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# 20334B

## Core Solutions of Skype for Business 2015

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Revised July 2013

# Module 1

## Design and Architecture of Skype for Business Server 2015

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## Lesson 1

# Overview of Skype for Business Components and Features

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## Question and Answers

### Server Roles in Skype for Business Server

**Question:** Which server roles can you collocate?

**Answer:** In Skype for Business Server, the A/V Conferencing service, Mediation Server, Monitoring, and Archiving can collocate on the Front End Server, but additional configuration is necessary to enable them. If you do not want to collocate Mediation Server with Front End Server, you can deploy it as a stand-alone Mediation Server on a separate computer.

### Overview of Enterprise Voice

**Question:** What is media bypass and what are the benefits to enabling this setting in a Skype for Business Server deployment?

**Answer:** Media bypass refers to removing the Mediation Server for media traffic. Benefits include an improvement in voice quality by reducing latency, the possibility of packet loss, unnecessary translation, and reducing the number of hops, thereby decreasing the number of potential points of failure.

## Demonstration: Design a Topology

### Demonstration Steps

1. Sign in to the LON-SFB1 virtual machine as **ADATUM\Administrator** with the password **Pa\$\$word**.
2. From the **Start** screen, click the Down arrow button, and then click to open **Skype for Business Server 2015, Planning Tool**.
3. On the Welcome to the Skype for Business Server 2015, Planning Tool Setup Wizard page, click **Next**.
4. On the End-User License Agreement page, select the I accept the terms in the License Agreement check box and then click **Next**.
5. On the Destination Folder page, click **Next**.
6. On the Ready to install page, click **Install**.
7. If prompted, in the **User Account Control** dialog box, click **Yes**.
8. On the Completed the Skype for Business Server 2015, Planning Tool Setup Wizard page, click **Finish**.
9. From the Start screen, click **Skype for Business Server 2015, Planning Tool**.
10. In the Welcome to the Skype for Business Server 2015, Planning Tool window, click **Get Started**.
11. In the Audio/Video Conferencing page, select **Yes**, and then click **Next**.
12. On the Dial-in Conferencing page, select **No**, and then click **Next**.
13. On the Web Conferencing page, select **Yes**, and then click **Next**.
14. On the Enterprise Voice page, select **No**, and then click **Next**.
15. On the Call Admission Control page, select **No**, and then click **Next**.
16. On the Monitoring page, select **No**, and then click **Next**.
17. On the Archiving page, select **No**, and then click **Next**.
18. On the Persistent Chat page, select **No**, and then click **Next**.
19. On the Video Interop page, select **No**, and then click **Next**.
20. On the Mobility page, select **No**, and then click **Next**.

21. On the Federation page, clear the following options, and then click **Next**:
  - Yes, I want to enable federation via XMPP
22. On the High Availability page, select **Yes**, and then click **Next**.
23. On the IP Support page, select **Both IPv4 and IPv6**, and then click **Next**.
24. On the Disaster Recovery page, select **No**, and then click **Next**.
25. On the Features Overview Completed page, click **Design Sites**.
26. On the Central Sites page, in the **Site Name** text box, type **New York**, in the **Site Homed Users** text box, type **1000**, and then click **Next**.
27. On the SIP Domain page, in the **What are your company's internal SIP Domains** text box, type **Adatum.com**, click **Add**, and then click **Next**.
28. On the Conference Settings page, clear **Data collaboration is enabled**, and then click **Next**.
29. On the External User Access page, select **No** for **Do you want to enable external user access**, and then click **Next**.
30. On the High Availability Options page, select **Database Mirroring**, and then click **Next**.
31. On the Add Another Central Site page, click **Next**.
32. On the Skype for Business Server 2015, Planning Tool Finished Successfully page, click **Draw** to review the proposed topology.

