connect to 2 separate subnets which are our LAN and DMZ subnets. After you have the OS installed, install the Lync prerequisites using Pat Richard's excellent Powershell script available here: http://www.ehloworld.com/1697

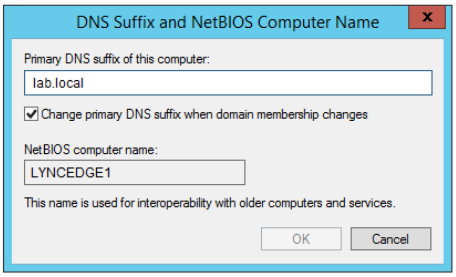
Let configure the DNS and server name on our edge server as shown below:

- Edge PC name: LYNCEDGE1.lab.local

Open "System properties", "Computer name" and click "Change…". Now click "More"

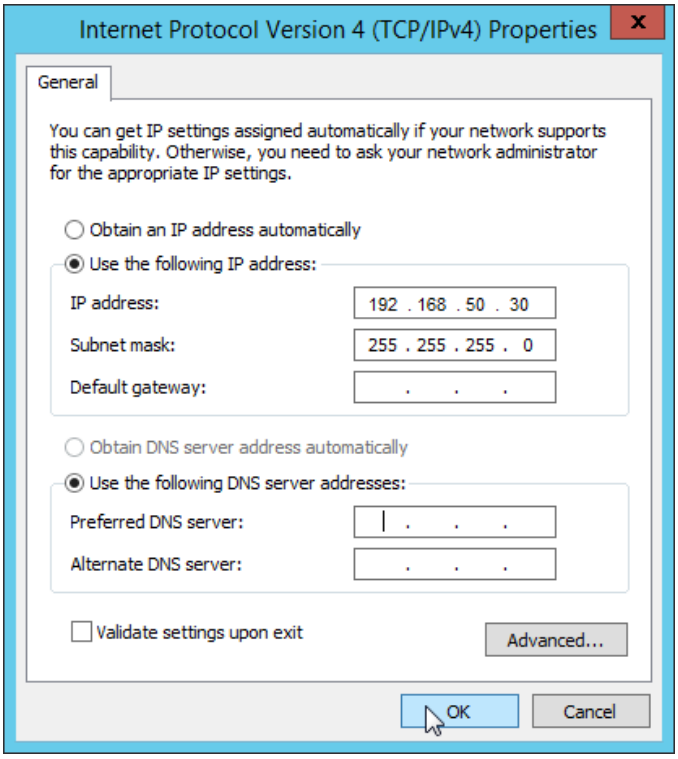




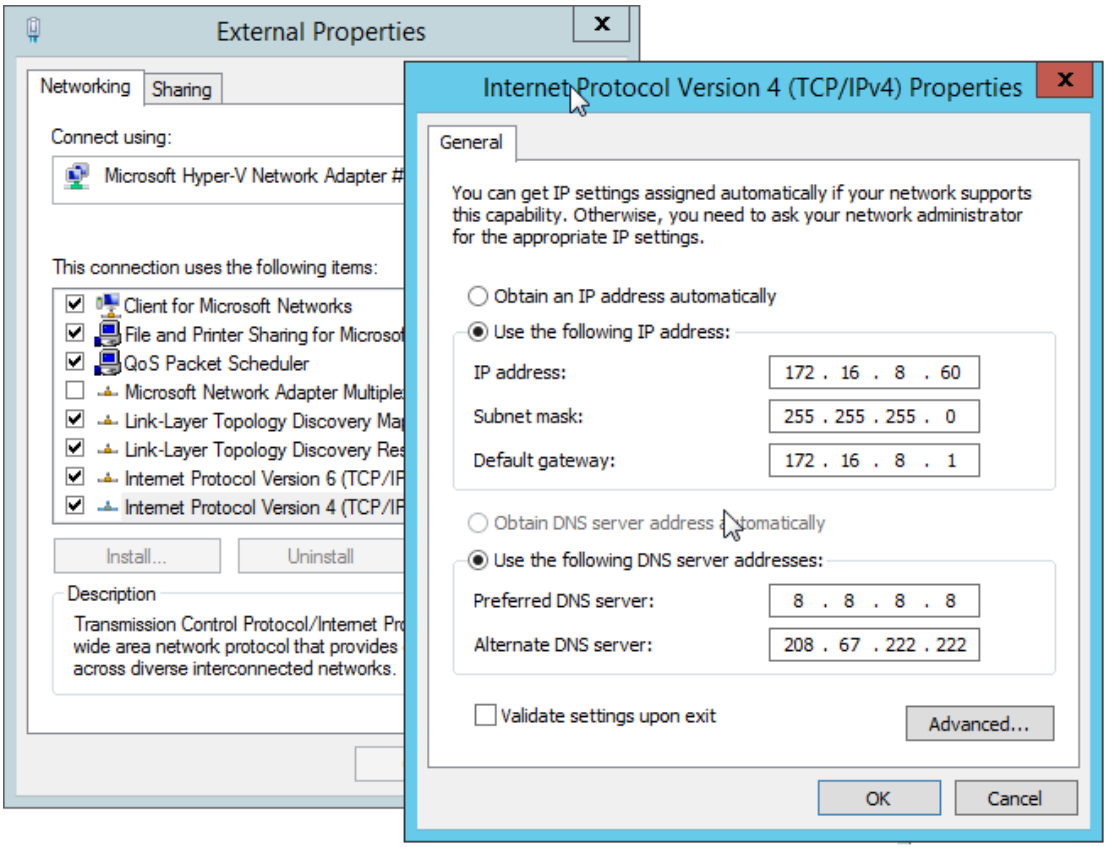


Now let's configure the IP address on the LAN NIC of the edge. The LAN NIC will be assigned 1 IP address that is on our LAN IP (192.168.50.30). This is the same subnet that our Lync Front End is on. Remove the "Default gateway" so it is empty.

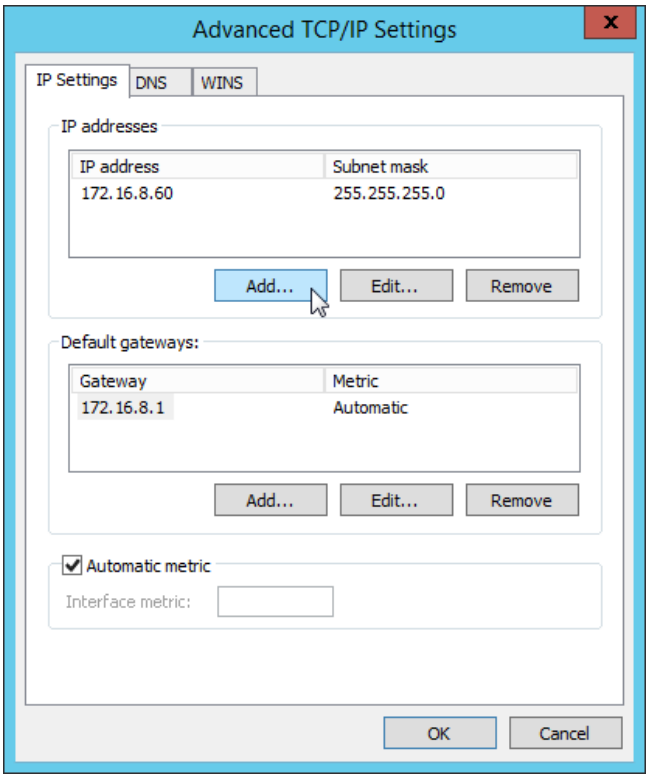
On the edge server, create a hosts file and add an entry for the internal Lync front end(s). (or use the internal DNS servers if the edge has access to them)



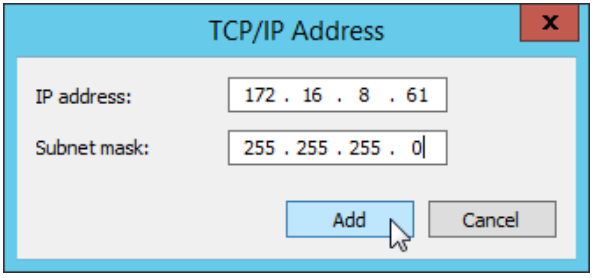
Next we will setup the external/DMZ facing 3 IP addresses on the DMZ NIC in the edge. (While it is possible to use 1 IP address, in this guide we will use 3 IP addresses. I really recommend using 3 IP addresses to avoid challenges when your users are at a café, hotel, other WIFI that only has Ports 80/443 outgoing open) Open the NIC properties and we'll assign the Access IP as the first IP address. Use public DNS servers for DNS.



Now click on "Advanced" and under "IP addresses" click "Add" to add our 2nd and 3rd IP addresses.



Enter the Webconf (and then AV) IP address and click "Add"

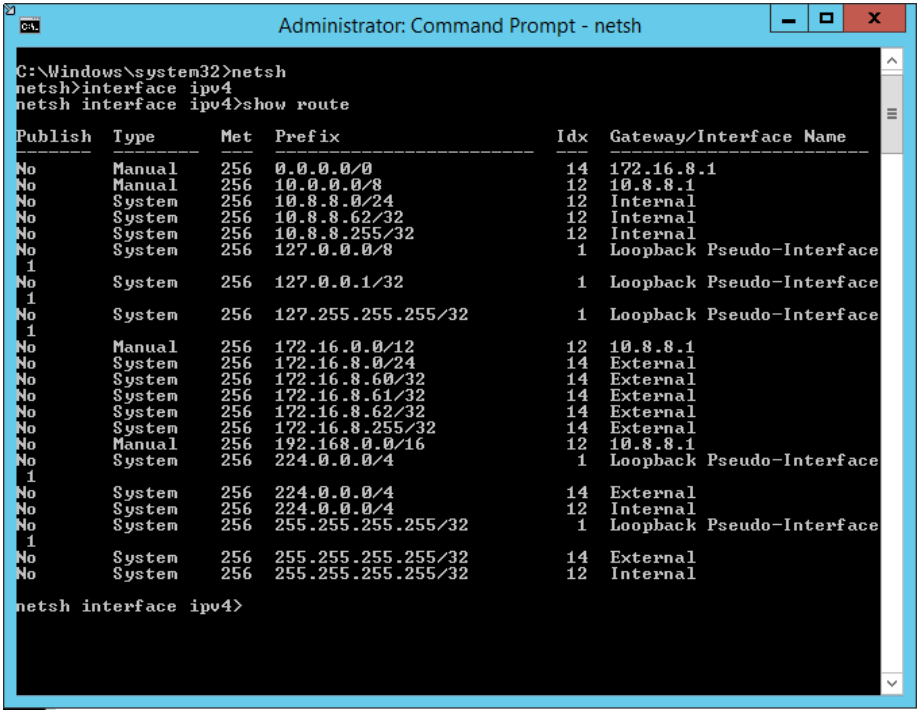


Add static routes. (using Ken Lasko blog article: http://ucken.blogspot.com/2012/01/lync-edge-server-static-routes.html)

You can see the static routes added by running "netsh" as shown below:

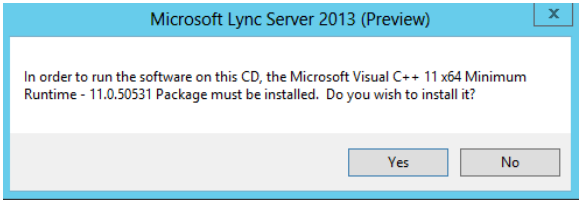
- Netsh
- Interface ipv4
- Show route

All the "Manual" routes except Prefix with 0.0.0.0/0 were the routes added.

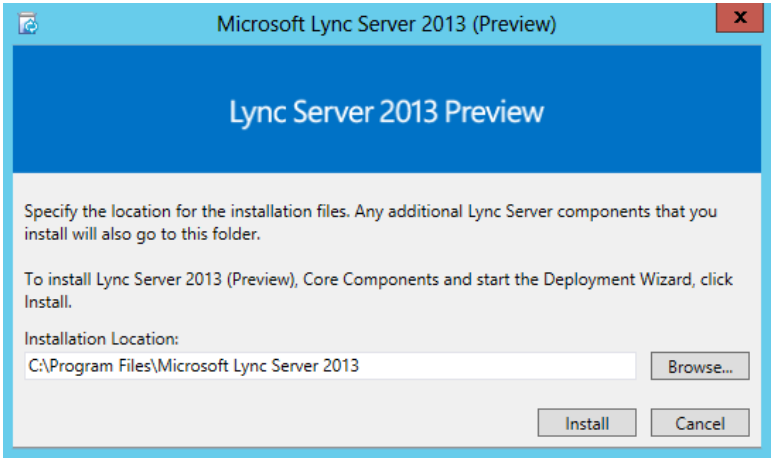


Now we are ready to install the Lync Server components.

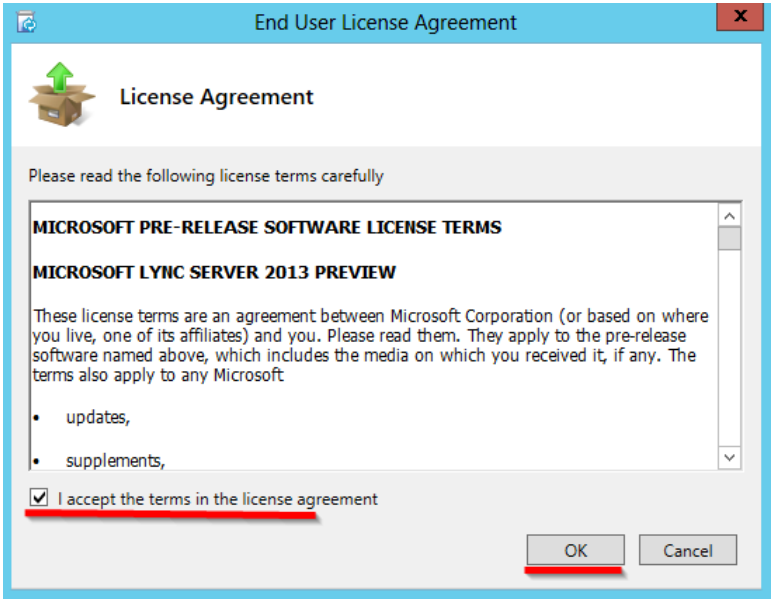
Insert the CD/ISO and run Setup.exe. (you may be prompted to install Visual C++, if so, click "Yes")



You can accept the default location and click "Install".

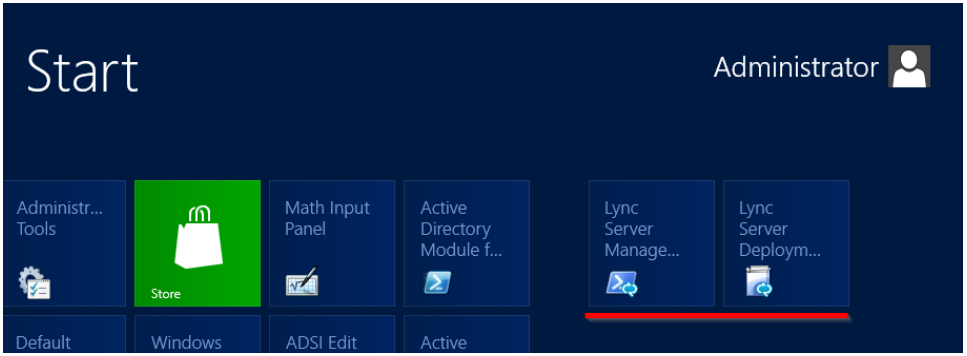


Accept the EULA and click "OK".



When install is complete (approximately 3 minute wait time) you will have below apps installed.

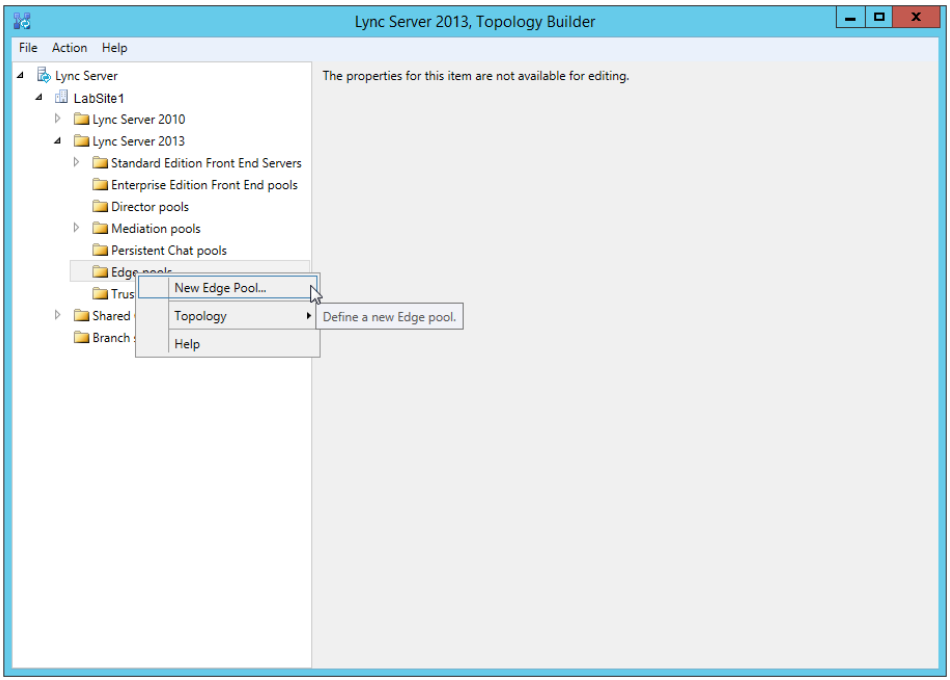
- (Lync Server Manager
- Lync Server Deployment Wizard



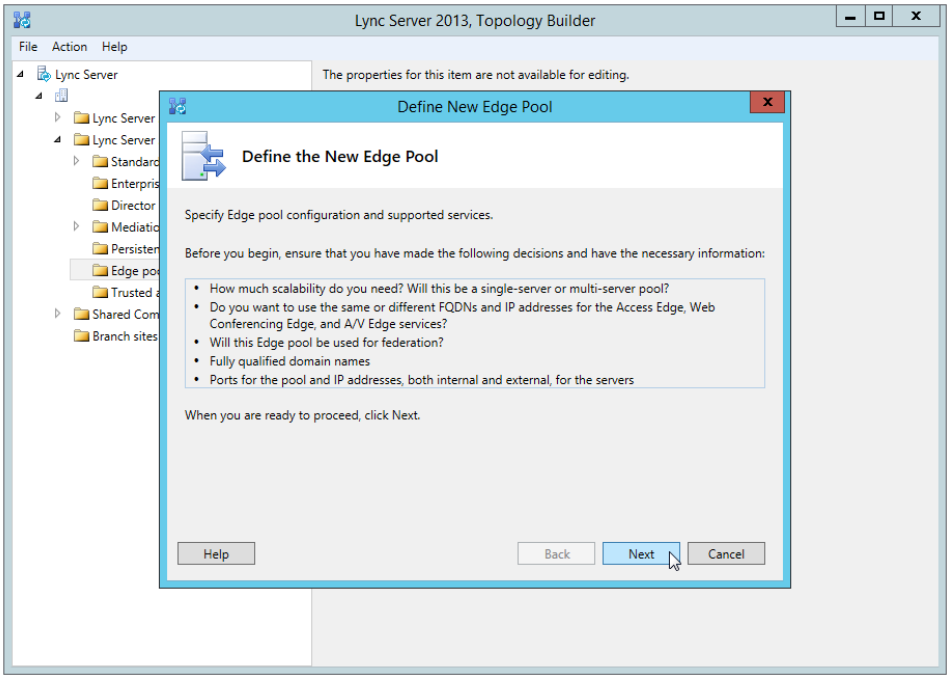
Now we are done preparing the edge server.

Defining the Edge Pool in topology

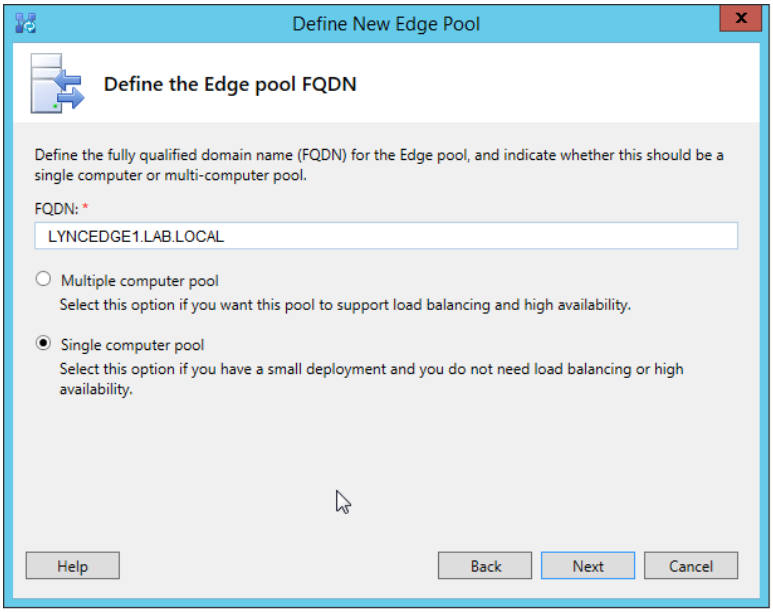
Now we will move to the Lync Server Front End machine (FE01 in our example) and run the "Topology Builder" and browse down to the "Edge pools" and click "New Edge Pool…"



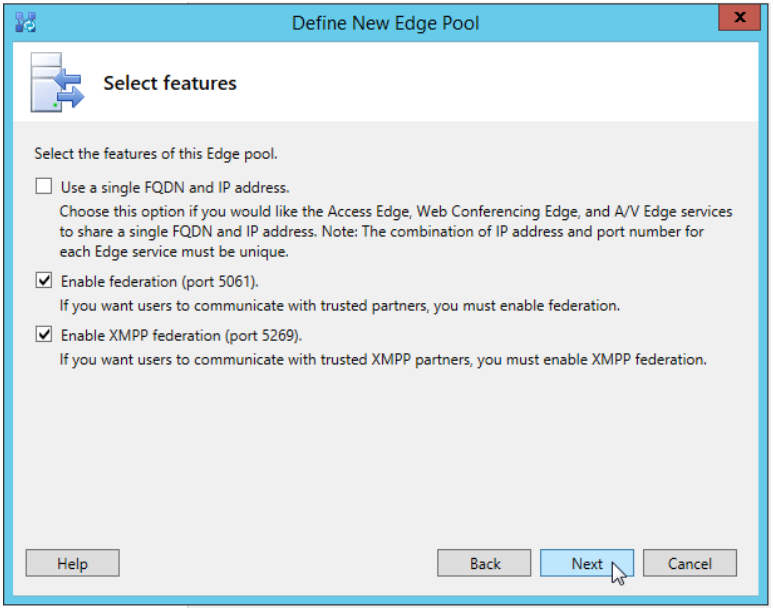
Next



- FQDN = "LYNCEDGE1.lab.local"
- Singe computer pool = Checked
- and Next

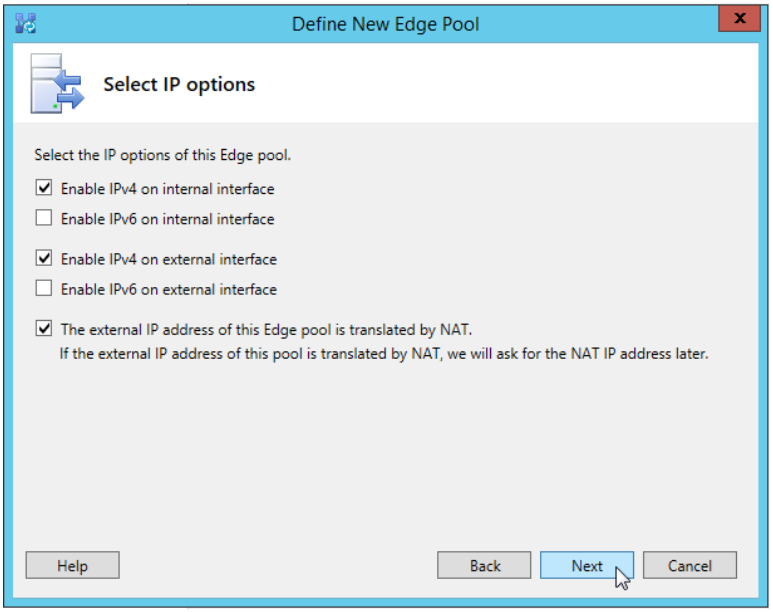


Next



- Enable IPv4 on Internal = selected
- Enable IPv4 on External = selected
- The external IP is translated by NAT = selected

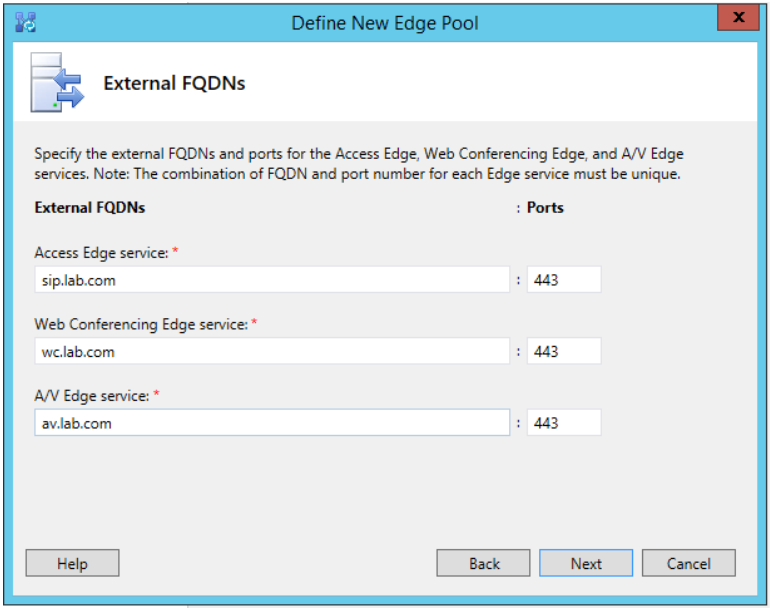
Next



Define new edge

- Access Edge service = sip.lab.com / 443
- WebConference Edge service = wc.lab.com / 443
- A/V Edge service = av.lab.com / 443
-

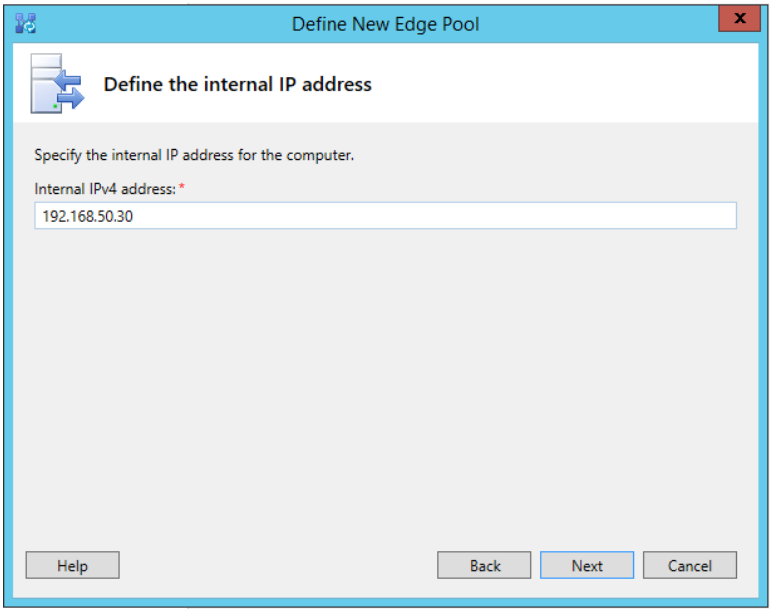
Next



Internal IP

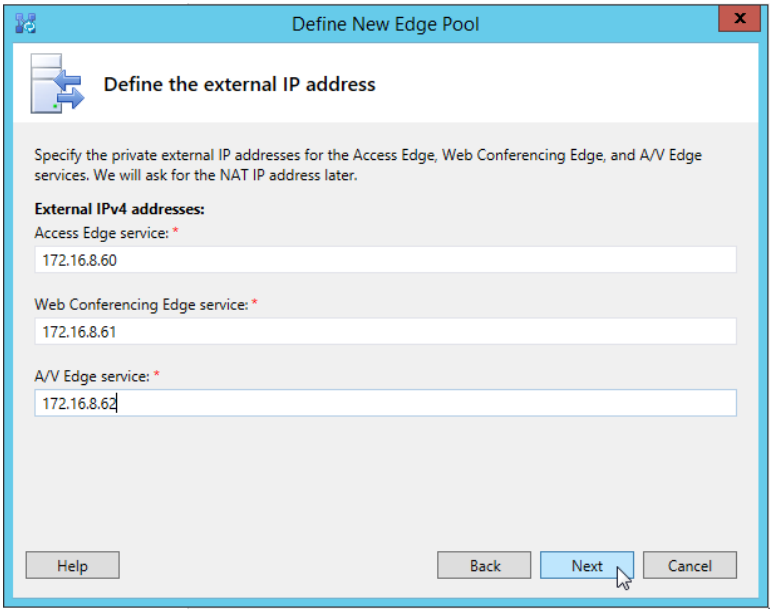
- Internal IPv4 address = 192.168.50.30

Next

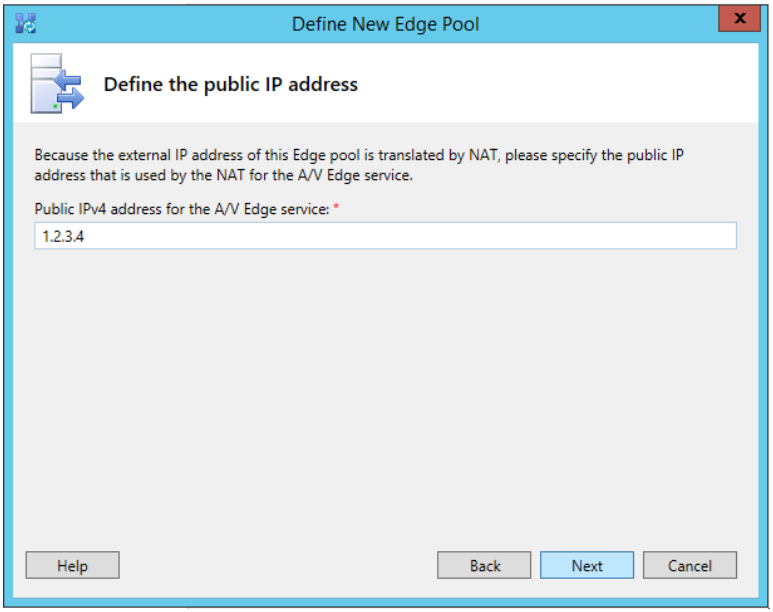


Next External/DMZ IP

- Access Edge service = 172.16.8.60
- WebConference Edge service = 172.16.8.61
- A/V Edge service = 172.16.8.62

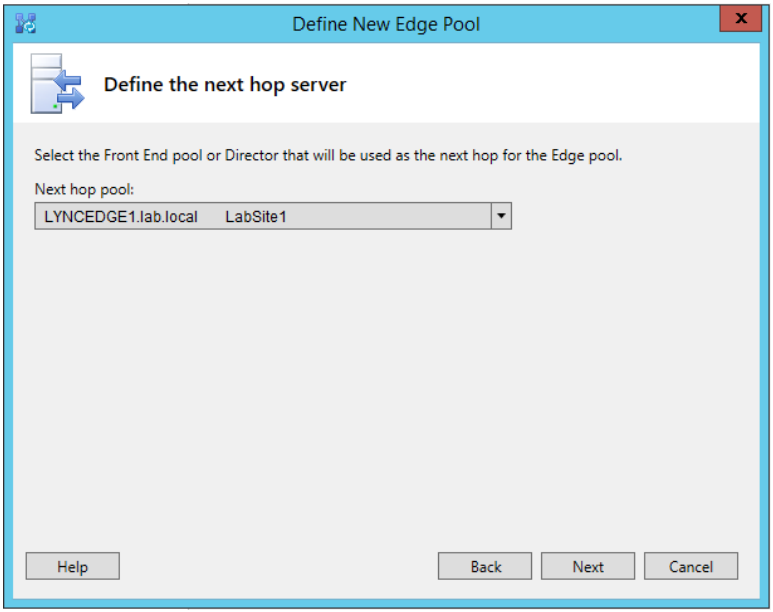


"Define the public IP address" screen allows you to enter the public IP (yours will be unique to your environment, not 1.2.3.4) address of the A/V edge service. Next

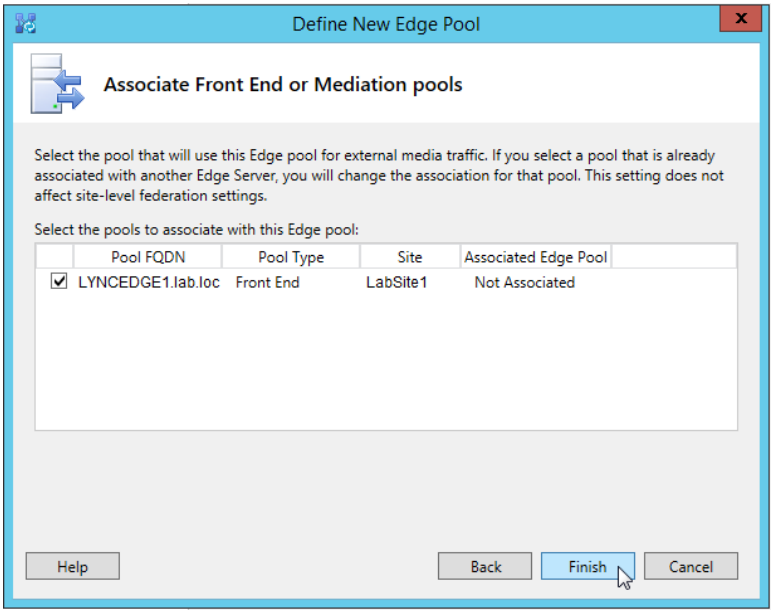


Next

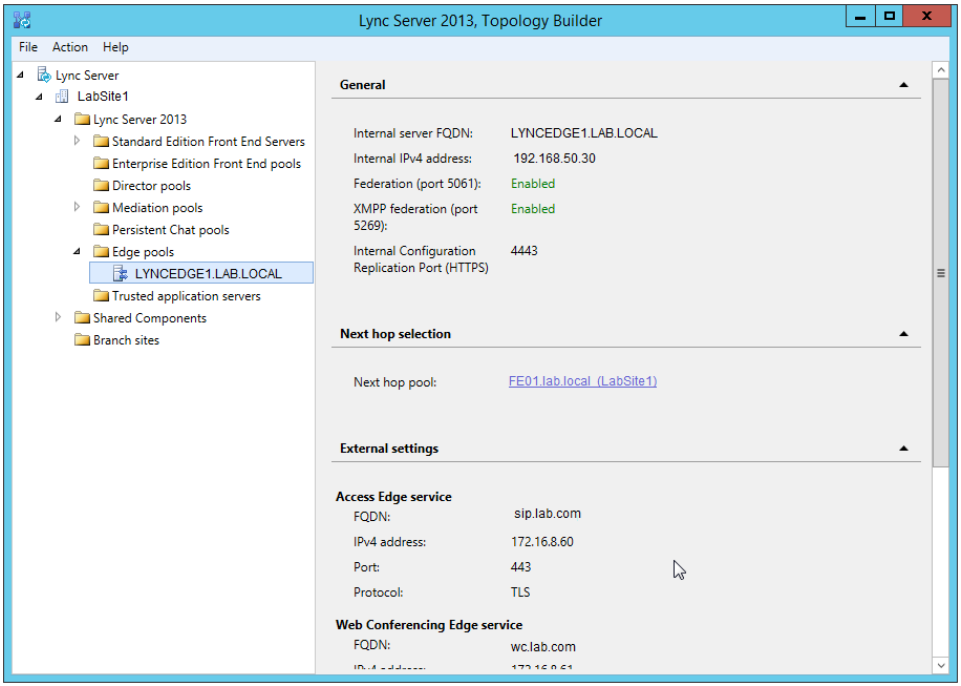
Select the Next hop pool = LYNCEDGE1.lab.local



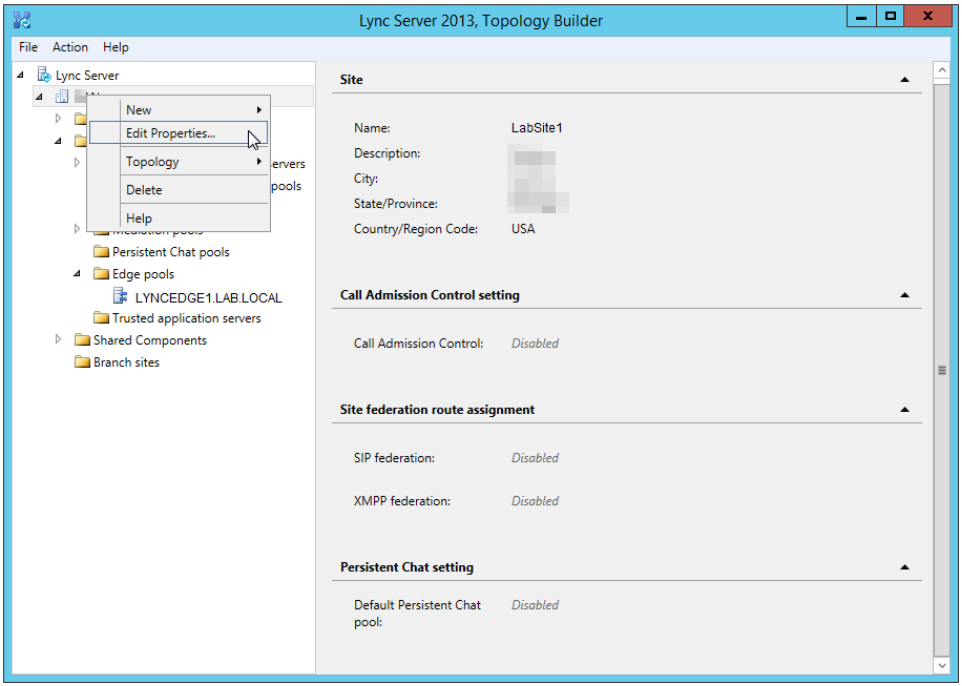
Next



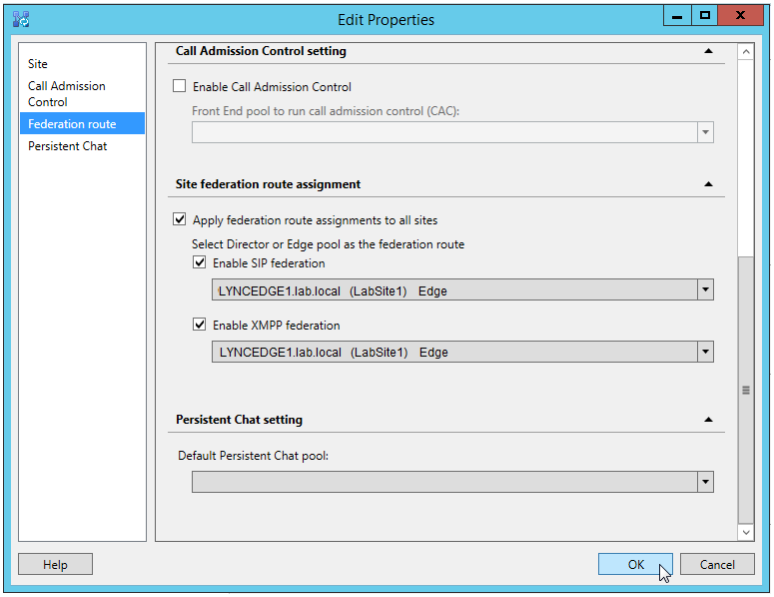
Below you can now see our edge pool configuration.



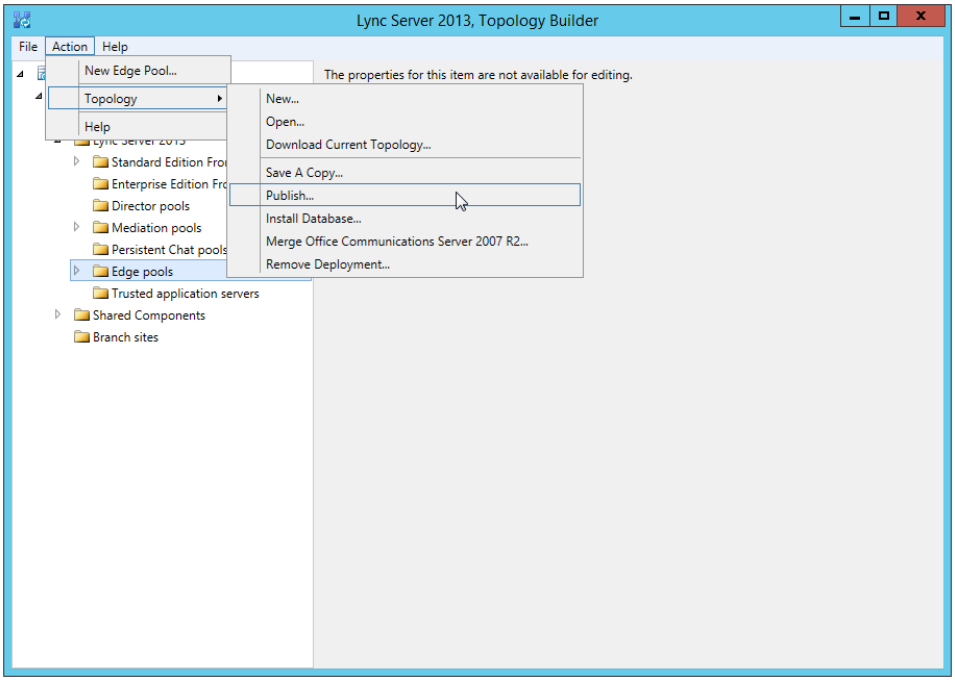
Now we will configure a federation route. Select the site, in our case "LabSite1", then right click and click "Edit Properties"



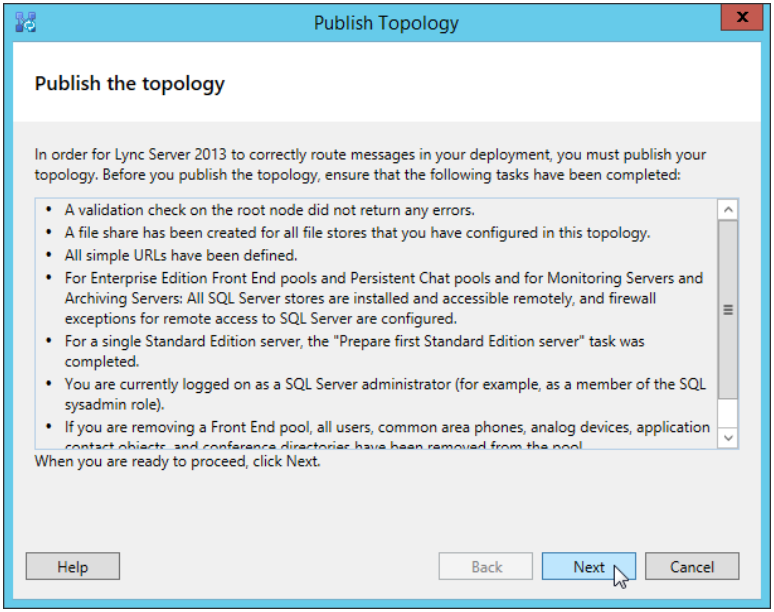
Next



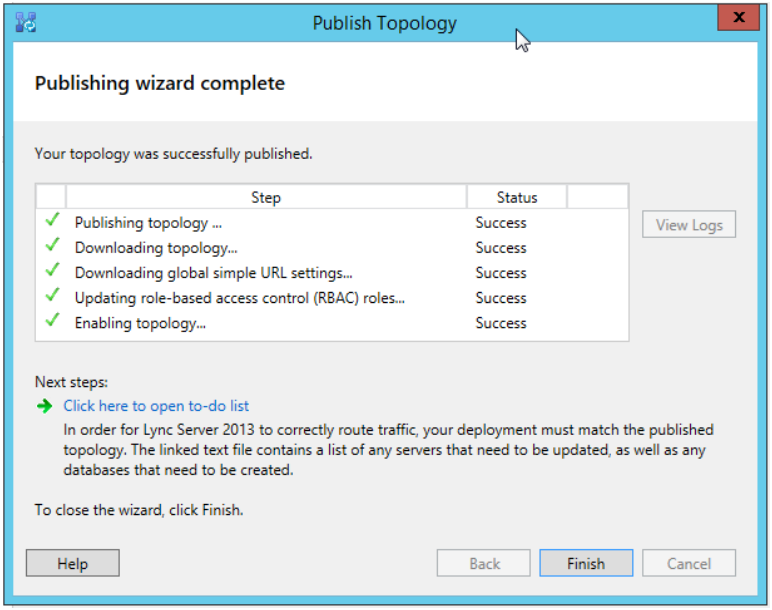
Next



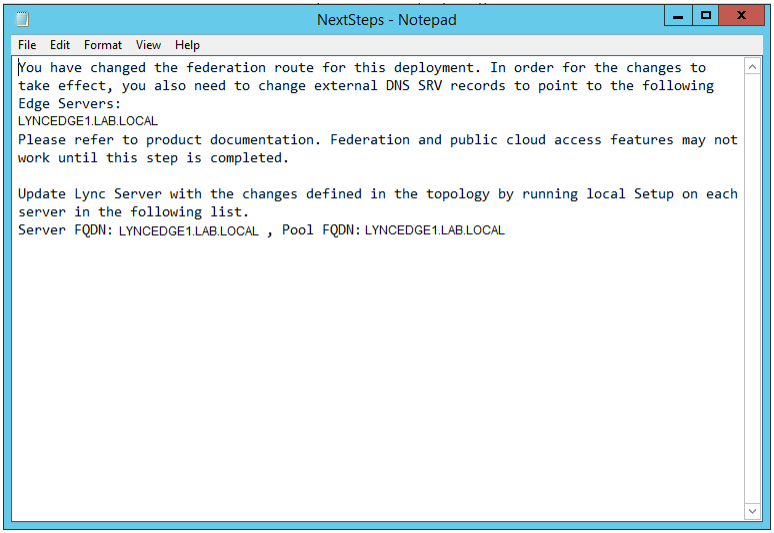
Next



Next



The publishing wizard has completed and it will give us a to-do. Let's click on "Click here to open to-do list" which will open a "NextSteps" text file with notepad. (shown below)



The NextSteps" instructs us to add the following external/public facing DNS SRV records:

- _sip._tls.domain.com: Points to our public Access/SIP edge IP address
- _sipfederationtls._tcp.domain.com: {same IP address}

Next we are instructed to run setup on the edge server. Since the Edge server is not on the Domain we will export the topology as a file and manually move it to the edge server. We will use powershell to export the topology file.

Export-CsConfiguration –file c:\topo.zip

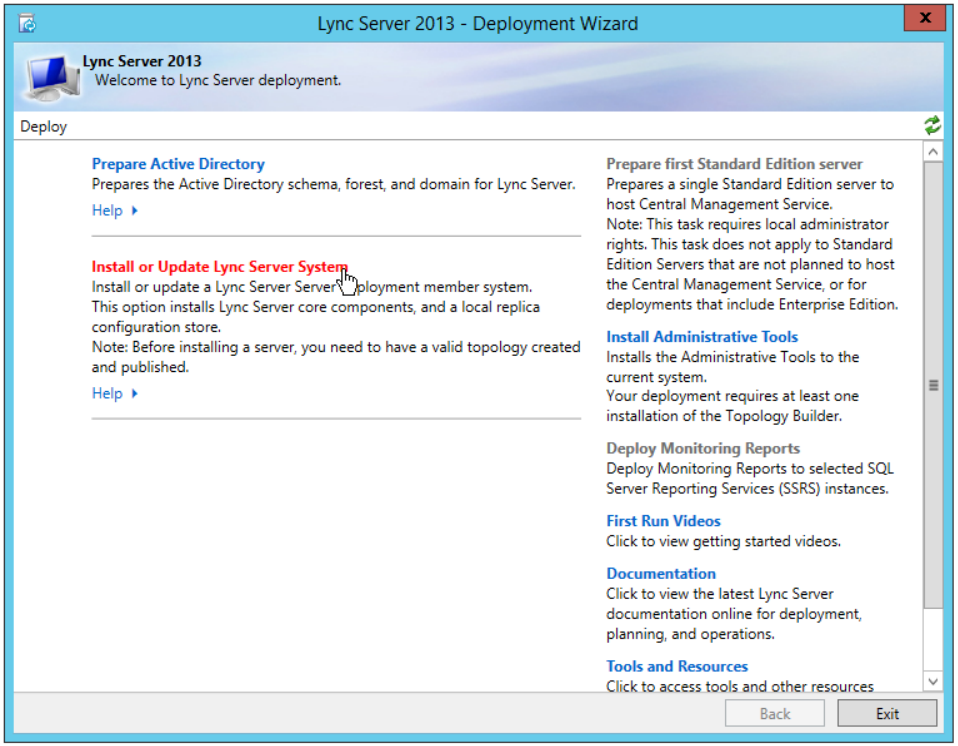
```
PS C:\Windows\system32> Export-CsConfiguration -file c:\topo.zip
```

Now move this zip file to your edge server using the method of your choice. (some will be able to use the Lync share, others not. Use the method of your choice)

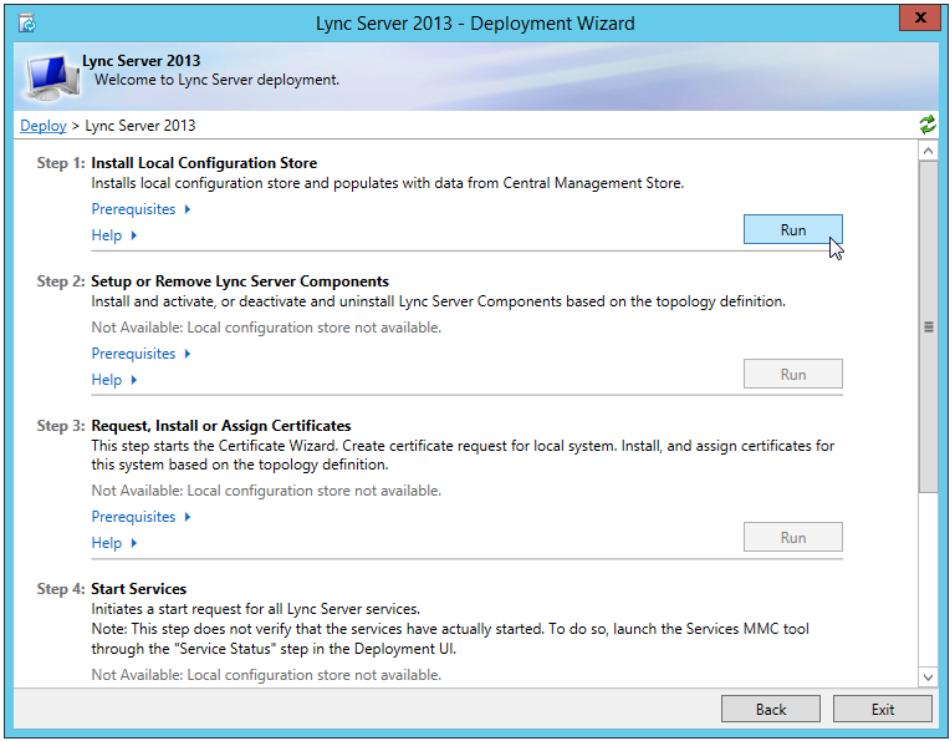
Installing the Lync Components

Now we'll move to the edge server we'll run the Lync Deployment Wizard to import the topology file we just made.