## Lesson 2

# Introduction to the Skype for Business Administrative Tools

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## Question and Answers

### Skype for Business Server Centralized Logging Service

**Question:** What are some benefits of using the Centralized Logging Service over its predecessor, OCSLogger?

**Answer:**

- Centralized Logging Service provides several components that you can trace, allowing you to configure and define new scenarios that target the problem space, custom flags, and logging levels.
- The primary benefit of Centralized Logging Service is that OCSLogger can only collect logs from one computer at a time. This requires an administrator to initiate OCSLogger on each server that is running Skype for Business Server in a deployment. The result is multiple log files that you cannot aggregate easily. Alternatively, when an administrator initiates a query to Centralized Logging Service, it automatically connects to every server that is running Skype for Business Server in the deployment and aggregates the log files.

### Demonstration: Using the Skype for Business Server Deployment Wizard

#### Demonstration Steps

1. Sign in to the LON-SFB1 virtual machine as **Adatum\Administrator** with the password **Pa\$\$w0rd**.
2. On the **Start** menu of LON-SFB1, click **Skype for Business Server Deployment Wizard**.
3. In the deployment wizard, discuss the reason for the **Determining Deployment State** window.
4. Review the deployment options.
5. In the deployment wizard, click **Prepare Active Directory**.
6. Because Active Directory preparation is already complete, review the steps in the Prepare Active Directory for Skype for Business Server window.
7. After the Active Directory preparation is complete, click **Back**.
8. In the deployment wizard, click **Install or Update Skype for Business Server System**.
9. Because installation is already complete, review the steps in the Skype for Business Server deployment window.
10. When complete, click **Exit**.

### Demonstration: Installing and Configuring Topology Builder

#### Demonstration Steps

1. Sign in to LON-SFB1 by using the following credentials:
  - User name: **Adatum\Administrator**
  - Password: **Pa\$\$w0rd**
2. On the taskbar, click **Skype for Business Server Topology Builder**.
3. In Topology Builder, click **Download Topology from existing deployment**, and then click **OK**.



**Note:** If the **Download Current Topology** window appears, wait a few seconds before continuing.



4. In the **Save Topology As** dialog box, go to the desktop, and then save the topology as **Demo1.tbxml**.
5. Switch to NYC-SQL3.
6. On NYC-SQL3, open File Explorer, and then go to drive C.
7. Create a new folder named **SkypeShare**.
8. Right-click the **SkypeShare** folder, and then click **Share with specific People**.
9. Ensure that Administrator is listed as Read/Write and that the Administrators group is listed as the owner.
10. On the File Sharing window, click **Share**, and then click **Done**.
11. Switch to LON-SFB1.
12. In Topology Builder, on LON-SFB1, right-click **Skype for Business Server**, and then click **New Central Site**.
13. In the Define New Central Site window, in the **Name** text box, type **New York**, and then click **Next**.
14. In the Specify site details window, in the **City** text box, type **New York**, and then click **Next**.
15. In the Central site was successfully defined window, verify that **Open the New Front End Wizard when this wizard closes** is selected, and then click **Finish**.
16. In the Define the New Front End pool window, click **Next**.
17. In the Pool FQDN text box, type **NY-pool.adatum.com**, and then click **Next**.
18. In the Define the computers in this pool window, in the **Computer FQDN** text box, type **NYC-SFB3.Adatum.com**, click **Add**, and then click **Next**.
19. In the Select features window, select Conferencing (includes audio, video, and application sharing), and then click **Next**.
20. In the Select collocated server roles window, select **Collocate Mediation Server**, and then click **Next**.
21. In the Associate server roles with this Front End pool window, verify that **Enable an Edge pool to be used by the media component of this Front End pool** is cleared, and then click **Next**.
22. In the Define the SQL Server store window, click **New** to open a new Microsoft SQL Server store.
23. In the Define New SQL Server Store window, in the SQL Server FQDN text box, type **NYC-SQL3.adatum.com**, click the option for **Default instance**, and then click **OK**.
24. Verify that the SQL Server store is populated with **NYC-SQL3.adatum.com\Default**, and then click **Next**.
25. In the Define the file store window, select **Define a new file store**:
  - In the File server FQDN text box, type NYC-SQL3.adatum.com.
  - In the **File Share** text box, type **SkypeShare**, and then click **Next**.
26. In the Specify the Web Services URL window, leave the default options, and then click **Next**.
27. In the Select an Office Web Apps Server window, verify that **Associate pool with an Office Web Apps Server** is cleared, and then click **Finish**.
28. In Topology Builder, on LON-SFB1, right-click the newly created **New York** site, click **Topology**, and then click **Publish**.
29. In the Publish Topology window, click **Next**.