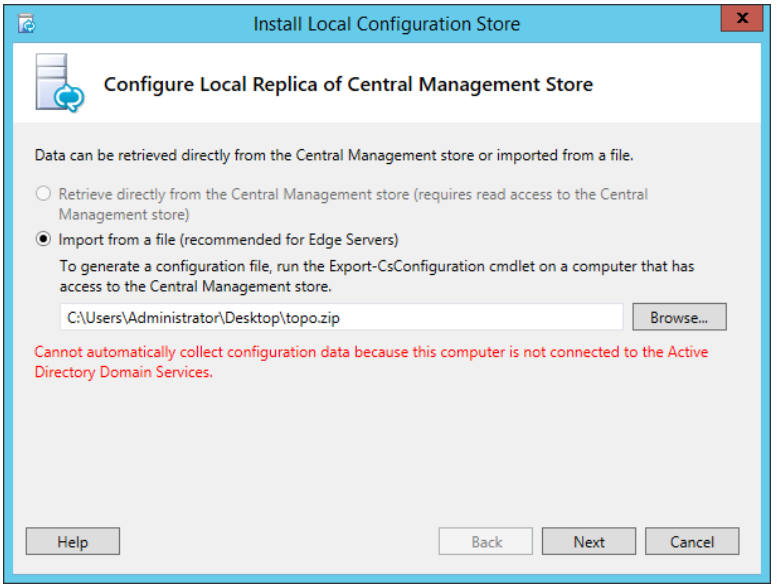
We'll run "Install or Update Lync Server System"



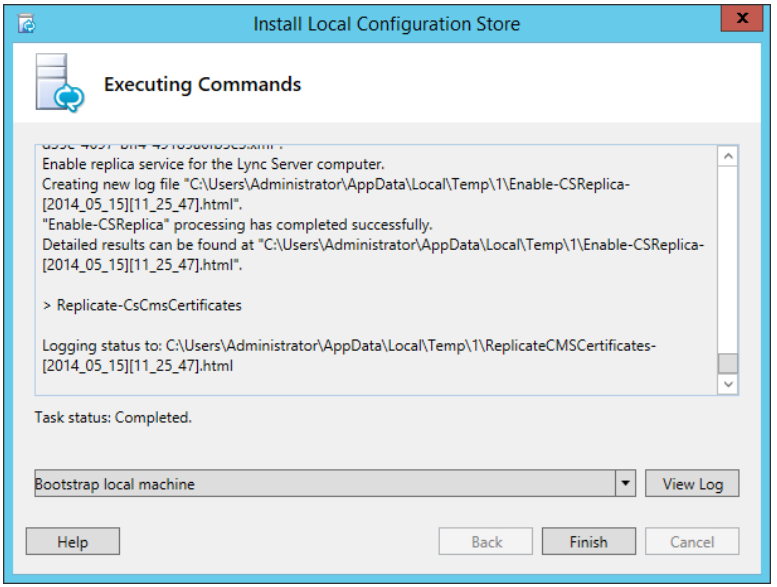
Next we'll run "Install Local Configuration Store"



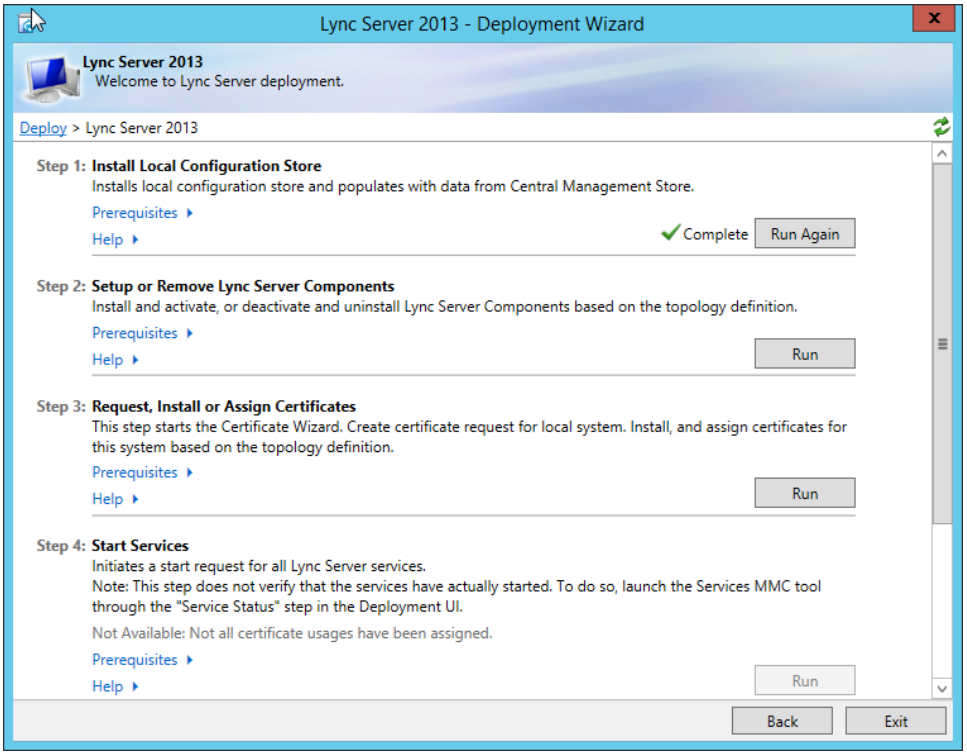
Select the topology file we made (topo.zip) and click “Next”.



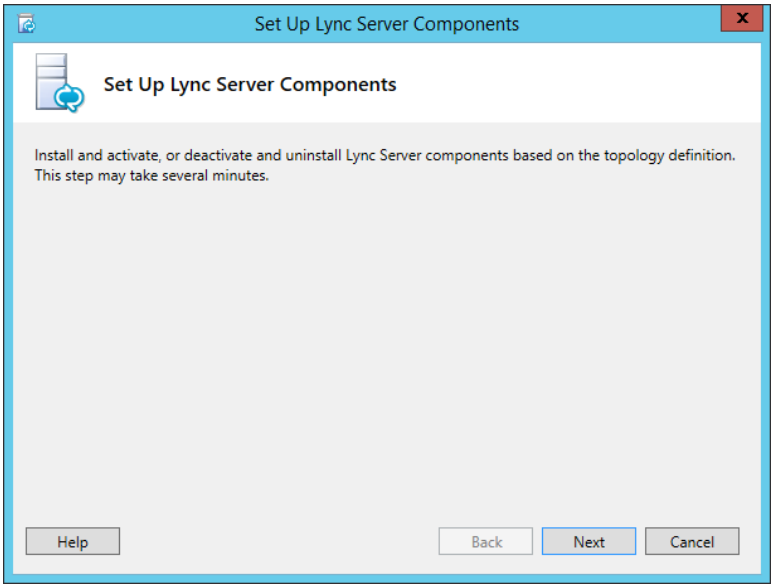
Click "Finish".



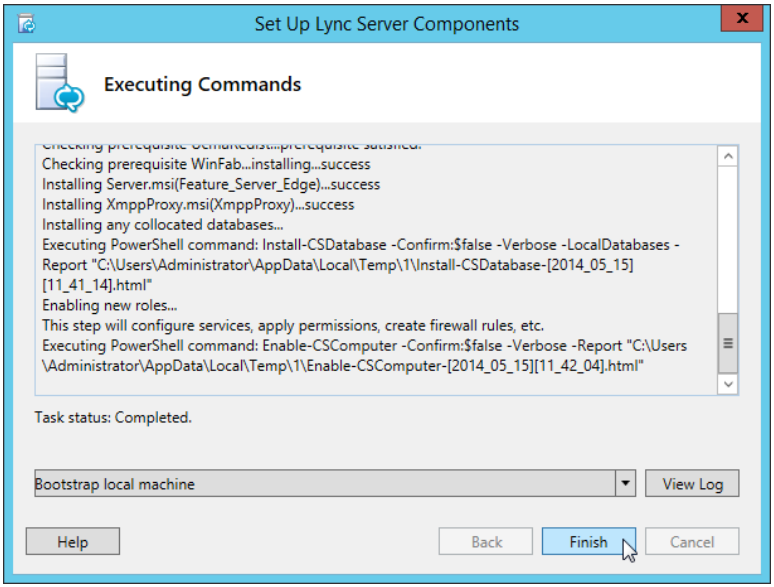
Now that we have the the "Local Configuration Store" in place we will run "Setup or Remove Lync Server Components".



Next

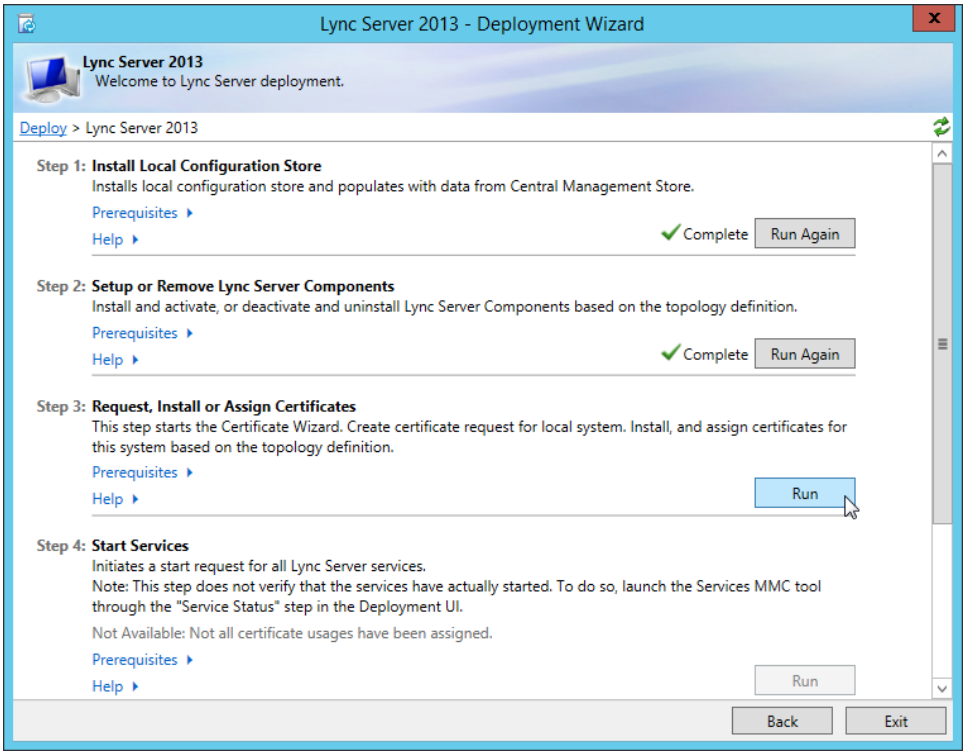


Finish.

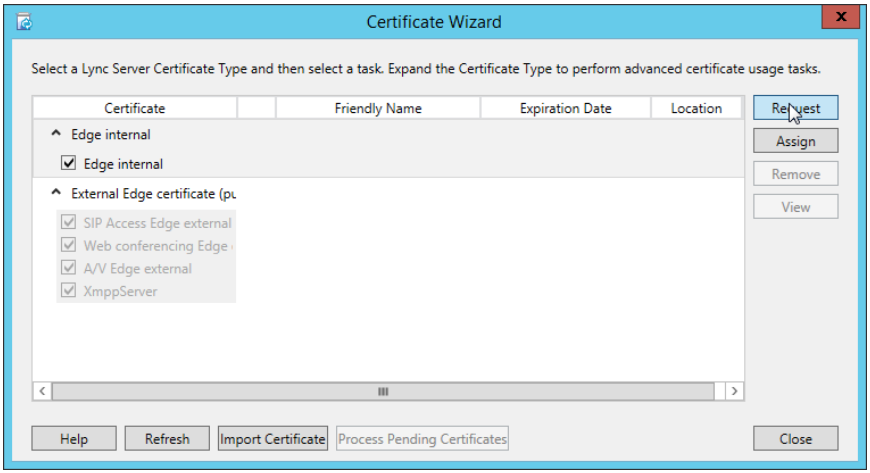


Installing Certificates

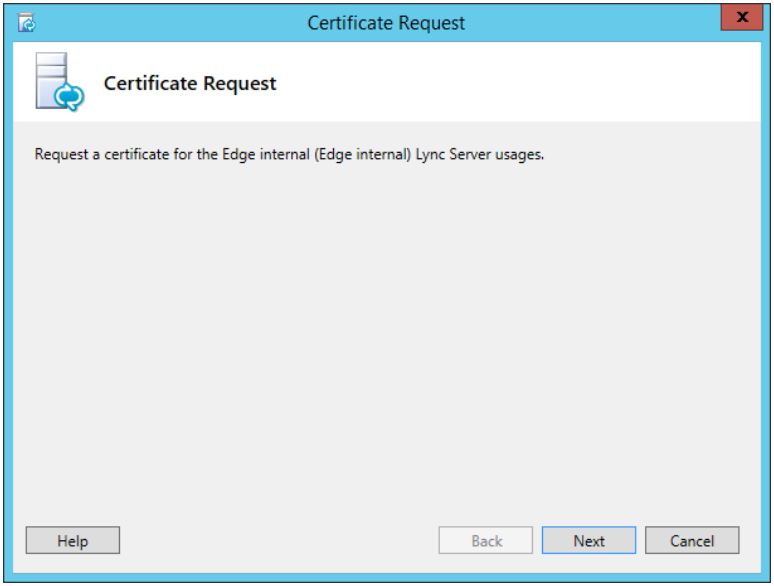
Now we will install and assign the certificates. (This part presumes you have a certificate authority installed on your active directory). Run "Request, Install or Assign Certificates".



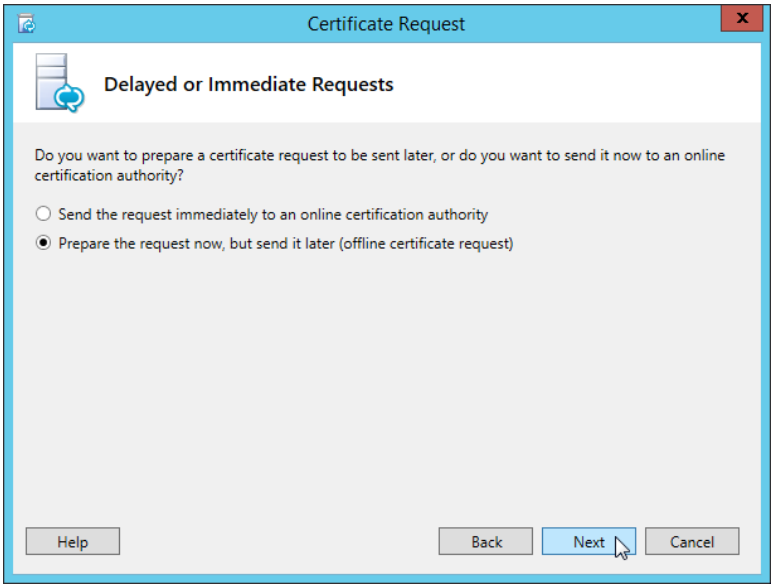
Select "Edge internal" and click "Request"



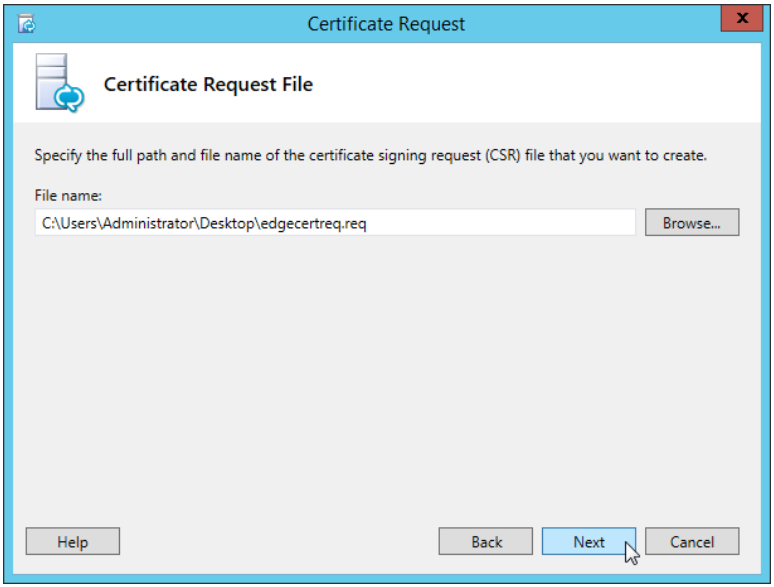
Next



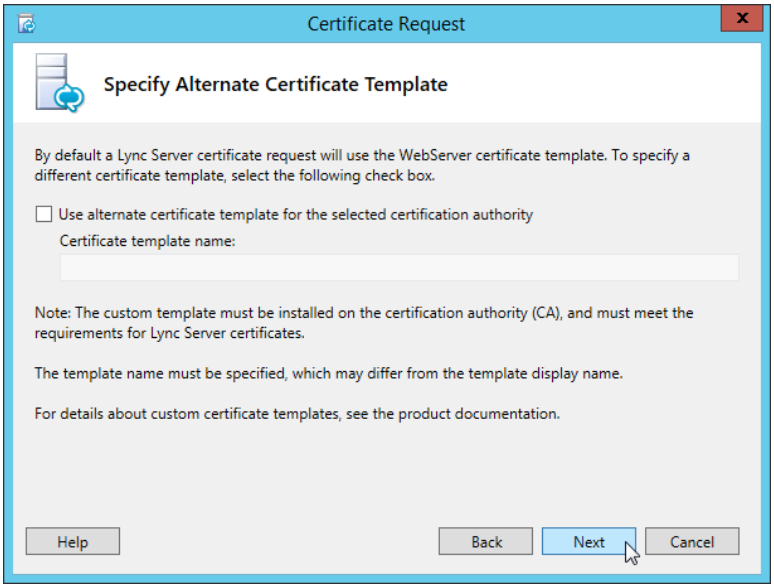
Next



Indicate where you want the CSR file you are creating.



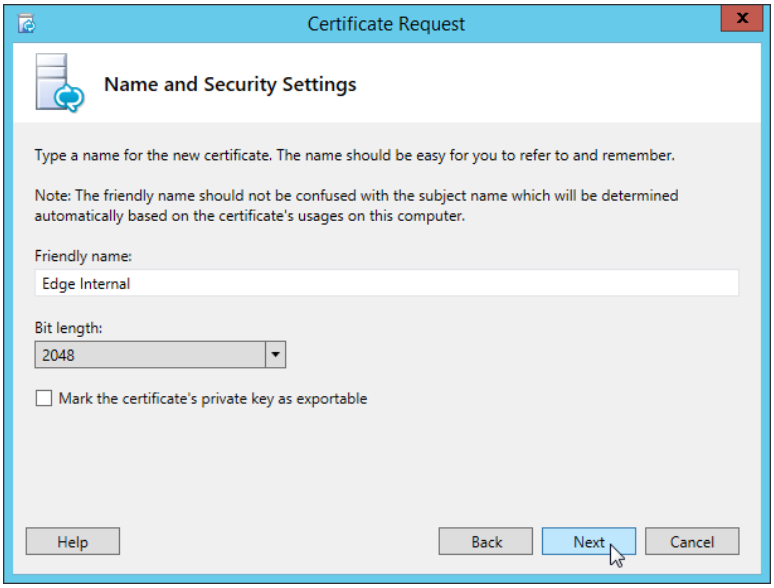
Next



Give the cert request some name

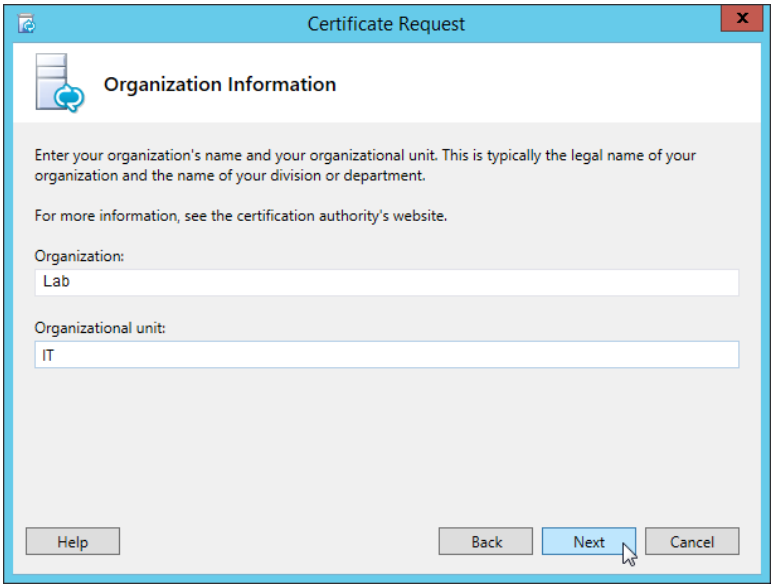
- Friendly Name = Internal Edge

Next



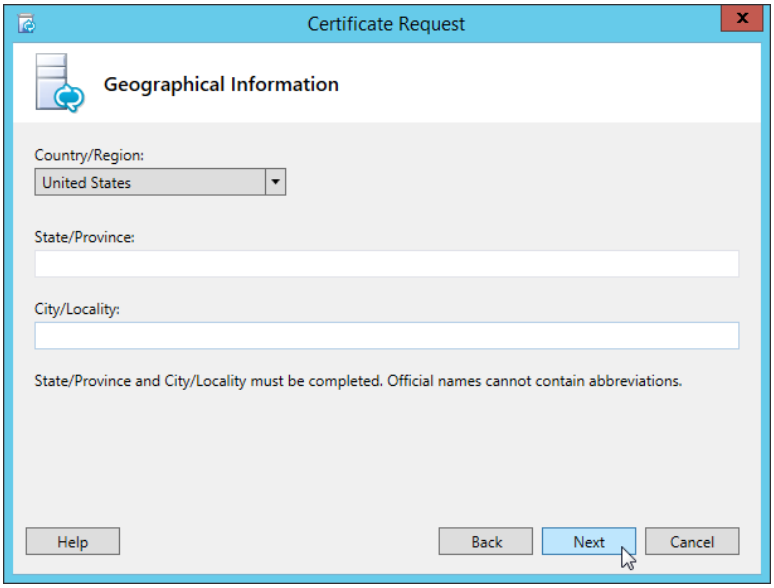
Organization Information

- Organization = Lab
- Organizational unit =

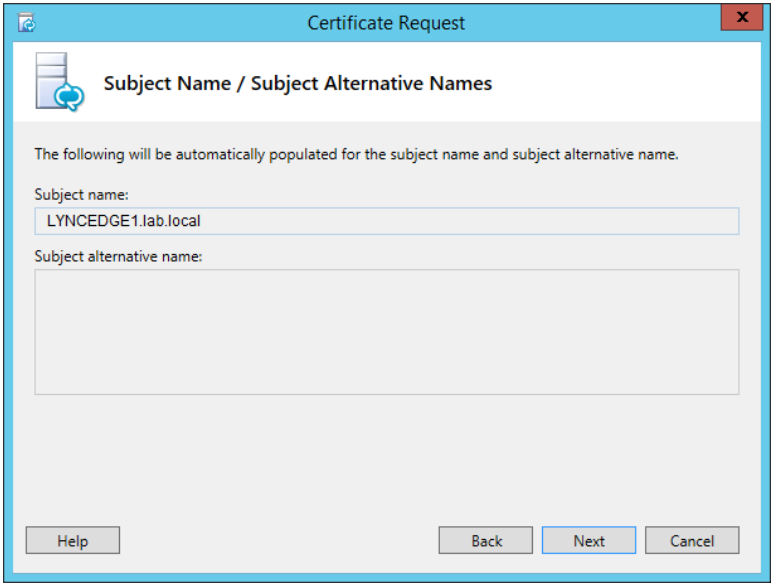


Geographical Information

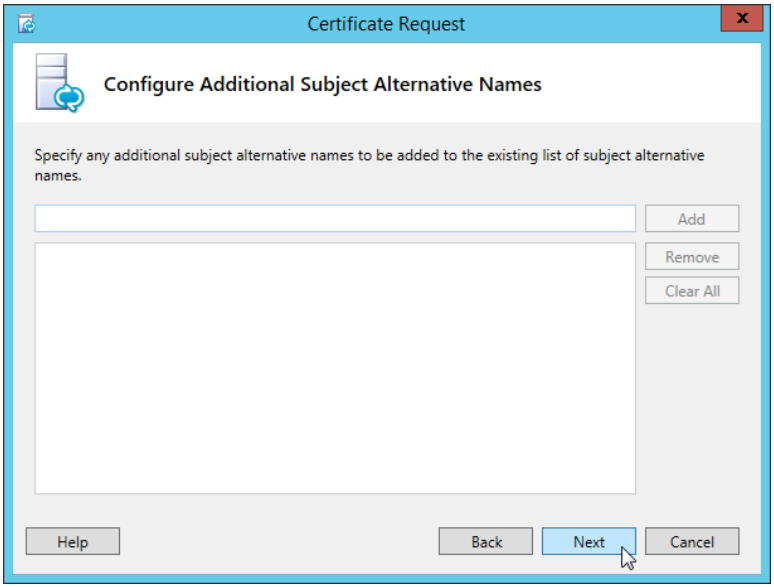
- State/Province = some state
- City/Locality = some city