30. In the Select databases window, verify that **NYC-SQL3.adatum.com\Default** is selected, and then click **Next**.
31. After publishing completes, in the Publishing wizard complete window, select a step, and then click **View Logs** for review. This might be necessary for reviewing errors or warnings.



**Note:** When you publish the topology, you may receive a status of **Completed with warnings** for the step **Creating Database NYC-SQL3.adatum.com\Default**.

32. In the **Publish Topology** dialog box, in the **Step** column, click **Publishing topology**, and then click **View logs** to view the log files for that step in Internet Explorer.



**Note:** Expand **Publish-CsTopology**, and then view the logs.

33. Click **Close** to exit Internet Explorer.
34. Click **Finish** to close the Publish Topology Wizard, and then close Topology Builder.

# Module Review and Takeaways

## Best Practice

Ensure that you identify and involve the stakeholders that are necessary for a successful Skype for Business Server implementation as early as possible, and get approval on the deployment plans before starting any work. This helps minimize deployment delays in implementing changes to firewalls or other network configurations, acquiring certificates, preparing Active Directory Domain Services (AD DS), and configuring Domain Name System (DNS), Private Branch Exchanges (PBXs), or gateways. The larger your organization, the less likely it is that one entity owns or manages these items. Unless you involve the appropriate departments early during the planning phase, you might encounter roadblocks in the subsequent deployment. In a large organization, remember to schedule the appropriate time for change management approvals and scheduling.

## Review Question(s)

**Question:** After publishing the topology, what should you do before clicking **Finish** in the publishing wizard?

**Answer:** Review any logs with warnings and errors, and click to open the to-do list for any additional steps that might be necessary. The to-do list is extremely important because it provides the next set of steps, such as re-running the setup, requesting new certificates, or initiating other required actions to complete any configuration changes.

## Real-world Issues and Scenarios

Administrators at Contoso, Ltd. plan to deploy both Skype for Business Server Standard Edition Server and Enterprise Edition. Which should they deploy first?

Answer: They should deploy Enterprise Edition first to host the Central Management store. If they plan to start a pilot with Standard Edition, they first need to prepare the Standard Edition server to host the Central Management store, and then move it.

## Common Issues and Troubleshooting Tips

Common Issue	Troubleshooting Tip
In Topology Builder, in the Publish Topology wizard, you might experience the following status for the step <b>Creating Databases Database Name:</b> Completed with warnings	Review the log and check that the SQL Server agent is running.
In Topology Builder, in the Publish Topology wizard, you might notice in the log files that the database creation fails on the back-end SQL Server for Lync Server Enterprise Edition	Verify that the SQL Server Back End Server is online and accessible with firewall exceptions in place. Additionally, verify that it is configured to accept remote connections and that it is joined to the domain in which you are deploying Microsoft Lync Server. You should also verify that you have the appropriate rights to create the databases.

## Lab Review Questions and Answers

### Lab: Designing and Publishing a Skype for Business Server Topology

#### Question and Answers

**Question:** Which tool would you use to prepare Active Directory and to install the administrative tools?

**Answer:** You would use the Skype for Business Server Deployment Wizard.

**Question:** Which Skype for Business Server administrative tools do you install when you run Setup.exe the first time?

**Answer:** You install the Skype for Business Server Deployment Wizard and the Skype for Business Server Management Shell.

# Module 2

## Installing and Implementing Skype for Business Server 2015

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## Lesson 1

# Server and Service Dependencies

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## Question and Answers

**Question:** You are the Skype for Business administrator for your company, A. Datum Corporation. Your company uses the SIP domain named adatum.com. Which of these URLs are simple URLs in your Skype for Business Server environment?