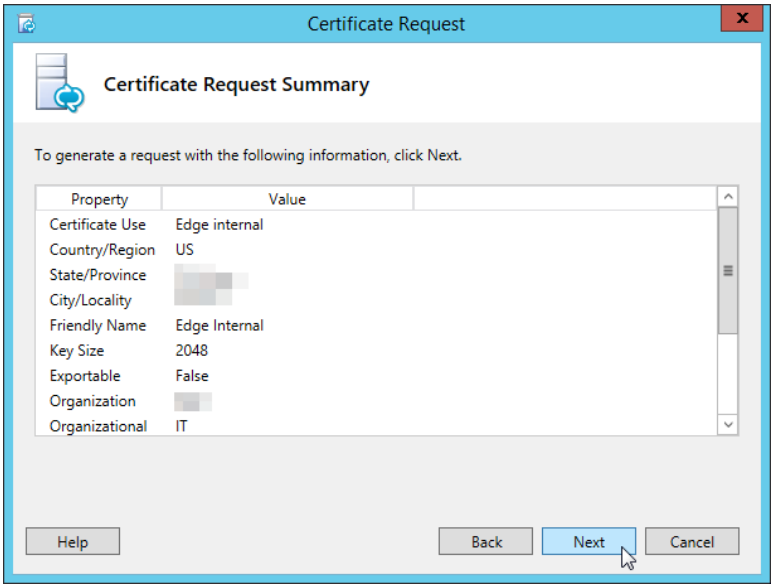
Next



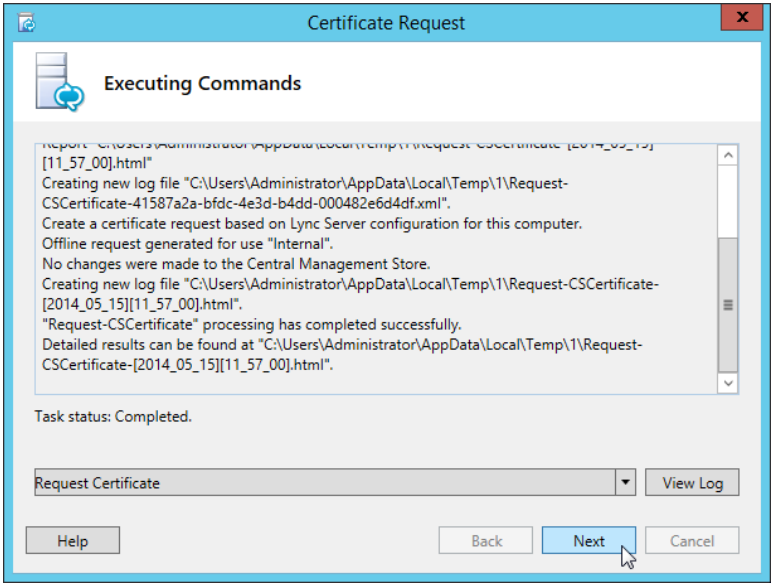
Next



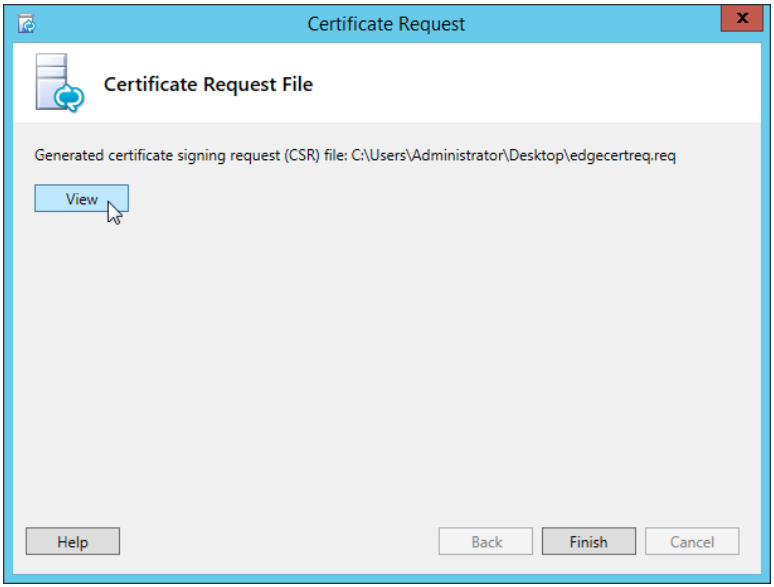
Next



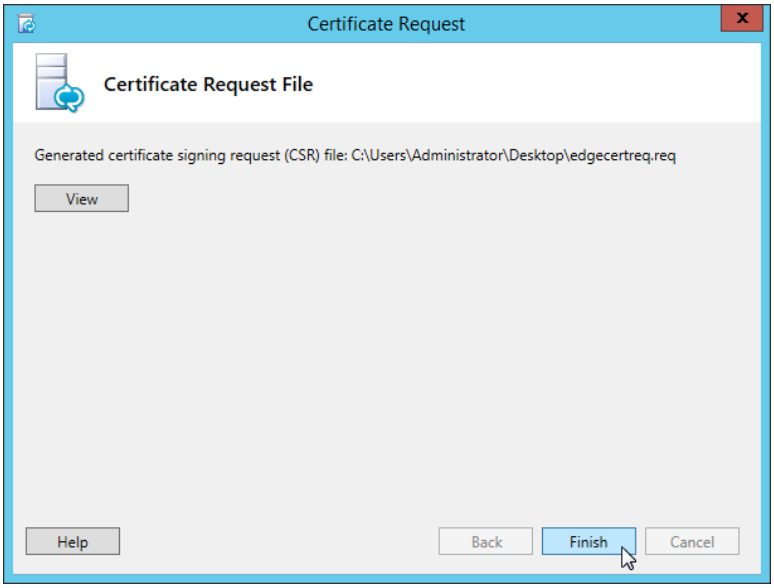
Next



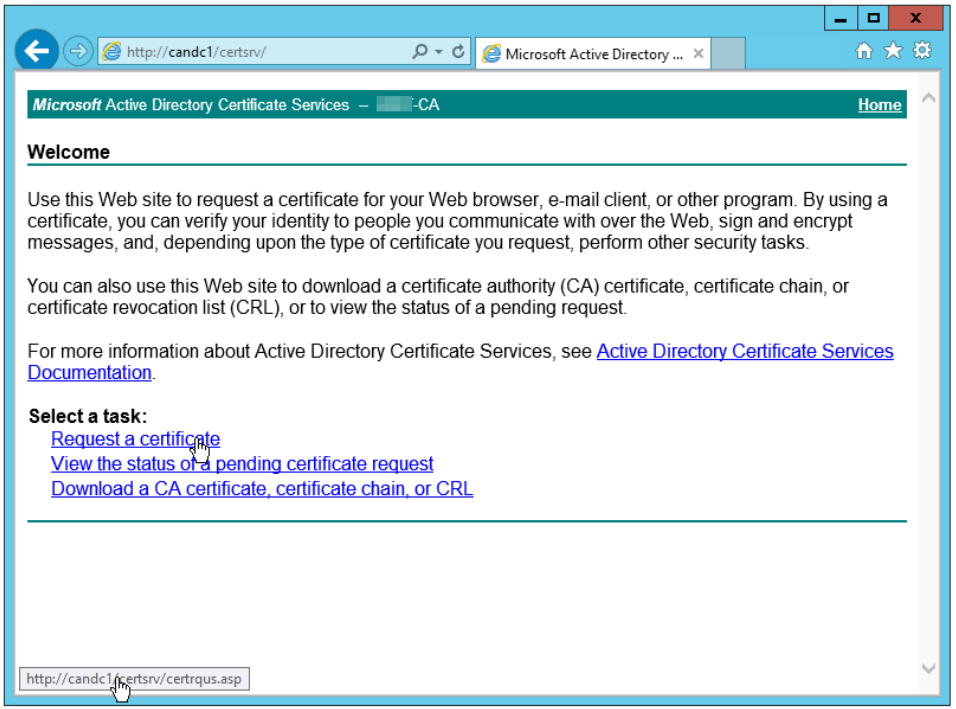
If you want you can view the cert in notepad by clicking View.



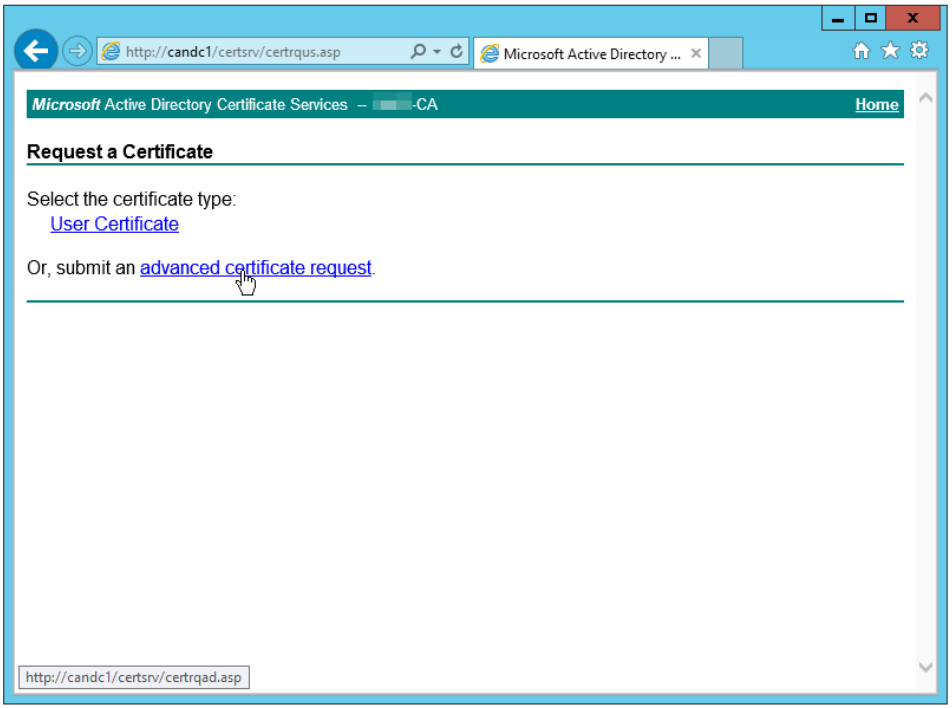
Finish



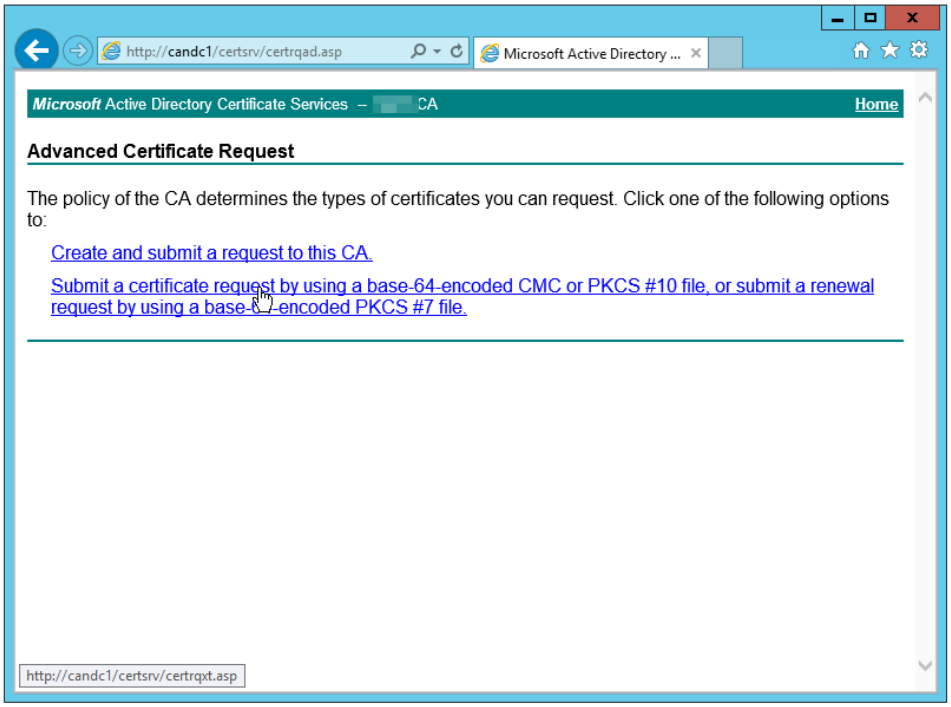
Now you will want to move to an Active Directory joined machine that has access to the "Active Directory Certificate Services" web site on your domain. Open the AD Cert Services web site (in our case http://candc1/certsrv) and click "Request a certificate".



Click on "advanced certificate request".



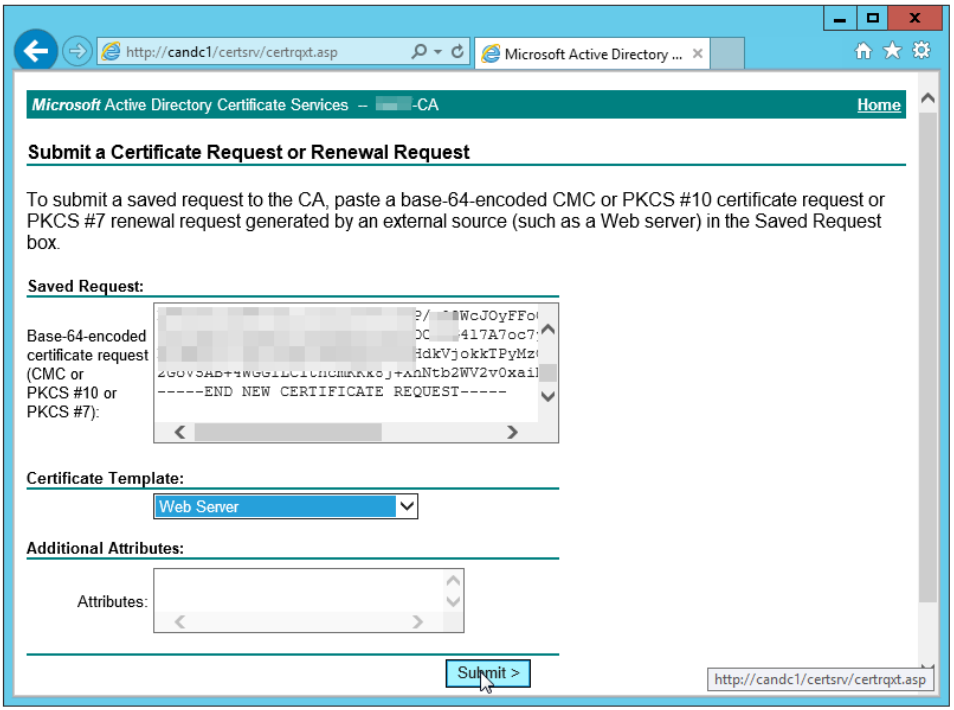
Click "Submit a certificate request by using a base-64-encoded CMC…"



Now

- Certificate Template = Web Server

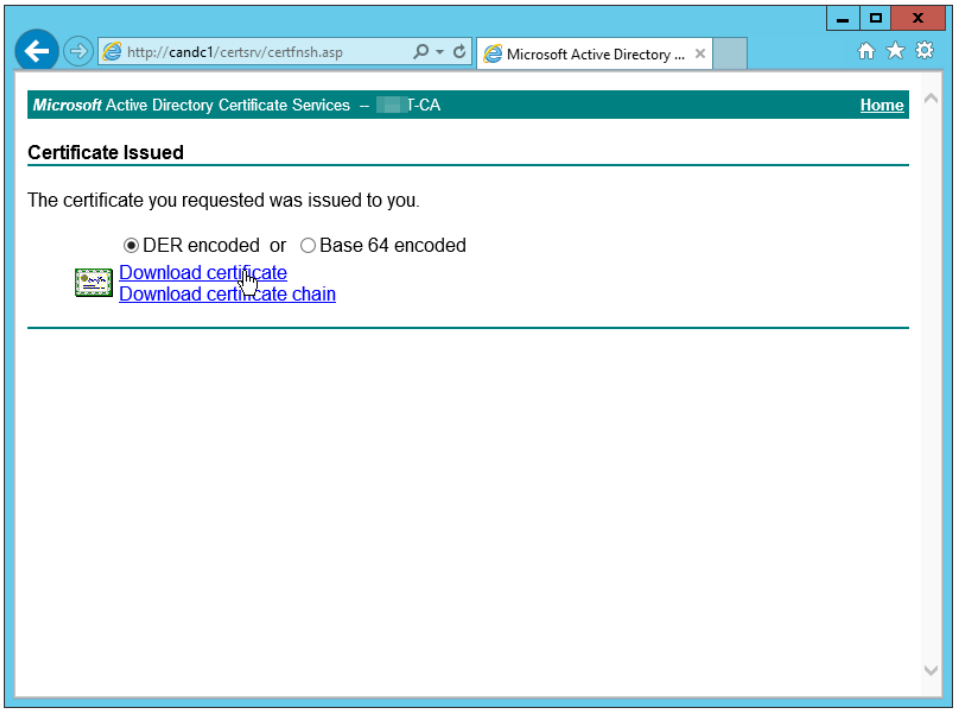
Submit



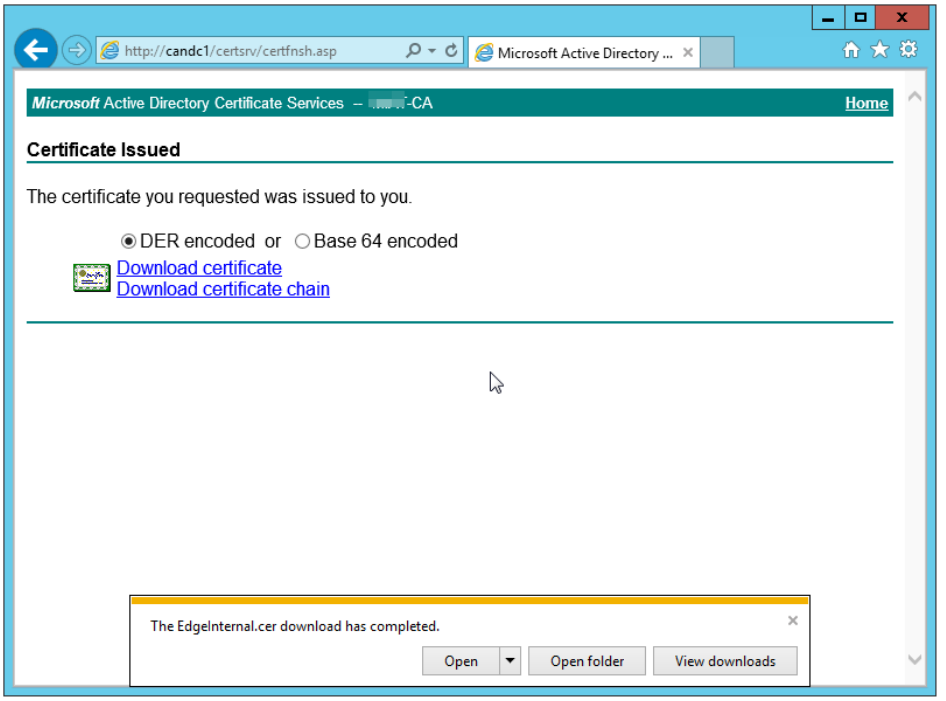
Next

- DER encoded

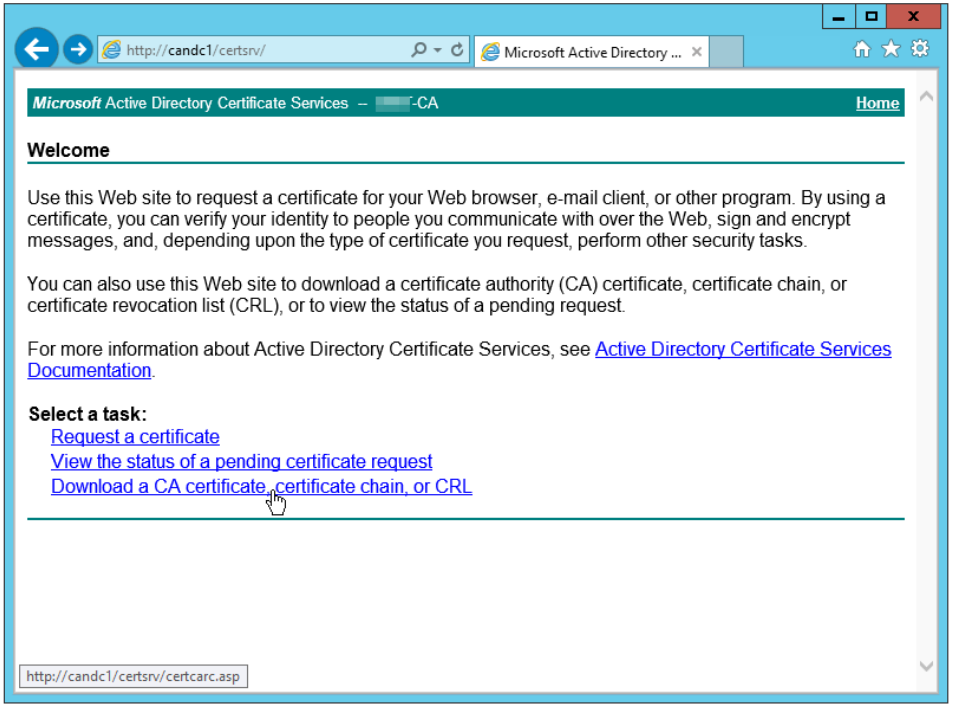
Now "Download certificate"



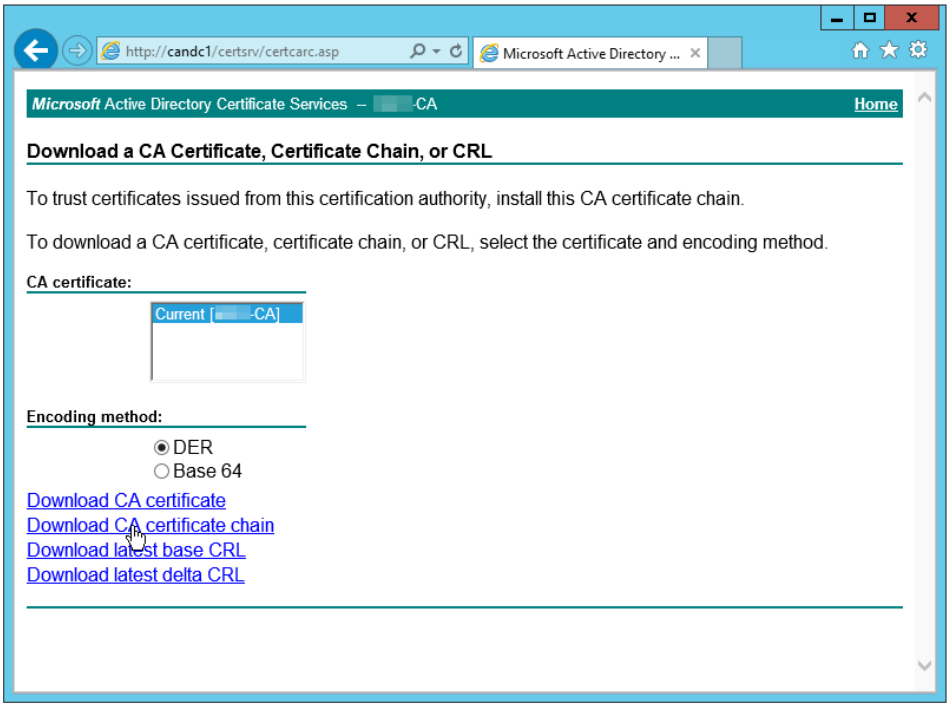
Save the certificate (EdgeInternal.cer) and we will copy this cert (along with cert chain) to edge server in a moment.



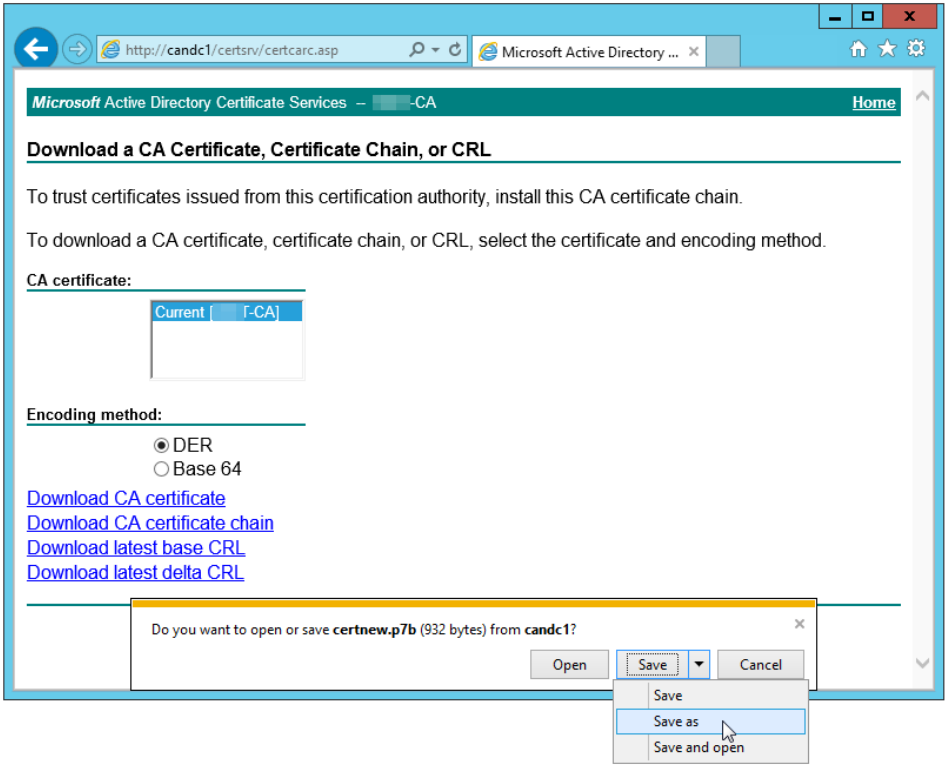
Next we will download the certificate chain. Let's open the AD Cert Services web site (in our case http://candc1/certsrv) again and click "Download a CA certificate, certificate chain, or CRL".



Next click "Download CA certificate chain"

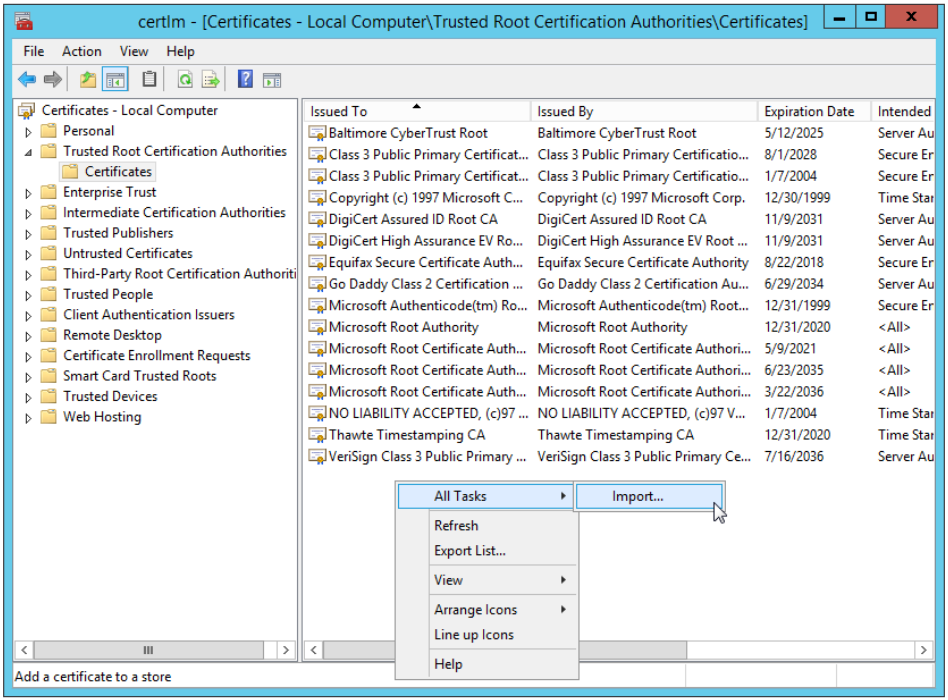


Save the cert chain

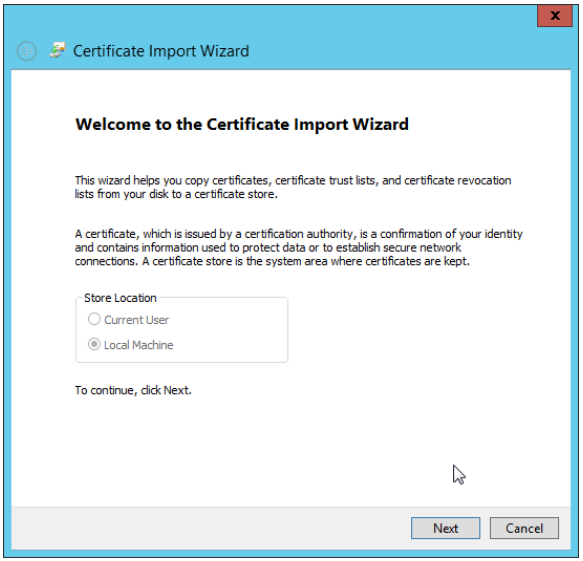


Now copy the cert (EdgeInternal.cer) and the cert chain (certnew.p7b) we just made to the edge server and let's move to the edge server for our next steps.

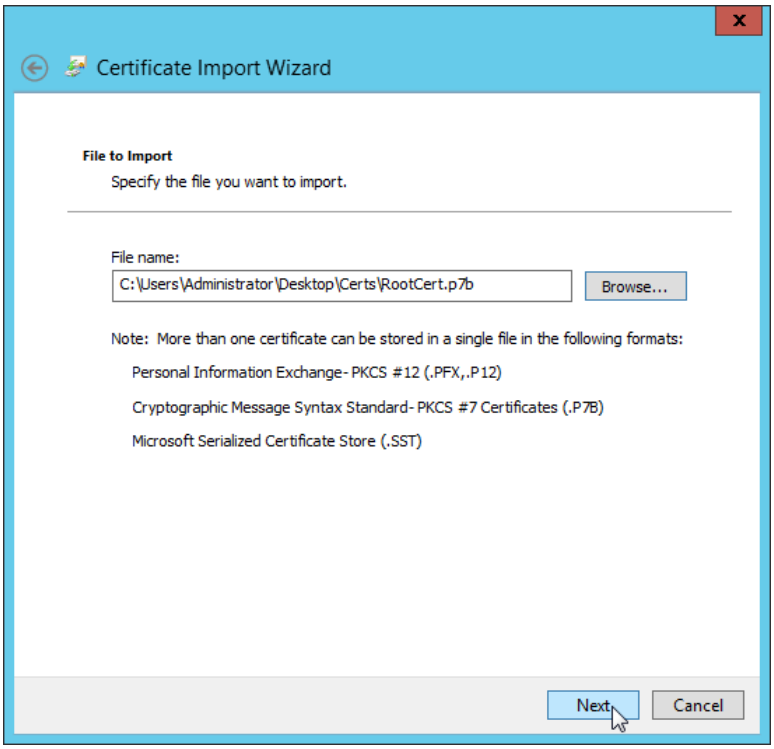
First we will import the cert chain onto the edge server. On the edge server open the certificates management console. Brow to Certificates – Local Computer\Trust Root Certification Authorities\Certificates and right click, All Tasks, Import



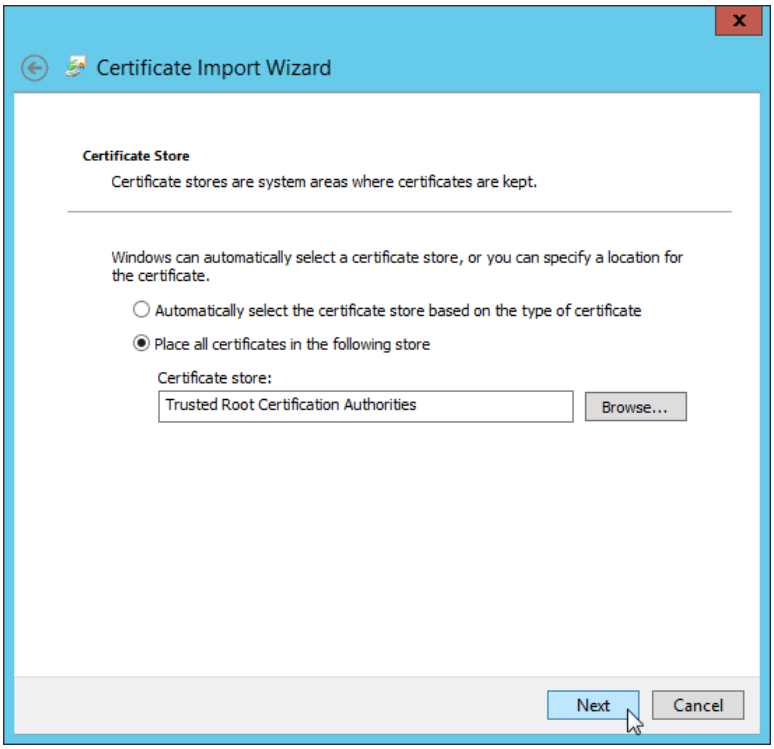
Next



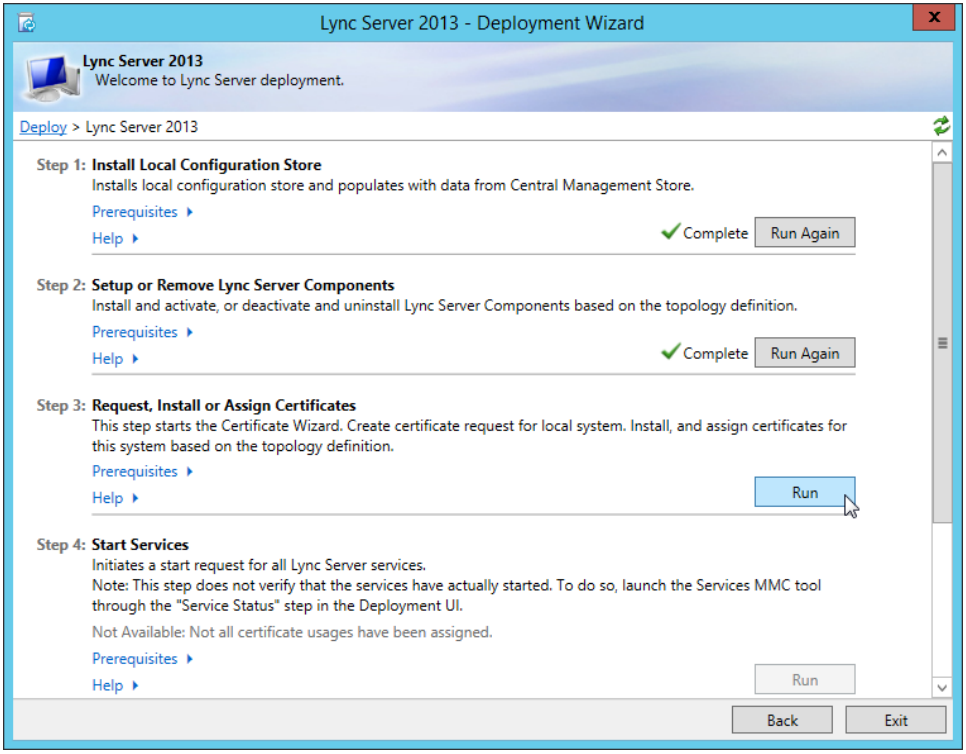
We want to import the cert chain so select that file.



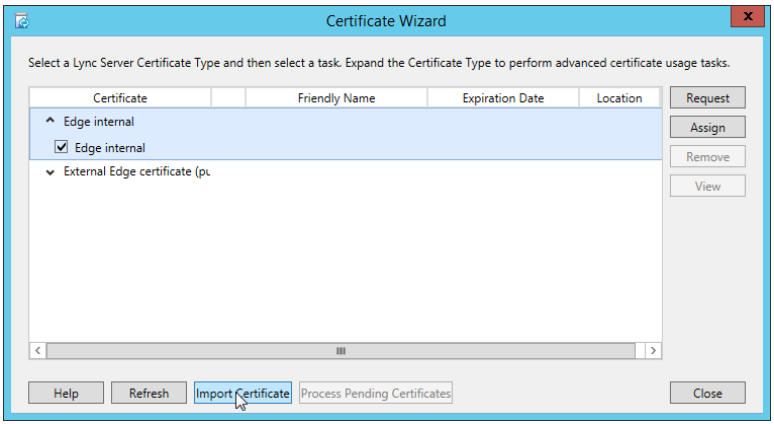
Place it in "Trusted Root Certification Authorities" store and click Next.



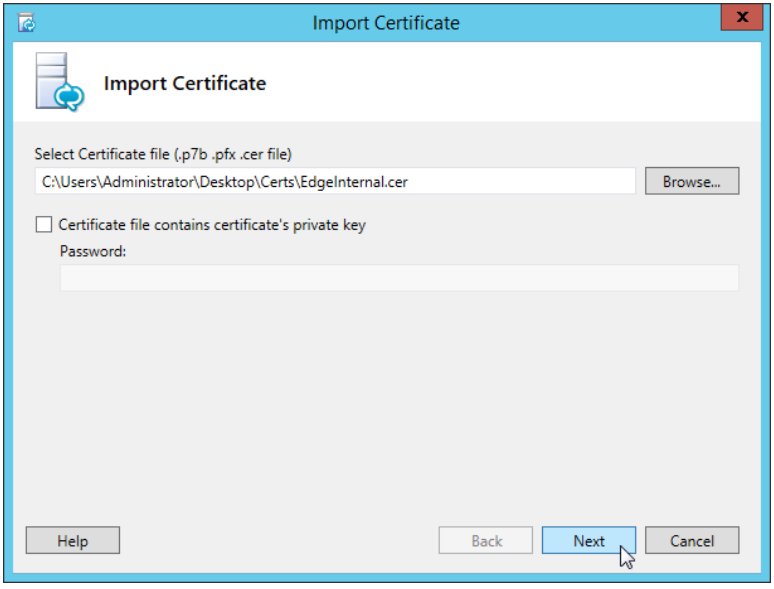
Now we will import and assign the certificate (EdgeInternal.cer). If you are not still there, open the "Certificate Wizard" (via Deployment Wizard)



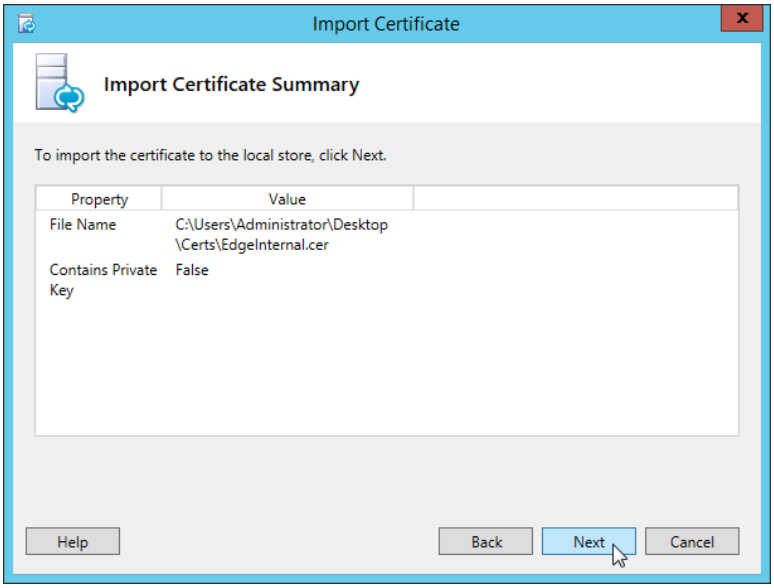
Select "Edge internal" and click "Import Certificate".



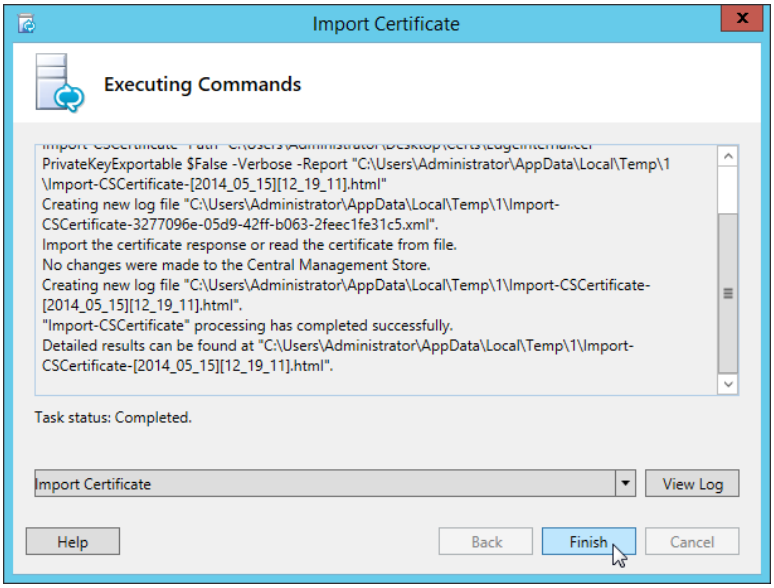
Select the cert



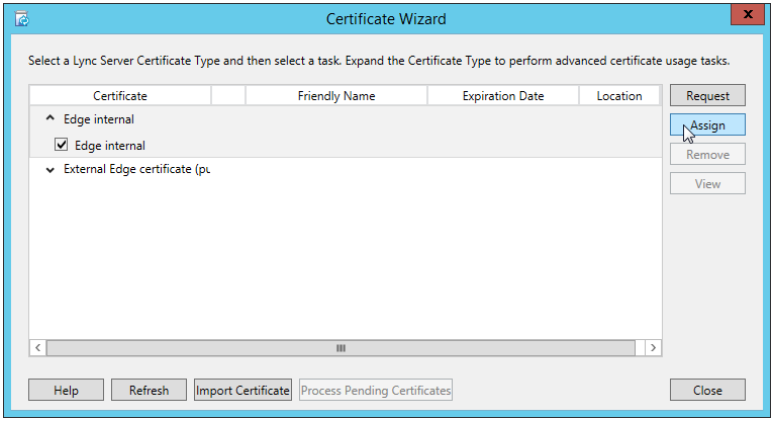
Next



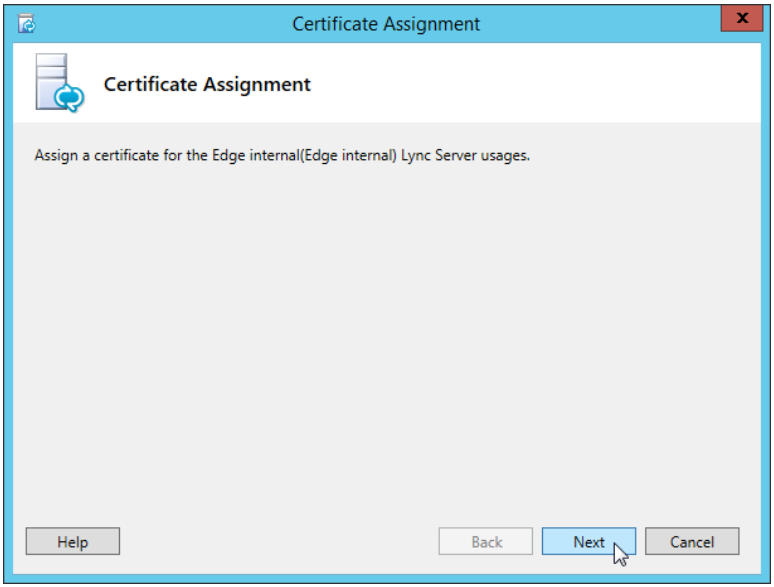
Finish



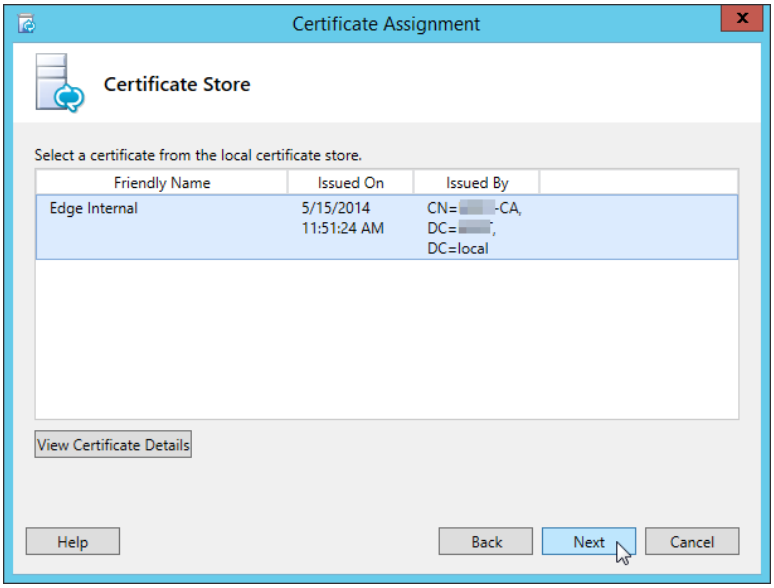
Now we will assign the "Edge internal" cert. Select "Edge internal" and click "Assign"