- ☐ admin.adatum.com
- ☐ pool.adatum.com
- ☐ dial-in.adatum.com
- ☐ lyncdiscoverinternal.adatum.com
- ☐ meet.adatum.com

**Answer:**

- ☒ admin.adatum.com
- ☐ pool.adatum.com
- ☒ dial-in.adatum.com
- ☐ lyncdiscoverinternal.adatum.com
- ☒ meet.adatum.com

**Feedback:** The simple URLs in Skype for Business Server include:

- admin URL
- dial-in URL
- meet URL

**Question:** Which of the following is an example of a SRV record in Skype for Business Server?

- ☐ \_sip.adatum.com
- ☐ \_sipinternaltls\_tcp.adatum.com
- ☐ sip.adatum.com
- ☐ Sip\_tls.adatum.com

**Answer:**

- ☐ \_sip.adatum.com
- ☒ \_sipinternaltls\_tcp.adatum.com
- ☐ sip.adatum.com
- ☐ Sip\_tls.adatum.com

**Feedback:** Service records (SRV records) use the following naming convention:  
*\_service.\_protocol.name.*

**Question:** What support does Skype for Business Server have for wildcard certificates?

**Answer:** Although Skype for Business Server supports the use of wildcard certificates, it is limited to wildcard entries in the subject alternative name (SAN), not in the subject name. You might want to consider using wildcard certificates when you are planning to host multiple SIP domain names or multiple Front End Servers.

## Demonstration: Configuring DNS for Skype for Business Server

### Demonstration Steps

1. Sign in to LON-DC1 as **adatum\administrator** with the password **Pa\$\$w0rd**.
2. On LON-DC1, in Server Manager, click **Tools**, and then click **DNS**.
3. In DNS Manager, expand **LON-DC1**, expand **Forward Lookup Zones**, and then click **Adatum.com**.
4. Right-click **Adatum.com**, and then click **New Host (A or AAAA)**.
5. In the New Host window, in the **Name** box, type **NY-pool**.
6. In the **IP Address** box, type **172.16.10.20**, and then click **Add Host**.
7. At the DNS prompt, click **OK**.
8. In the New Host window, in the **Name** box, type **NY-webint**.
9. In the **IP Address** box, type **172.16.10.20**, and then click **Add Host**.
10. At the DNS prompt, click **OK**, and then click **Done**.
11. Right-click **Adatum.com**, and then click **Other New Records**.
12. In the Select a resource record type window, click **Service Location (SRV)**, and then click **Create Record**.
13. In the **Service** box, type **\_sipinternaltls**.
14. In the **Protocol** box, type **\_tcp**.
15. Leave the **Priority** entry as the default. Enter **10** for **Weight**.
16. In the **Port Number** box, type **5061**.
17. In the **Host offering this service** box, type **NY-pool.Adatum.com**, and then click **OK**.
18. Click **Done**, and then close DNS Manager.



## Lesson 2

# Planning SIP Domains

### Contents:

Question and Answers

6

## Question and Answers

**Question:** You are the Skype for Business administrator for your company, A. Datum. Your company uses the SIP domain named adatum.com. Your company merged with Contoso, Ltd., which uses the SIP domain named contoso.com. You need to plan the simple URLs of your Skype for Business Server infrastructure to support both SIP domains. Which of the following simple URLs should you choose?

☐ meet.adatum.com  
meet.contoso.com  
dial-in.adatum.com  
dial-in.contoso.com  
admin.adatum.com

☐ meet.adatum.com  
meet.contoso.com  
dial-in.adatum.com  
admin.adatum.com

☐ meet.adatum.com  
dial-in.adatum.com  
dial-in.contoso.com  
admin.adatum.com

☐ meet.adatum.com  
dial-in.adatum.com  
admin.adatum.com

**Answer:**

☐ meet.adatum.com  
meet.contoso.com  
dial-in.adatum.com  
dial-in.contoso.com  
admin.adatum.com

☒ meet.adatum.com  
meet.contoso.com  
dial-in.adatum.com  
admin.adatum.com

☐ meet.adatum.com  
dial-in.adatum.com  
dial-in.contoso.com  
admin.adatum.com

☐ meet.adatum.com  
dial-in.adatum.com  
admin.adatum.com

**Feedback:** For each SIP domain, you need a separate meet URL. Therefore, for the SIP domain adatum.com, you must define the simple URL meet.adatum.com, and for the SIP domain contoso.com, you must define the simple URL meet.contoso.com. However, for both the SIP domains, you can create just one dial-in URL and one admin URL.