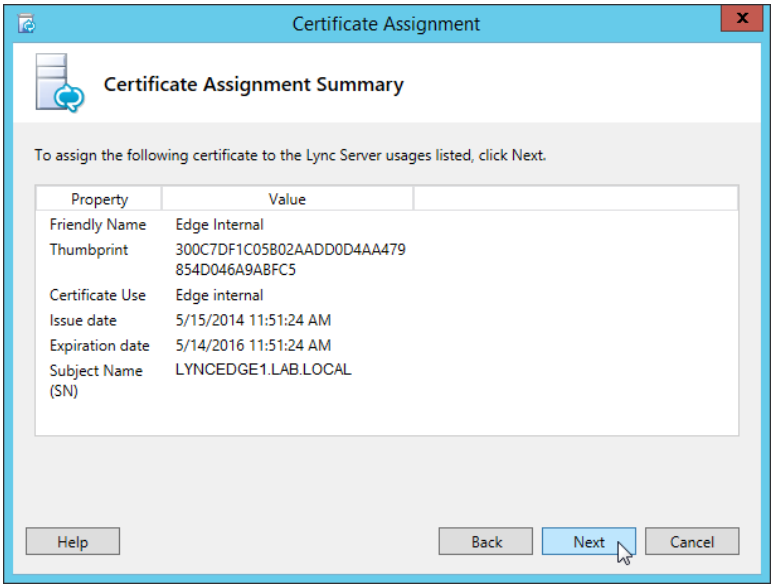
Next



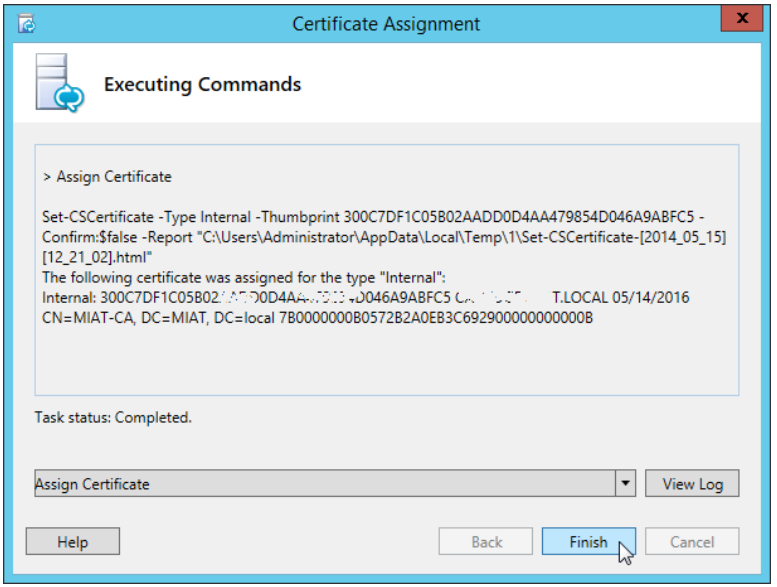
Next



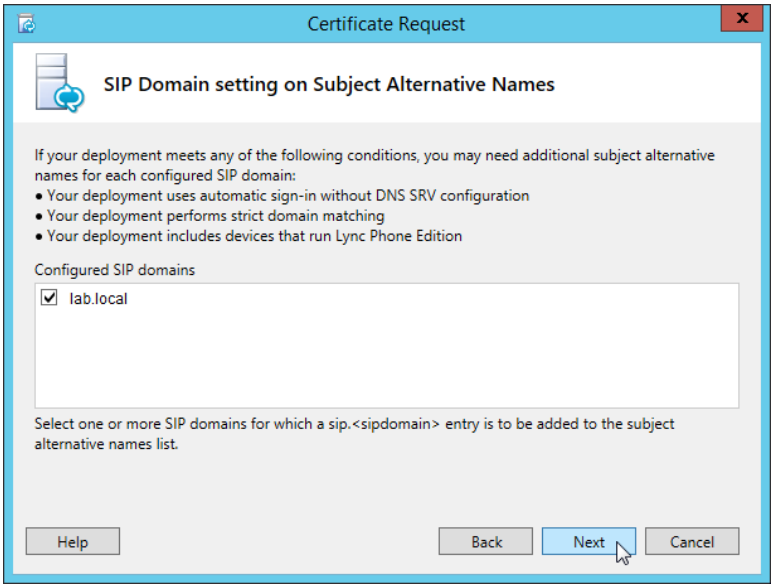
Next



Next



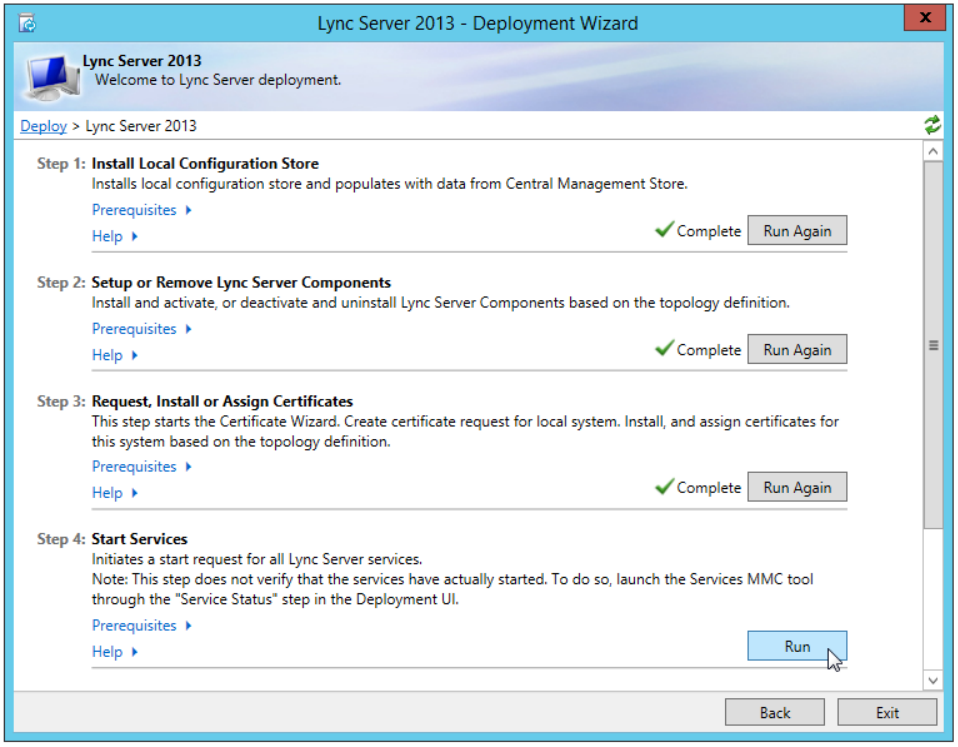
Next



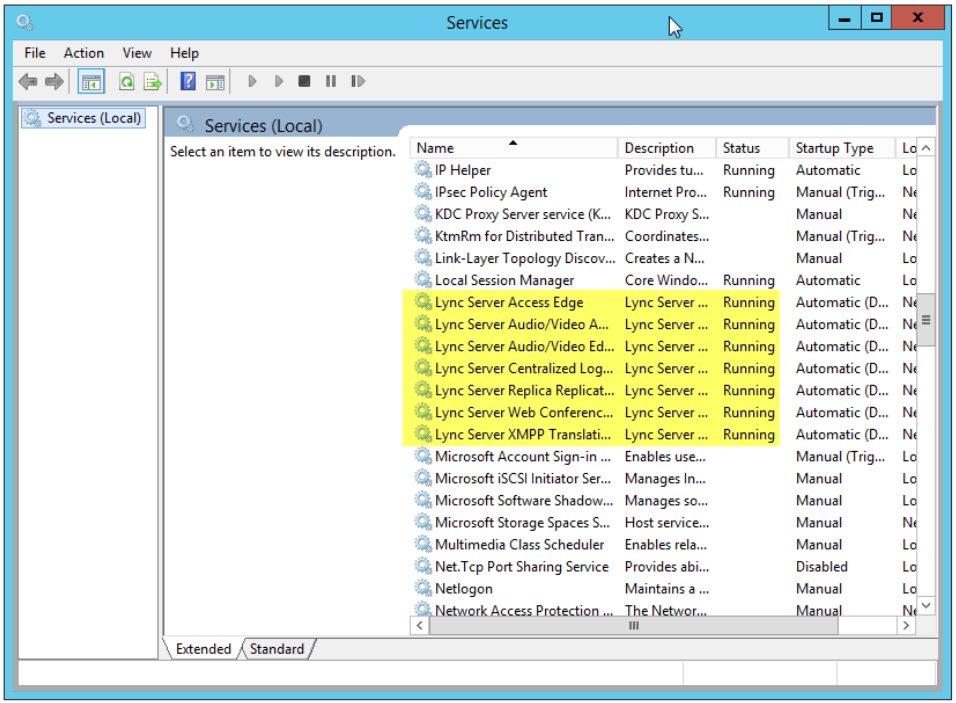
Now we have completed creating and assigning the certificate on the LAN side of the edge server.

Next you will repeat these install and assign certificate steps for the public side of the interface. You will create a request, pass it to one of the public CA's (GoDaddy etc), and then assign.

Now we are ready to start the edge server Lync services. Run "Start Services".



To test if our Lync edge started, let open the "Services" console and…sure enough, all our services are running! Wahoo!

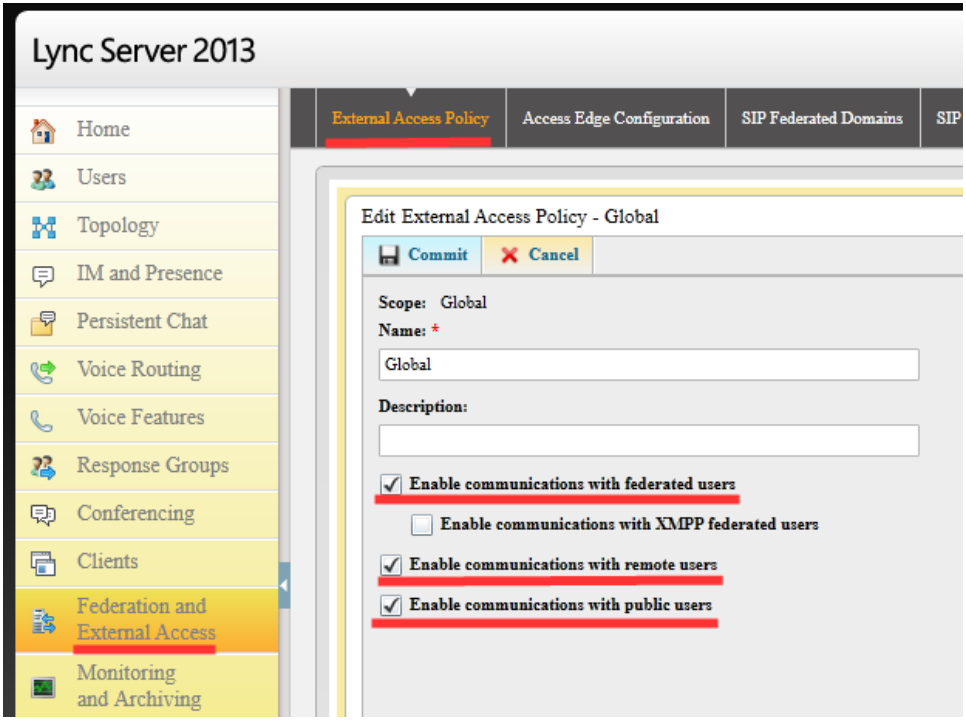


Now we will move to the Lync Front End to do some wrap up stuff in the Lync Server Control Panel.

Go to the "Federation and External Access" tab, "External Access Policy" and double click "Global" (since our lab only has one policy)

- Enable communication with Federated user = enabled
- Enable communication with remote users = enabled
- Enable communication with public users = enabled

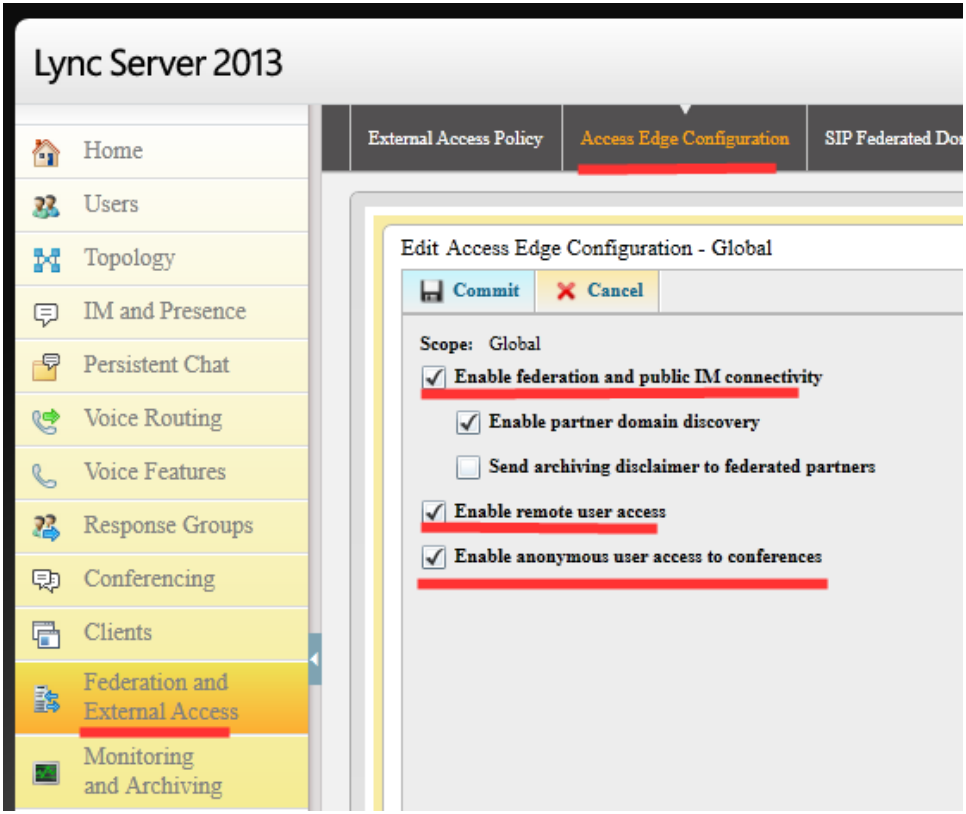
Click "commit".



Now click on "Access Edge Configuration"

- Enable federation and public IM connectivity
- Enable remote user access
- Enable anonymous user access to conferences

Click "commit".



Testing Your Edge Server

You can quickly test remote access by logging into a Lync client from outside your network. If you don't have that luxury, you can test using:

- https://testconnectivity.microsoft.com/
- https://www.eventzero.com/Tools/FederationTester/
- https://www.eventzero.com/Tools/FederationTester2/

If you are having problems and suspect not all firewall ports are open, below are some great apps for testing firewall ports are open:

- http://windowspbx.blogspot.com/2013/01/how-to-verify-lync-edge-server-ports.html
- http://www.mylynclab.com/2014/02/lync-edge-testing-suite-part-1-lync.html

That's all!

Chapter 8

Chapter 8 - What's New with Lync Server 2013 and OneNote 2013 Integration

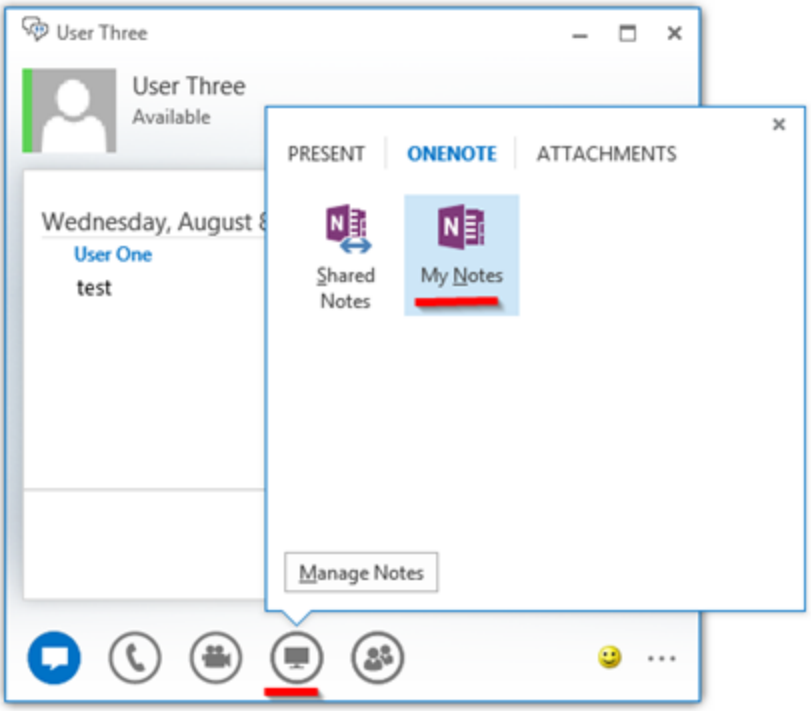
By Matt Landis __on 8/08/2012 02:16:00 PM

Microsoft Lync 2013 Now integrates more tightly with OneNote 2013 and in this blog we'll go over how this functionality works. There are basically 2 OneNote integration modes:

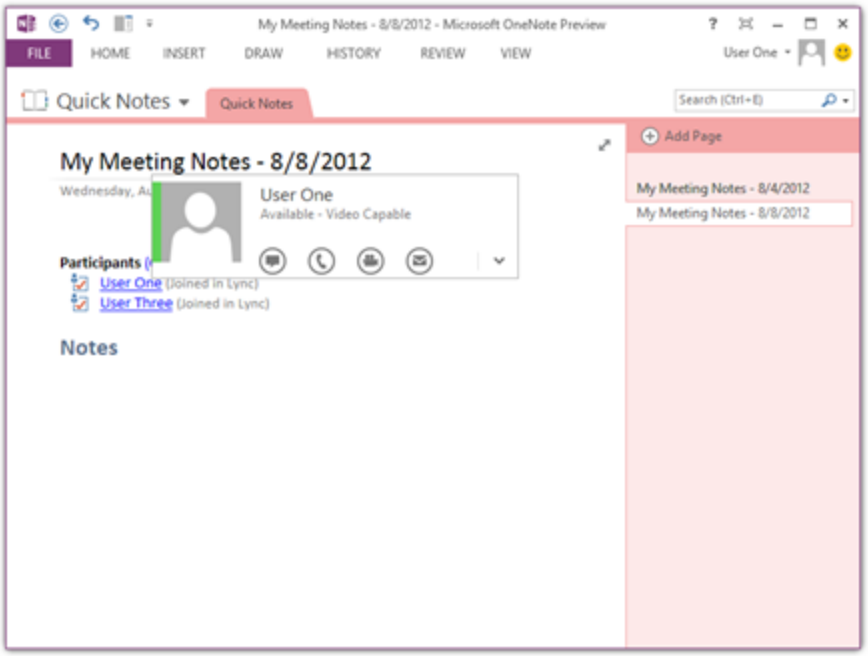
- My Notes
- Shared Notes

My Notes

My Notes in Lync 2013 is a quick way to start your own personal notes about this Lync Meeting. Not a super exotic feature, but handy. Hover Over/ClickOn Share | OneNote | My Notes (or CTRL+N)



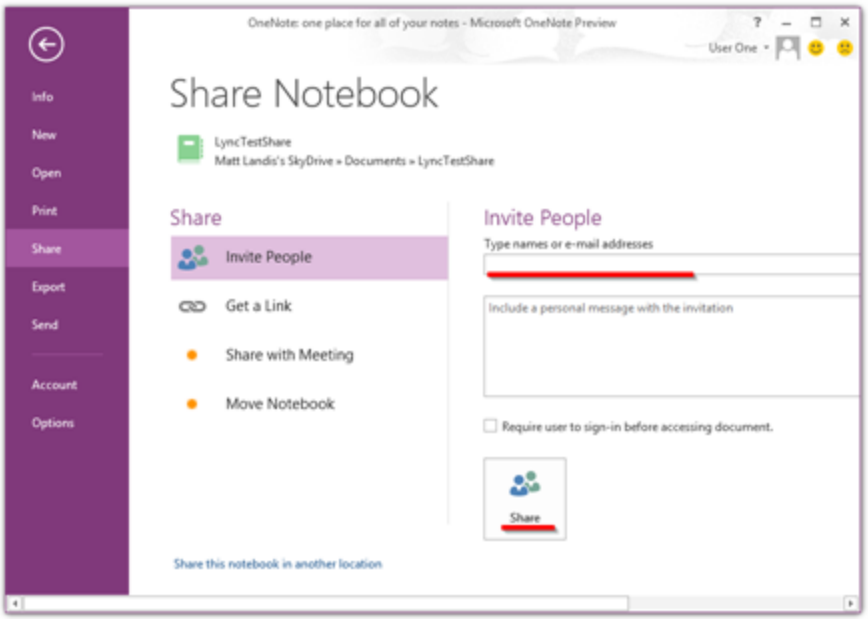
A OneNote page will be opened with Date/Time and Meeting Participants inserted already. The participants are live Contact Cards to the Lync users.



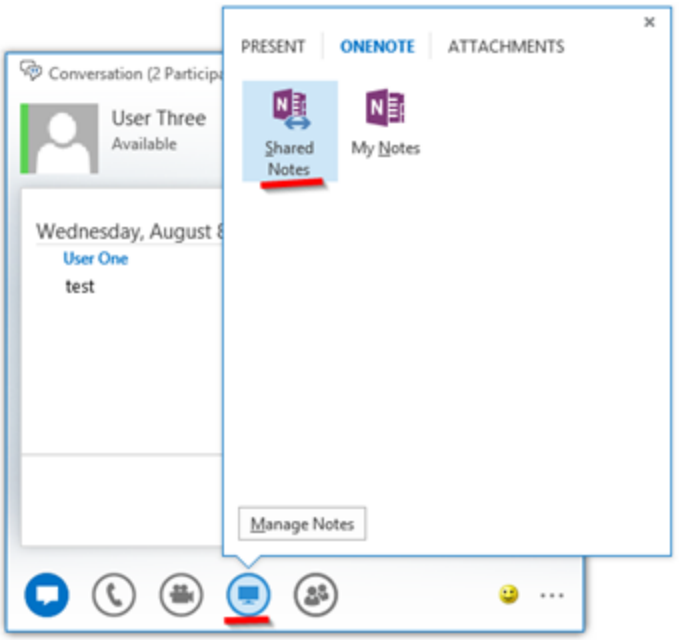
Shared Notes

NOTE: With Shared Notes, The first thing to note (no pun intended) is that you will need to share your OneNote and give access to this this OneNote Notebook *apart* from Lync. In other words, you are sharing OneNote largely like you do if there is no Lync 2013 involved, and Lync just distributes the link to the meeting participants.

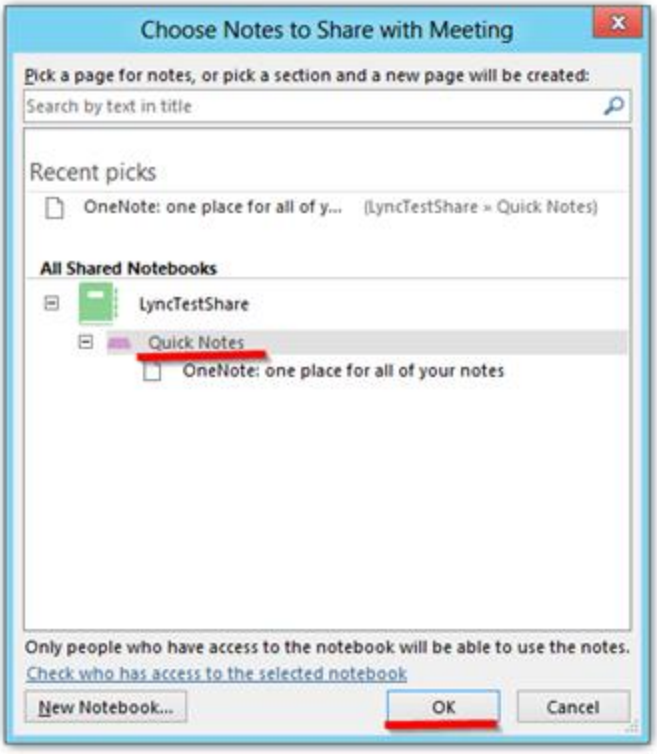
Before you do anything in Lync 2013, I suggest you open Open OneNote and Login to your Skydrive (or other online account) In OneNote click File | Share. Now click on Invite People and type in the people you want to have access to this OneNote and when done click Share.



Then in Lync conversation click Share | Share Notes.

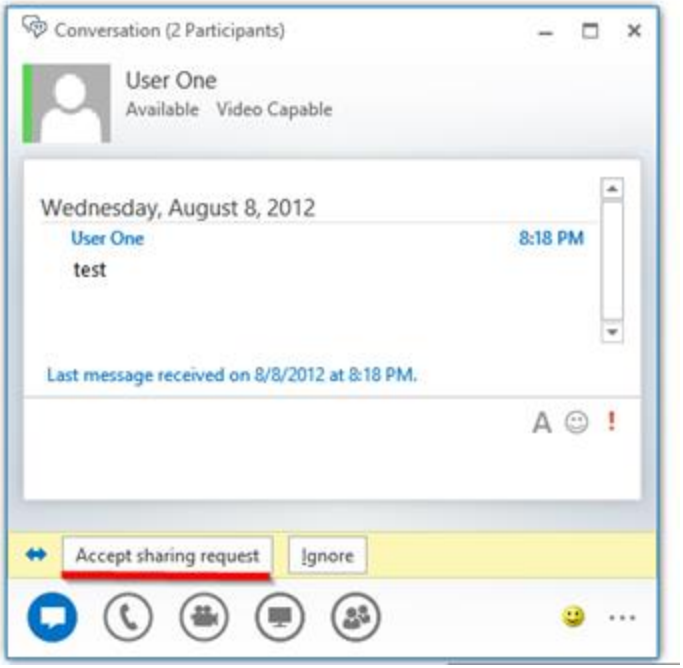


Select the shared notebook (below)

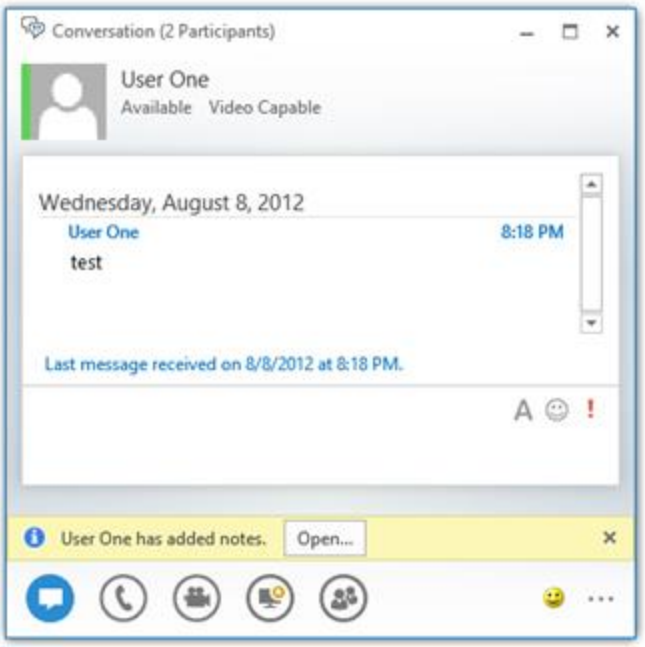


Now on a conversation Participant, you need to log OneNote into the Skydrive (or other) account you just shared this OneNote With.

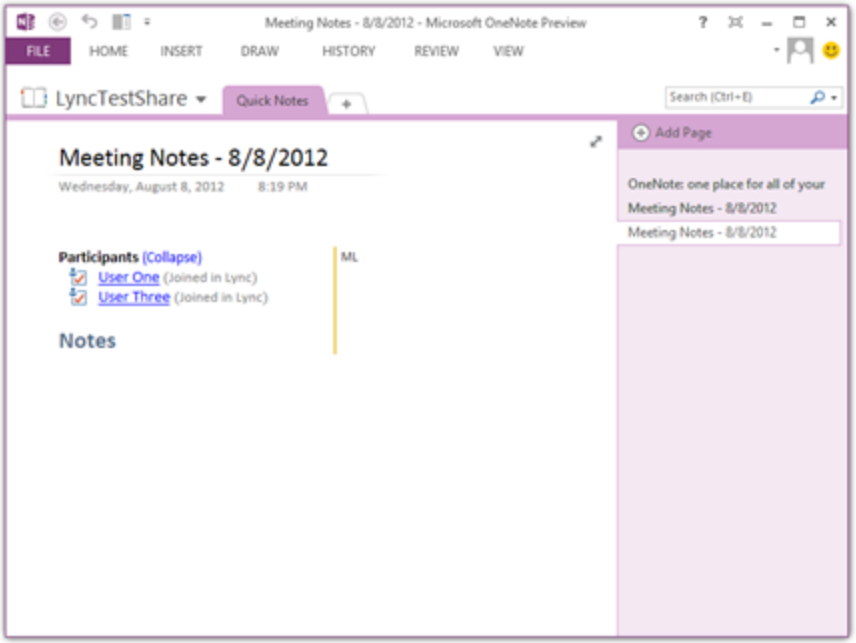
Participants in this will get a Sharing Request. They can Accept. Next they can click Share | OneNote and click on the shared OneNote. (click Yes, to the Security Notice)



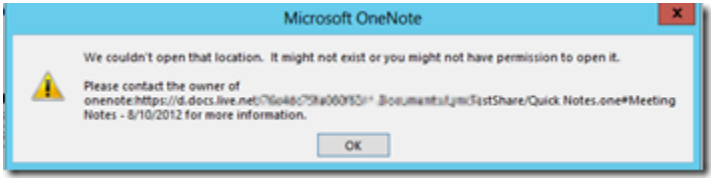
Now you will see a glyph on the Share button and a note that you can Open notes.