**Question:** You are the Skype for Business administrator for A. Datum. Your company uses the SIP domain named adatum.com. Your company merged with Contoso, which uses the SIP domain name of contoso.com. The management wants you to minimize the certificate requirements. You need to plan the simple URLs of your Skype for Business Server infrastructure to support both SIP domains.

Which of the following simple URLs should you choose?

- ( ) skype.adatum.com/meet  
skype.contoso.com/meet  
skype.adatum.com/dial-in  
skype.adatum.com/admin
- ( ) meet.adatum.com  
dial-in.adatum.com  
admin.adatum.com
- ( ) skype.adatum.com/adatum.com/meet  
skype.adatum.com/contoso.com/meet  
skype.adatum.com/dial-in  
skype.adatum.com/admin
- ( ) meet.adatum.com  
meet.contoso.com  
dial-in.adatum.com  
admin.adatum.com
- ( ) skype.adatum.com/adatum.com/meet  
skype.contoso.com/contoso.com/meet  
skype.adatum.com/dial-in  
skype.adatum.com/admin

**Answer:**

- ( ) skype.adatum.com/meet  
skype.contoso.com/meet  
skype.adatum.com/dial-in  
skype.adatum.com/admin
- ( ) meet.adatum.com  
dial-in.adatum.com  
admin.adatum.com
- (v) skype.adatum.com/adatum.com/meet  
skype.adatum.com/contoso.com/meet  
skype.adatum.com/dial-in  
skype.adatum.com/admin
- ( ) meet.adatum.com  
meet.contoso.com  
dial-in.adatum.com  
admin.adatum.com
- ( ) skype.adatum.com/adatum.com/meet  
skype.contoso.com/contoso.com/meet  
skype.adatum.com/dial-in  
skype.adatum.com/admin

**Feedback:** For each SIP domain, you need a separate meet URL. However, you need just one dial-in URL and one admin URL for your entire organization.

Also, the following simple URLs require only one certificate:

- skype.adatum.com/adatum.com/meet
- skype.adatum.com/contoso.com/meet
- skype.adatum.com/dial-in

- [skype.adatum.com/admin](https://skype.adatum.com/admin)

**Question:** How is the SIP URI different from the mail URI?

**Answer:** The biggest difference between the SIP Uniform Resource Identifier (URI) and the mail URI is that a user can have various mail URIs with different domains, but must have a unique SIP URI in Skype for Business Server. When planning your Skype for Business Server deployment, it is important to minimize changes to email addresses and SIP addresses.

## Lesson 3

# Installing Skype for Business Server

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## Question and Answers

**Question:** What are the names of the SQL Server database instances that are installed on the Skype for Business Server Front End Servers?

- ( ) RTC
- ( ) RTCLOCAL
- ( ) LyncLocal
- ( ) LyncRTC
- ( ) SkypeLocal

**Answer:**

- ( ) RTC
- (√) RTCLOCAL
- (√) LyncLocal
- ( ) LyncRTC
- ( ) SkypeLocal

**Feedback:** During the installation of the local configuration store on the Skype for Business Server Front End Server, the bootstrapper installs an instance of Microsoft SQL Server Express, called RTCLOCAL, and the core Skype for Business Server components. Next, the bootstrapper instantiates the local Central Management store replica by importing the configuration from the Central Management store database and then replicating the database data.

During the setup of Skype for Business Server components, the bootstrapper performs a prerequisite check before installing additional components. These components include a second SQL Server Express instance, called LyncLocal.