Now OneNote will open the Notebook and go to the Meeting Notes page shared by the Presenter. Everyone can edit the page at the same time and the changes will flow to everyone (albeit not instantly. pressing SHIFT+9 pushes/pulls updates right now)

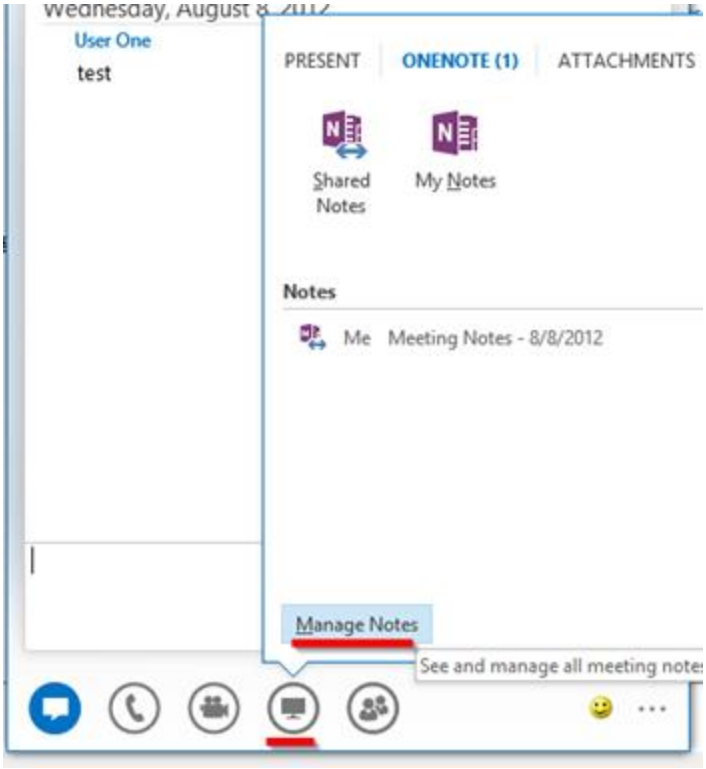


If a meeting/conversation participant has not been given access to this OneNote notebook they will get a "we couldn't open…" error as shown below:

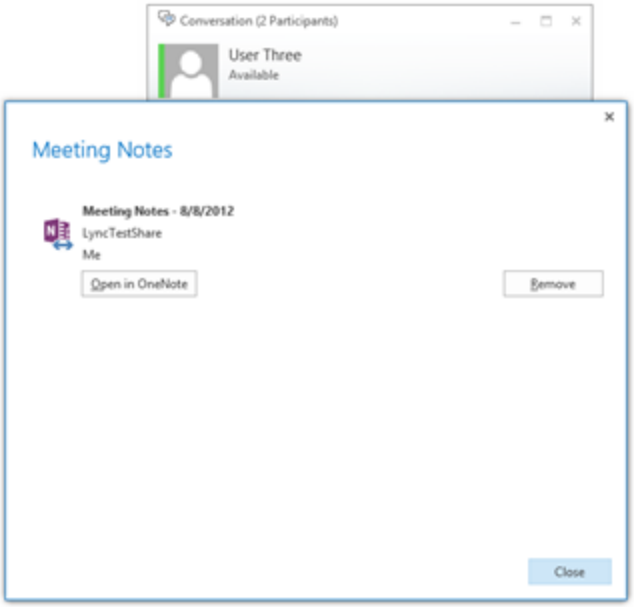


(Notes: One Lync Meeting can actually have more than one Meeting Notes *PAGE* shared. Actually one person can share more than one page in one meeting! Also, note that the last shared meeting is at the top of this list of meetings)

To remove Notes from a conversation or meeting, click on Share | Manage Notes



Then click Remove. (NOTE: If you are an Attendee, you cannot Share Notes, nor can you remove)



Some Notes:

- If there is a participant in the meeting who doesn't have access to the shared notebook, they will get a Lync notification that a notebook has been shared with them, but they will get an error if they try to open it.
- If you share a notebook, those you shared it with can see the WHOLE OneNote Notebook.
- If you are an Attendee, you cannot Share OneNotes, nor can you remove
- Note that SHIFT+F9 pushes/pulls updates right now. If they press SHIFT+9 they will get the changes quicker as well.
- If the presenter changes pages in the notebook, this does NOT change the page for other participants.
- if the participants open the OneNote too soon after the presenter made it, they may not land on today's meeting page if there is more than one meeting/page in the notebook
- If you rejoin a meeting from conversation history, the link to OneNote will be available.

Continue your lab with more articles in this Lync Server 2013 Step by Step Series:

- Part 1 – Step by Step Installing Lync Server 2013 Standard Edition Front End
- Part 2- Step by Step Installing Lync Server 2013 SE Monitoring Server
- Part 3 – Step by Step Installing Lync Server 2013 Persistent Chat Server
- Part 4 - Step by Step Installing Your 2nd Lync Server 2013 SE Server Associated Backup Pool for Resiliency
- Part 5 – Step by Step Enabling Lync Server 2013 Enterprise Voice Features, Response Groups and Managers
- Using Lync 2013 and OneNote 2013 Integration

Chapter 9

Chapter 9 – Questions and Answers about Microsoft Lync and Music on Hold

UC holds the promise of a new model of communication where being "on hold" happens less often. In the real world sometimes there is no other option but "holding" and because of this soothing music on hold to keep our callers happy is expected.

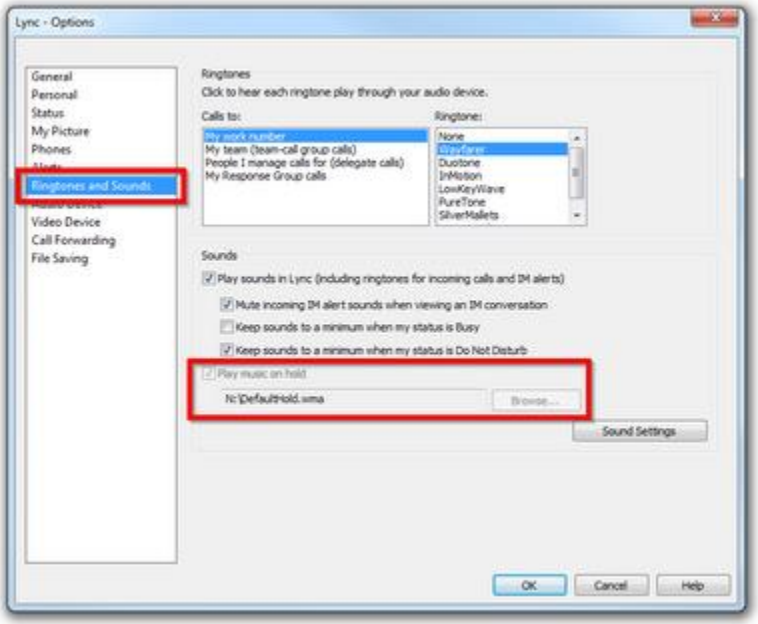
With Lync Server there are some questions I see coming up about music on hold and I thought I would take a crack at trying to answer some of them and clear some of the smoke and fog rolling across some new Lync administrators minds.

Q.What, the Lync EndPoint Provides the Music on Hold?!

My exact question (including the incredulity) the first time I saw this. But you are reading correctly--Lync Server depends on the endpoint to provide the music on hold.

Q.How Do I Setup Music on Hold on the Lync Client?

In the Lync client click on "Options" and then on "Ringtones and Sounds". As shown on the screen below in the "Sounds" section you will see an option to set the WMA file you want to use as the music on hold. This may be greyed out if the admin has designated this from a policy.



Q. Does Music on Hold Work With Calls Through a PSTN Gateway?

Sure, if a Lync client is configured to provide MOH and works, it will work just with calls through a PSTN gateway as well.

Do note there is no music on hold option if the Lync user is not an Enterprise Voice user so if a non EV user puts someone on hold there will not be MOH. (just a standard "beep beep beep") But if a non Enterprise Voice user calls an EV user and the EV put the call on hold there can be MOH.

Q. How Do I Centrally Set the Music on Hold for Users?

This is a snap using a powershell script. Ken's UC Blog does a great job of explaining this. With these powershell scripts you can easily change large groups of Lync users music on hold centrally and ensure they get what the admin wants as music on hold. Or you can be extremely granular and let each decide what they want.

```
Set-CSClientPolicy –Identity Global -EnableClientMusicOnHold:$true –MusicOnHoldAudioFile “c:\moh\moh.wma”
```

Note that if you EnableClientMusicOnHold from a policy you also need to designate what music on hold file. Another thing to note: if the Lync client cannot find/reach the file you designate in “MusicOnHoldAudioFile”, it will not change in the Lync client even though you have changed the policy---in other words the Lync client does not blindly change the path and filename if it is not legitamate.

NOTE: After you make these changes you MAY need to wait an hour or more till the changes propagate the whole way down to your client. A great way to ensure the changed came down to your client is to change the WMA file to some location other than the default. You can see then in Lync client exactly when the change has occurred.

Q. I’ve Setup Music on Hold for my Response Group, But When I Press Hold on Lync Client, My Caller Is not hearing that Music on Hold I setup. Why?

When you configure the MOH for a Response Group you are defining the MOH the caller will hear while waiting in the queue, NOT what they will hear when a Lync User presses the hold button. Remember, the endpoint/Lync Client provides the MOH delivered when Hold button is pressed.

Q.Why Does The Hold Button on My Polycom CX600/500 or Other Lync Phone Edition Device Not Play MOH?

~~Sorry to break the news friend, but the music on hold button on these devices does not play music on hold. Consolation? If you have a Lync Phone Edition device that is tethered with "Better Together" tether (like how that rolls of the tongue? ;) then if you press the hold button on your PC Lync client the other user will get music on hold. Yeah, I know--not so cool--but at least on option.~~ (<< seems like an update made this stop working.)

UPDATE: 12/21/2012 If you update your Lync Phone Edition "Aries" devices to 7577.4366, (available here) pressing hold will now play the DefaultHold.wma file to callers. So the steps to get MOH on your LPE devices

Q. How To Setup "Aries" Lync Phone Edition Music On Hold?

Lync Phone Edition Aries devices can now provide MOH by simply upgrading the LPE device. If you update your Lync Phone Edition "Aries" devices to 7577.4366, putting calls on hold will now play the DefaultHold.wma file to callers. At the moment you either use this MOH file or nothing on LPE, there is not way to change this file by admins or users.

Below are my steps to get MOH working on your LPE devices. Using the below instructions instead of KB 2703325 will help avoid a possible snafu

related to pre-existing Lync client music on hold set centrally using the MusicOnHoldAudioFile setting in the csClientPolicy commandlet. Onward…

- Update the Aries/LPE device(s) to firmware 7577.4366 (Click Here for Step by Step)
    - For Polycom, Aastra or HP devices 7577.4366 Firmware download Click Here
- Set the value of EnableClientMusicOnHold=$true and MusicOnHoldAudioFile="" in the Client Policy using:
    - Set-csClientPolicy -Identity <Policy_Identity> -EnableClientMusicOnHold:$true -MusicOnHoldAudioFile=""
    - The part where my instructions deviate from the Microsoft KB is the MusicOnHoldAudioFile="". The reason for this is that in my testing the Aries/LPE will not play music if this setting is anything but Null/"".
- Ensure that the Client Policy has had time to propagate down. (could be 2minutes or more)
- Restart the "Aries" phones in question to get the new settings

Below are some things to be aware of Aries MOH feature:

- You cannot change the preset MOH file on the Aries device.
    - It is set to the DefaultHold.wma music file, which is the same as the default Lync Client Music on hold file. (click here to listen to the defaulthold.wma)
- If you want to use the MOH on the Aries device, you cannot centrally configure the MOH file for the Lync client. The client policy setting "MusicOnHoldAudioFile" MUST equal "".
- The new LPE/Aries MOH features works fine with Lync Server 2010 or Lync Server 2013 since it is totally a feature of the LPE device.

Q. Does the Hold Button on the Polycom CX300 Play Music on Hold?

Yes! Since the hold button on the USB Polycom CX300/Plantronics Calisto P540 really is merely pressing the hold button on the Lync client it works fine. (Don't you just hate it when a cheaper device has a feature that more expensive unit doesn't?)

Q. Does the Hold Button on the CX200 Work?

Just had to throw that in there--actually there is no hold button on the CX200. And--hang on a minute--who is using the CX200 anymore?! ;-)

Q. Is There Any Way to Provide Music on Hold to Your PSTN Callers (If Using Lync Phone

Edition or other device that doesn't provide endpoint MOH):

Yes, select PSTN Gateways can provided music on Hold. Some Lync PSTN gateways (Audiocodes, NET UX, Ferrari Electronic) will also take the responsibility for providing music on hold to your PSTN callers. The thing to remember here is that only calls going through the gateway will get the music on hold using this method. Federated callers and internal callers will not get MOH.

My notes on Audiocodes Mediant 1000, MSBG800 and MediaPack Gateway Delivered MOH:

- There are 2 ways that MOH can be provided by Mediant & MediaPack gateways:
  - by the Call Progress Hold Tone (fixed BEEP, no music)
  - or by the prerecordedtones.dat file. (this can be an actual MOH file, of very limited size, in supported gateways) (Note that the changing the Call Progress tones requires a gateway reboot and changing the prerecordedtones.dat does not.)
- By default the Mediant 800 will play the Call Progress Hold Tone when a Lync device put on hold and Lync is not providing MOH
  - When a call is transferred this same (irritatingly loud beep) is played to the caller before the transfer happens. Not a good experience and your users will likely ask you to remove it.
- The size allowed for prerecordedtones.dat is as follows
  - Mediant 1000 = 2MB
  - Mediapack gateways = 200K
  - Crazy as it sounds, Audiocodes support (as of 7/24/2012) says Mediant 800 does not support prerecordedtones.dat.~~But (whisper) we've used a 76k file filled with silence and it seems~~

~~to work—use this tip at your own risk.~~ (8/30/2012 Note: music on hold via prerecordedtones.dat stopped working in the latest FW. Audiocode's support says it will be added back in at version 6.6 or 6.8 Msbg800 FW but that is several months out.)

- How to setup MOH on Audiocodes by UnplugthePBX:
  - http://blog.unplugthepbx.com/2011/11/22/lync-music-on-hold-for-aries-and-other-phones/

My notes on NET UX1000/UX2000 Gateway Delivered MOH

- UX1000 works, but limited to 1MB music file
- UX2000 4MB file
- Enabling Music On Hold at the Gateway Level on NET UX1000/UX2000
  - https://support.net.com/display/UXDOC/Configuring+the+UX+for+Music+On+Hold
- The UX1000 and 2000 can also play a live audio feed using an FXS port on the UX device.
  - This can be done by plugging the RJ11 side of the VEC LRX-37 C adapter into the UX FXS port (port designated as MOH port), and plug the 1/8" jack into your audio/moh/mp3 player.
  - Click Here for how to configure the UX device

My notes on Ferrari OfficeMaster Gate

- I've been told by Ferrari support (NOTE: there are no support URLs to reference ATM and I have not tested this) that OfficeMaster Gate can provide MOH with no file size limitations. (Note: the OfficeMaster Gate product uses a standard HP rackmount server to explain why there are not the normal space restrictions)
- How to setup music on hold on OfficeMaster Gate gateway: http://ucblog.deutinger.de/?p=278

- OfficeMaster Gate: http://www.ferrari-electronic.com/en/products/officemaster-gate.html

My Notes on Dialogic Gateways/SBA

- According to Randy, Dialogic does not support Music on Hold via gateway

Q. Can I Use Live External Source for Lync Music on Hold?

Due to the distributed nature of Lync music on hold from Lync it is not possible. ~~Currently the music on hold source needs to be a sound file, of a certain type, accessible to the Lync Server (response groups/call park) or the Lync Client (client based music on hold) or uploaded to the PSTN Gateway (audiocodes requires a very specific file type too).~~

UPDATE: It appears that NET UX series of gateways actually a will accommodate a live audio source. The way they do it through a FXS port on the gateway. (clever guys) To read more details, Click Here.

Q. What Happens If I Press Hold While on a Lync Conference Call?

Will the conference be barraged with hold music? According to alert reader @Darrylr Lync will be smart and recognize that you are on a conference and NOT play Music On Hold to the 200 unwitting conference participants. Nice!

Q. Does snom UC Edition Have a Hold Button That Plays Music on Hold?

~~Still testing this. Since the snom phones can listen to/use a multi cast~~

~~stream to provide music on hold to caller they theoretically should be able to provide their own music on hold but I need to verify if they can.~~

UPDATE: snom UC Edition Firmware 8.8.1.11 does support Lync music on hold. The MOH file is hosted on the deskphone and works using same mechanisms as Lync 2010 PC client. The MOH provisioning is even configured using CSClientPolicy. (At the moment the music on hold file can not be changed via the phone web GUI. It requires a MOH file provision server and XML) To read more about snom UC Edition FW 8.8.1.11Click Here.

Q. Where Does the Lync 2010 Standard "KerChung" (Played To Caller When No Lync MOH is Defined) Come From?

If a UserA, using Lync 2010 client, is put on hold and the other side does not provide music on hold, the Lync 2010 client will provide a default "KerChung" sound every 30 seconds. Where does this come from? It may be a little confusing/unituitive, but it comes from the ***User A***'s Lync client. So to put it another way, if you want to change the standard "KerChung" YOU hear when someone else puts you on hold (and doesn't provide MOH to you), go into "Change Windows Sounds" on your PC. (Sounds | Program Events | Microsoft Lync 2010 | On Hold) Also be aware that whatever sound you select will be played, then 30 seconds of silence, then repeated.

Q. Where Can I Get Music On Hold that is Royalty Free?

If you would like to read an article on the laws regarding using downloaded music for music on hold click here. If you just want to get some royalty free music on hold music, below are a few links:

Free: http://opsound.org/genre/classical/
iTunes: https://itunes.apple.com/us/album/on-hold-music-vol.-1/id445328651

If anyone else has Lync music on hold real life experience they wish to share, please do so in the comments.

More Details on Setting the Music on Hold (Powershell, etc):
http://ucken.blogspot.com/2010/10/music-on-hold-for-lync-clients.html

How to Setup LPE MOH:
http://windowspbx.blogspot.com/2011/07/questions-about-microsoft-lync-server.html#Setup_Aries_LPE_MOH

Royalty Free MOH:
http://windowspbx.blogspot.com/2011/07/questions-about-microsoft-lync-server.html#royaltyfree_musiconhold

Chapter 10

Chapter 10 – Using Microsoft Lync Server With Sonicwall Firewalls

Note: This article is as of Sonicwall Firmware version: SonicOS Enhanced 5.8.1.4-43o

I've been spending the last couple days on and off getting familiar with Sonicwall VoIP features. since there are lot of Sonicwall devices in the field you most likely are going to meet up with one sooner or later. (and this will only get worse with Dell's acquisition of Sonicwall) (grin) Another challenge is that most Sonicwall engineers are not spending their days thinking about VoIP, much less Microsoft Lync and SIP over TCP. (smile)

What is a Good Way to "Ramp Up" understanding the Sonicwall NAT Configuration process?

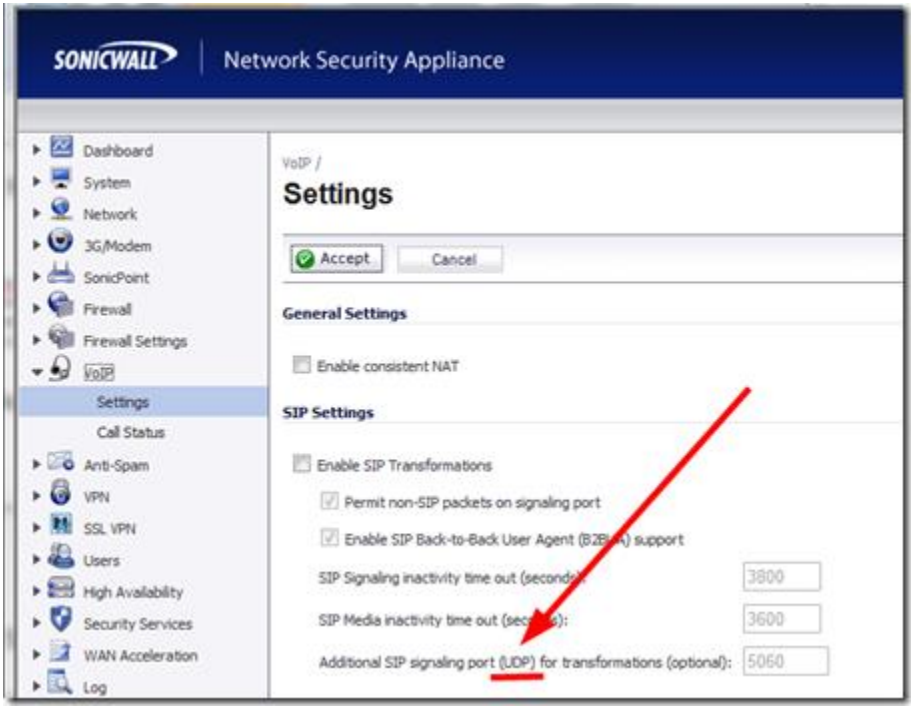
This is the exact question I had. I've noticed that goggling seems to often return old Sonicwall HowTo's that are a bit hard to follow since the older Sonicwall firmware is just a little different looking. I came across this short PDF manual that I think encapsulates doing simple tasks in Sonicwall well:

http://www.sonicwall.com/downloads/SonicWALL_TZ_210_Series_Getting_Started_Guide.pdf

Can Sonicwall do SIP ALG for Microsoft Lync? No.

The simple answer is that Sonicwall firewall VoIP features only work on SIP UDP traffic, not TCP traffic that Microsoft Lync uses. (This does not mean that Sonicwall will not work Lync, it just means that there is no need to try to use the Sonicwall VoIP features with Lync at this time.)

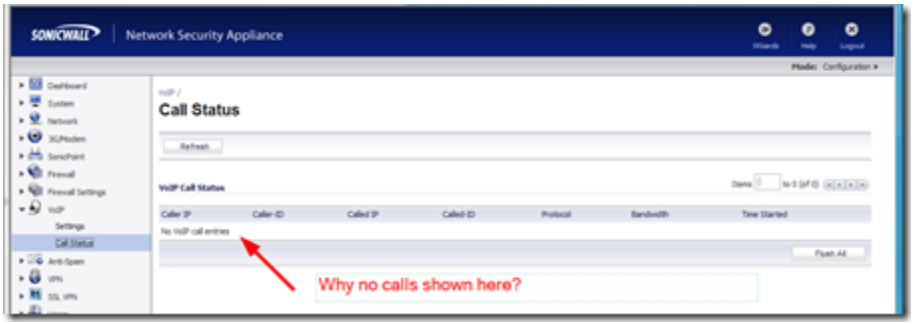
Want a source? Open this document and notice on page 15 that you can set another SIP signaling port if it is not the standard 5060…but *only* for ***UDP*** traffic…and Microsoft Lync uses TCP for signaling.



If you want to do some more reading about the Sonicwall VoIP module click here.

Why are Lync Calls Not Shown on the "Call Status" Screen?

The reason Lync calls are missing from the "Call Status" screen is because Sonicwall (as noted above) only displays UDP VoIP calls here and Microsoft Lync uses TCP for call signaling.



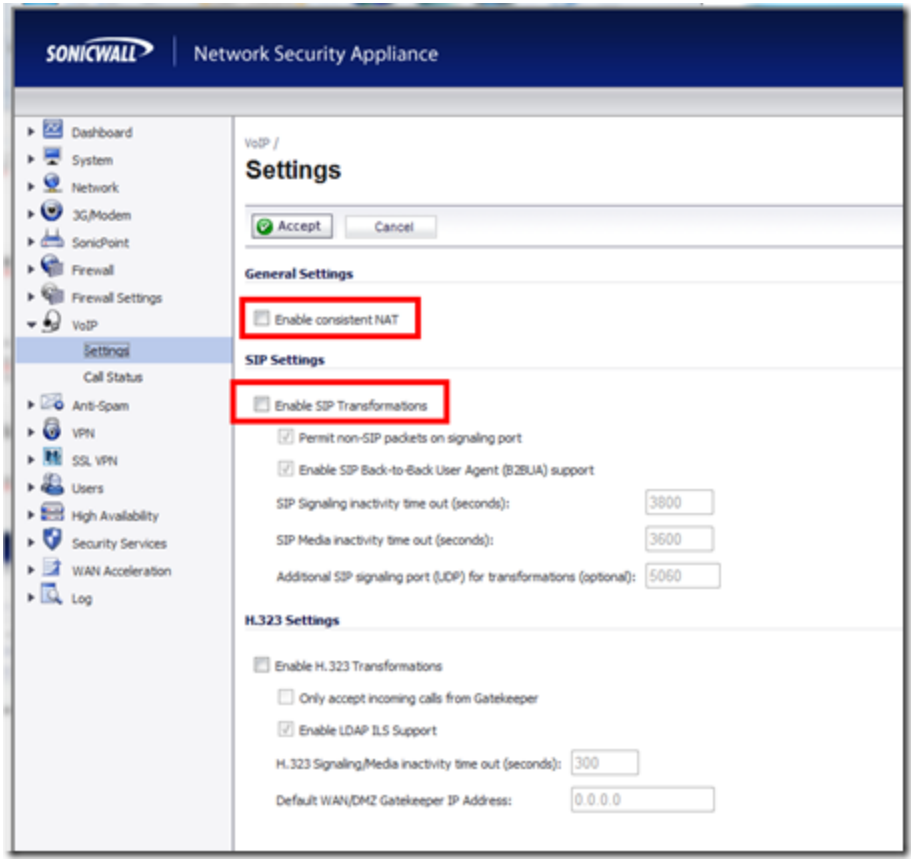
How Shall I Configure the the VoIP Settings Screen?

"SIP Transformations" is Sonicwall's language for what many others call ALG. Should this be turned on or off?

Actually, it doesn't matter at ALL how you set these items because Sonicwall firewalls can only do "Enable SIP Transformations" (aka ALG, or VoIP/SIP ALG) on UDP traffic and Lync only uses TCP.

So don't sweat it and you can ignore all the dire warning on the on forum that tell you to turn these settings off. (grin) Well, just to be safe…let's uncheck them. (just in case some future firmware upgrade does enable them)

- Enable Consistent NAT = Off/Unchecked
- Enable SIP Transformations = Off/Unchecked



[NOTE: If you are using a SIP trunk provider like Intelepeer you will want to make sure you let them know that you have ALG turned Off. They will change a setting on their side to compensate for this.]

Is Sonicwall Planning to Add TCP Support to It's VoIP Features?

According to this forum post harishs@sonicwall.com notes this:

"The Current Implementation of SIP Transformations only affects UDP and not TCP hence we cannot transform SIP over TCP. There is an Enhancement Filed for the same and can be expected in future. No ETA."

In my opinion this is not urgent as Lync can work fine without Sonicwall SIP Transformations, but would show initiative on Sonicwall's part.

Something Doesn't Work Right and I'm on an Old Firmware, Do I Need to Upgrade?

Yes. This is a security device, if you aren't up to date---you are not being responsible.

Can I Use Sonicwall AppFlow Monitor To Display Microsoft Lync Signaling and Media Traffic?

Absolutely. The Sonicwall AppFlow Monitor lets you easily setup a filter to show in realtime just the traffic you want to see: For example you can easily see SIP Trunk traffic from your Lync Mediation Server, or your Lync Edge Server traffic through your Sonicwall.

Below we have a screenshot of the AppFlow Monitor showing the traffic to a Lync Mediation Server. As you can see, at first there was merely SIP signaling traffic, then 1 SIP trunk call and then after a bit a 2nd SIP trunk call. At any time you can hover over the traffic types (lower left corner of chart) to get how much traffic is passing using that port/ports.)

If Lync Traffic is DSCP Marked Will Sonicwall Prioritize This Traffic Going LAN to WAN/ISP? No

Sonicwall devices can tag traffic with DSCP tags, but the Sonicwall device itself will not prioritize traffic based on DSCP if it is going LAN > WAN. So if you have a Lync Mediation server that is sending traffic to your ISP (and ultimately to a SIP Trunk provider), even if the Lync Mediation server tags this traffic with DSCP, the traffic will not be prioritized through the Sonicwall Firewall Rule. (Use Sonicwall Bandwidth Management to achieve this.) If the ISP honors DSCP the packets will be prioritized once it reaches the ISP.

NOTE: Sonicwall VPN's can prioritize DSCP traffic.

How to Setup 1 to 1 NAT?

This is a blog post all in itself. Watch for a post coming…

Conclusion

Bottom Line: Sonicwall and Lync work together just fine, but you need to understand both well.

Sonicwall will do 1 to 1 NAT's just fine. Sonicwall currently does not do ALG but Lync Certified SIP trunk providers should be able to configure their side to avoid the need for ALG on your firewall. The biggest take away is that Sonicallwall VoIP features do not work on TCP traffic at this time.

Misc Links:
QOS:
http://help.sonicwall.com/help/sw/eng/6800/25/8/1/Firewall_qosSettings.html#1080295
PSTN Echo Test:+1 703-376-ECHO (3246)

SIP Trunk Traffic Notes:

- RTP seems to always use Sonicwall LAN>WAN rule. (Egress=From Lync Server; Ingress=From SIP Trunk/Remote Party)
    - SDP tell Lync to do this
- Appears SIP signaling uses Sonicwall WAN>LAN rule

Chapter 11

Chapter 11 – How to Configure Lync Server 2013 Live Messenger PIC to Enable Skype Federation

Original Blog Article Click Here

I wondered around in the "pineapple fields" a bit trying to get all these PIC pieces together so I thought I'd compile them here. Open your Lync users to millions of Skype users via Live Messenger PIC!

Since Skype to Lync federation is already working at the IM/P level and will get audio around the June 2013 time frame, you will want to start getting your Lync Server 2013 Live Messenger PIC provisioned to take advantage of this.

Here is a summary of the steps to enabled PIC:

- Make sure you Lync Edge server is working ship-shape
- House Clean Your Live Messenger ID's (aka Microsoft Account or MSA, formerly know as Live ID): Make sure none are using your Lync domain
- House Clean Your Live Messenger Contact list: remove any Live Messenger contacts that you just changed the domain name in above step.
- Provision your Lync domain for Live Messenger (aka Skype) PIC
- Configure Live Messenger (aka Skype) PIC Federation in Lync Server Control Panel
- Test

NOTE: For the purposes of this blog we will use the names Live Messenger and Microsoft Account. Live Messenger might also be know to some users as WLM or Windows Live Messenger. Microsoft Account might also be know to some users as Windows Live ID or Live ID. There is some ambiguity as to whether everything we reference as Live Messenger will be be changed to Skype in the future, but at this time the labels are still Live Messenger.

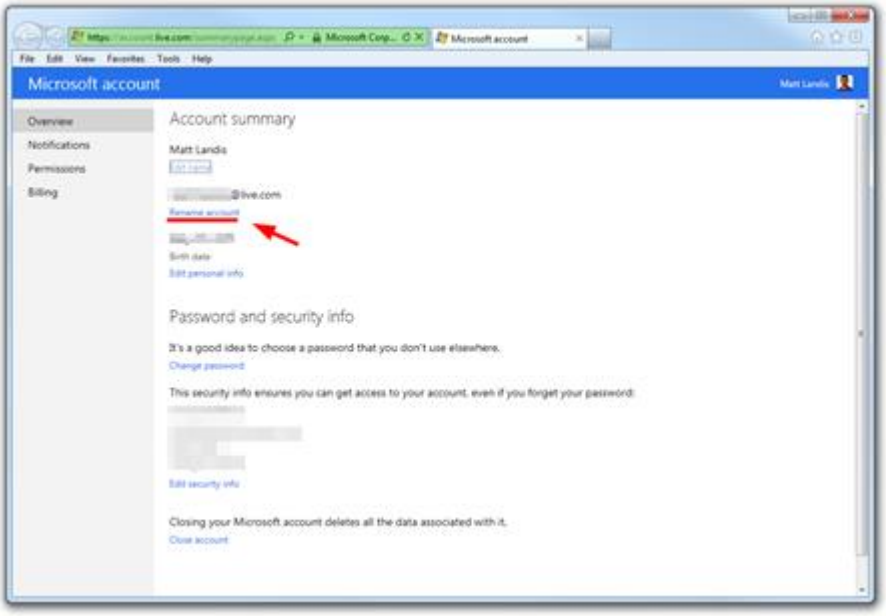
Make Sure Your Lync Edge Server Is Working Ship Shape

Make sure your Lync Edge server is working "ship shape" before even trying to federate to Live Messenger. Here is a TechNet article on some tests you can do to ensure your edge server is working correctly.

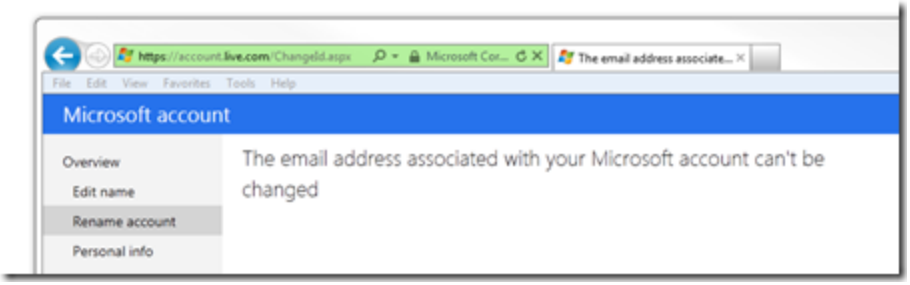
Make Sure NO Live Messenger Usernames Are Using Your Lync Domain Name

Before getting starting this PIC Registration process, make sure you have no users who's Live Messenger usernames that are using your Lync domain. To fix these usernames, have the users login to their Microsoft Account to change the username domain to something other than the Lync domain.

1. For example if your Lync Server is at "house.com" you need to change any Live Messenger usernames that have "vanity" domain ending in "@house.com" to something else. (preferably to a default Microsoft Account domain like "@live.com")
2. REMEMBER: you can only change your Microsoft Account username once every 6 months—so you will want to be VERY CAREFUL and get it right the first time! Proceed with caution.
3. To change a Microsoft Account username, login with the Microsoft Account that needs the username changed and go to: https://account.live.com/summarypage.aspx and click on "Rename account"



NOTE: Currently Microsoft Account users are noting that MSA usernames cannot be changed (as shown below) It appears changing usernames caused some issues and Microsoft is looking into the issue. Microsoft has no ETA on at this time. Click Here



Live Messenger Users Whose Usernames Have Changed Will Want to Notify Others Who Have Them On Their Contact List to Remove Them and Add Them Again Using New Username

To avoid issues later, (the issue: those who don't remove and re-add see this contact's presence as offline) I recommend that you have Live Messenger users whose username's have been change, to notify others who have them on their contact list (whether Lync, Live Messenger, Skype or other IM clients) to remove them and add them again with their new Live Messenger username.

Provision Live Messenger PIC Federation for Your Lync Domain With Microsoft

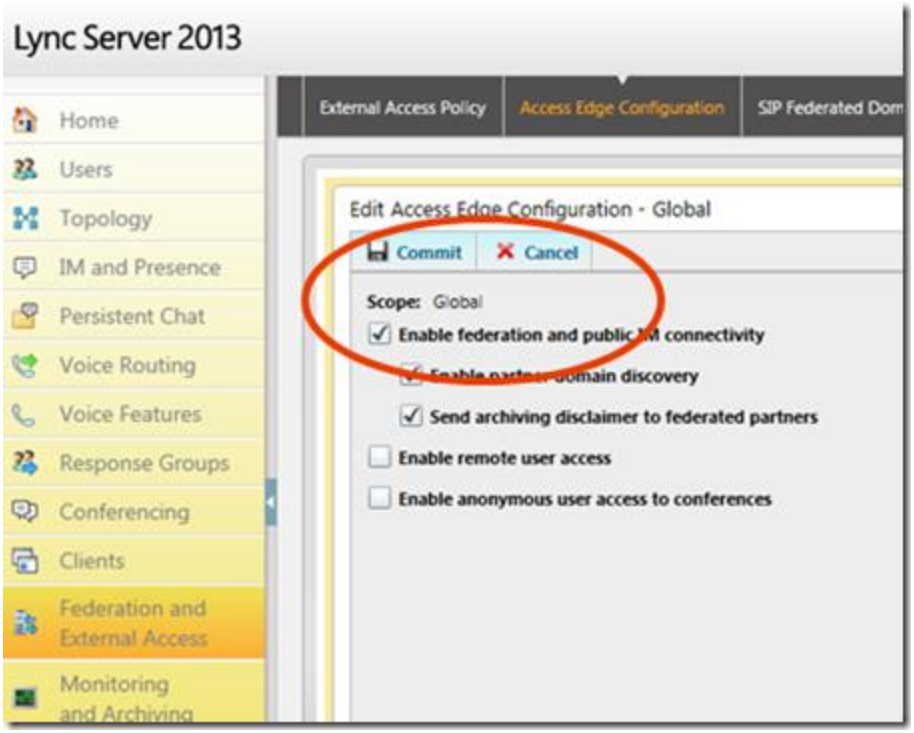
Get Microsoft Live Messenger (Skype?) PIC provisioning started with Microsoft by heading over to http://pic.lync.com

1. Microsoft says it could take 30 days: My experience was 7hrs later Live Messenger was provisioned. Microsoft Lync PIC provisioning team noted that AIM typically takes a bit longer.

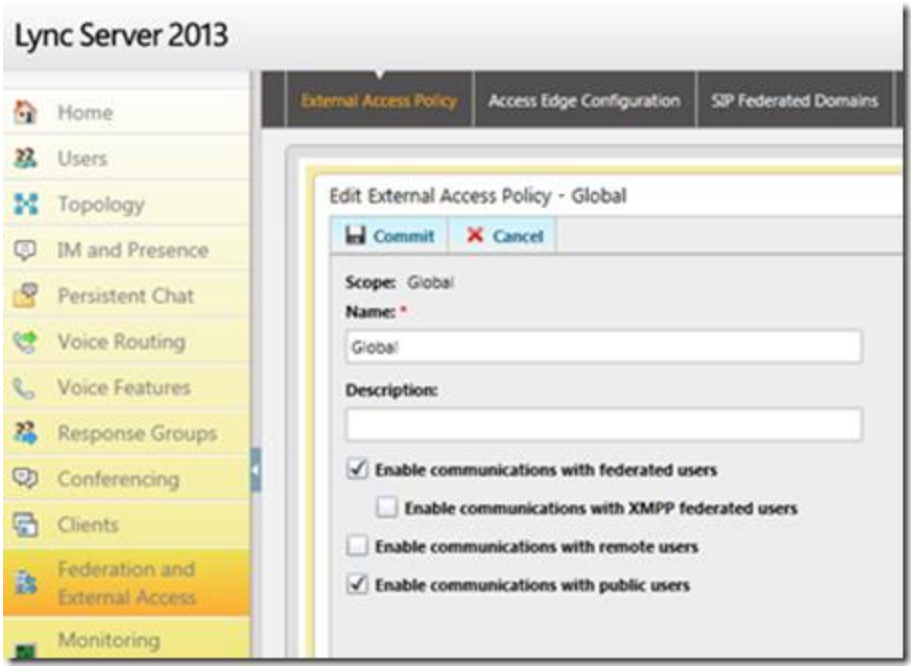
The PIC provisioning website looks something like below:

Do your Live Messenger PIC Federation Configuration in the Lync Server 2013 Control Panel

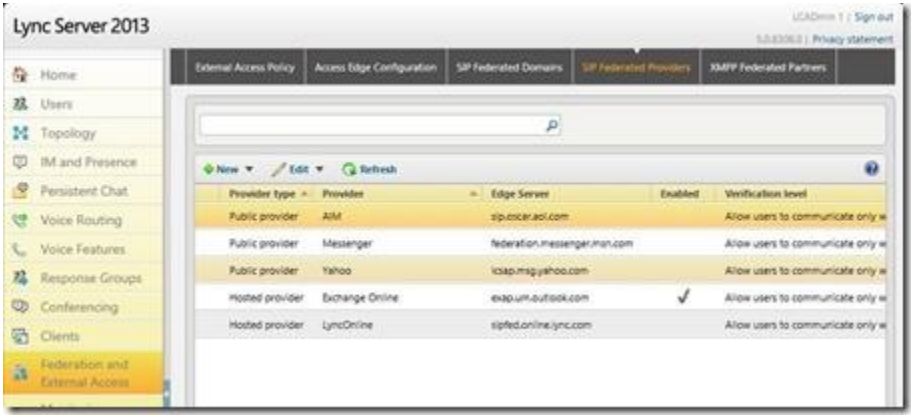
Under Federation and External Access | Access Edge Configuration | Enable federation and public IM connectivity (shown below)



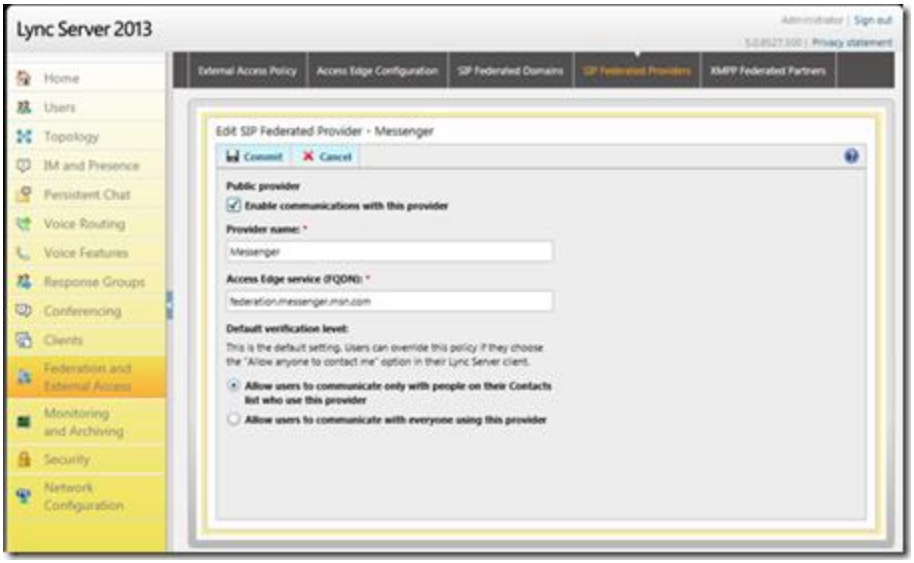
Create an External Access Policy to enable access to External Skype users.



Add Live Messenger SIP Federated Partner (or just edit if already there)



Configure settings as you like, shown below:



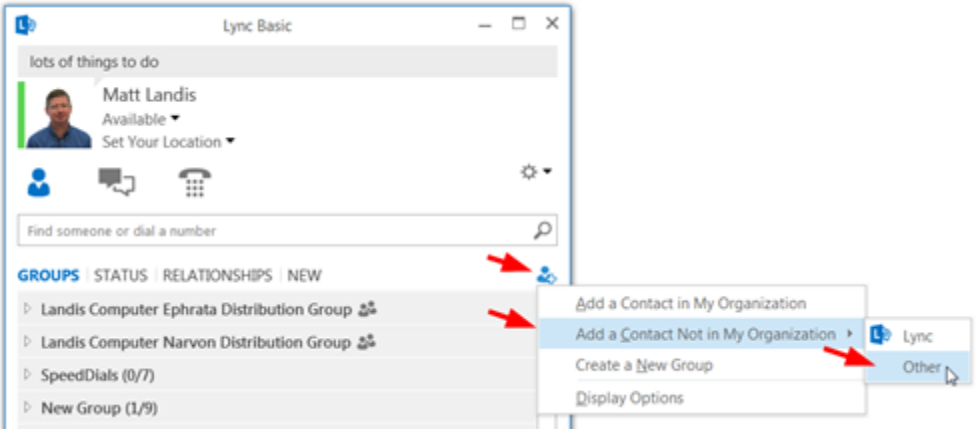
Set Lync to NOT Force Encryption

A final step to enable Live Messenger PIC you need set Lync to not force encryption. Do this by following these instructions.

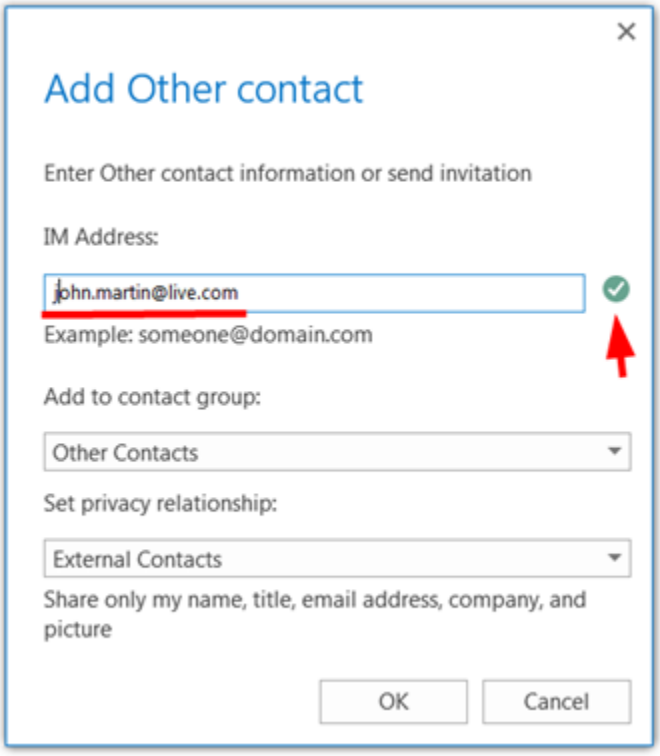
Test By Adding a Live Messenger (Skype?) User In Your Lync Client

To add Live Messenger clients to your Lync contact list add them to Lync just like Lync clients!

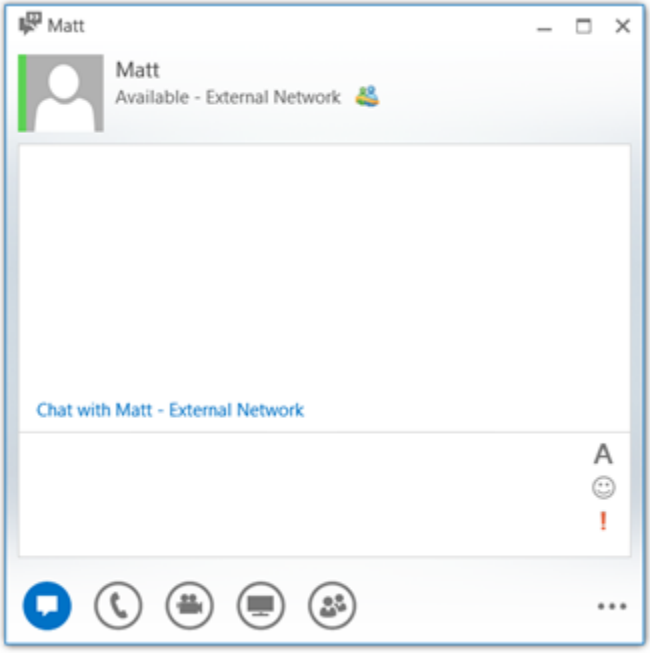
1. Note: If the Live Messenger username you want to add is using a vanity Live Messenger username domain, enter the contact like this: live-messenger-username(live-messenger-username-vanity-domain)@msn.com. For example: john.martin@xyz.com would be john.martin(xyz.com)@msn.com.



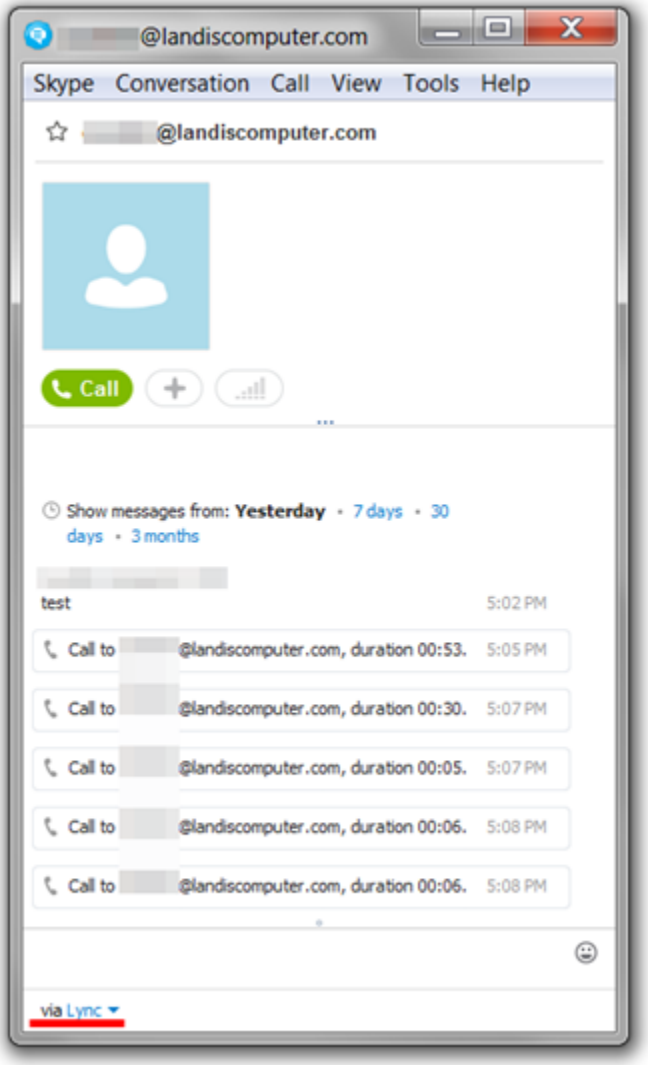
Next. (NOTE: the green check does not mean that there is a Live Messenger contact like this, just that the contact is proper form.)



Conversation is started:



Below is what the Skype side will see:



Some other Lync <-> Skype articles you might have interest in:

- How Do I Enable Lync <-> Skype Federation from Skype Side? Click Here
- How Much Will Lync <-> Skype Federation Cost? Click Here

- How Does Lync <-> Skype Federation Work Under the Hood? Click Here
- Nov 2012: Lync <-> Skype IM/P Has Started Working: Click Here
- Feb 2013: Lync <-> Skype Voice Has Started Working for Some: Click Here

Sources:
http://technet.microsoft.com/en-us/library/ff945947.aspx

Intentionally Blank