**Question:** Which of the following options represents the correct order of steps for preparing and installing Skype for Business Server?

- ( ) Prepare AD DS for Skype for Business Server.  
Install Topology Builder.  
Configure Topology Builder.  
Publish the topology.  
Install the local configuration store.  
Set up or remove Skype for Business Server components.  
Request, install, or assign certificates.
- ( ) Prepare AD DS for Skype for Business Server.  
Configure Topology Builder.  
Install Topology Builder.  
Publish the topology.  
Install the local configuration store.  
Set up or remove Skype for Business Server components.  
Request, install, or assign certificates.
- ( ) Prepare AD DS for Skype for Business Server.  
Install Topology Builder.  
Configure Topology Builder.  
Publish the topology.  
Set up or remove Skype for Business Server components.

Install the local configuration store.  
Request, install, or assign certificates.

( ) Prepare AD DS for Skype for Business Server.  
Install Topology Builder.  
Configure Topology Builder.  
Install the local configuration store.  
Publish the topology.  
Set up or remove Skype for Business Server components.  
Request, install, or assign certificates.

( ) Prepare AD DS for Skype for Business Server.  
Install Topology Builder.  
Configure Topology Builder.  
Set up or remove Skype for Business Server components.  
Publish the topology.  
Install the local configuration store.  
Request, install, or assign certificates.

**Answer:**

(v) Prepare AD DS for Skype for Business Server.  
Install Topology Builder.  
Configure Topology Builder.  
Publish the topology.  
Install the local configuration store.  
Set up or remove Skype for Business Server components.  
Request, install, or assign certificates.

( ) Prepare AD DS for Skype for Business Server.  
Configure Topology Builder.  
Install Topology Builder.  
Publish the topology.  
Install the local configuration store.  
Set up or remove Skype for Business Server components.  
Request, install, or assign certificates.

( ) Prepare AD DS for Skype for Business Server.  
Install Topology Builder.  
Configure Topology Builder.  
Publish the topology.  
Set up or remove Skype for Business Server components.  
Install the local configuration store.  
Request, install, or assign certificates.

( ) Prepare AD DS for Skype for Business Server.  
Install Topology Builder.  
Configure Topology Builder.  
Install the local configuration store.  
Publish the topology.  
Set up or remove Skype for Business Server components.  
Request, install, or assign certificates.

( ) Prepare AD DS for Skype for Business Server.  
Install Topology Builder.  
Configure Topology Builder.

Set up or remove Skype for Business Server components.  
Publish the topology.  
Install the local configuration store.  
Request, install, or assign certificates.

**Feedback:** The following are the steps for preparing and installing Skype for Business Server:

1. Prepare AD DS for Skype for Business Server.
2. Install Topology Builder.
3. Configure Topology Builder.
4. Publish the topology.
5. Install the local configuration store.
6. Set up or remove Skype for Business Server components.
7. Request, install, or assign certificates.

## Demonstration: Installing a Skype for Business Server 2015 Server

### Demonstration Steps

1. On NYC-SFB3, in File Explorer, right-click **D:\**, and then click **Install or run program from your media**.
2. In the **Skype for Business Server** message box, click **Don't check for updates right now**, and then click **Install**.
3. On the **End User License Agreement** page, select **I accept the terms in the license agreement**, and then click **OK**.
4. On NYC-SFB3, on the **Skype for Business Server 2015 - Deployment Wizard** page, click **Install or Update Skype for Business Server System**.
5. On the **Skype for Business Server 2015 - Deployment Wizard** page, next to Step 1: Install Local Configuration Store, click **Run**.
6. On the **Configure Local Replica of Central Management Store** page, verify that **Retrieve directly from the Central Management Store** is selected, and then click **Next**. This step will take about 10 minutes to complete. Continue with the lecture content and return to the demonstration when this step completes.
7. On the **Executing Commands** page, when the Task Status shows **Completed**, click **Finish**.
8. On NYC-SFB3, on the **Skype for Business Server 2015 - Deployment Wizard** page, next to Step 2: Setup or Remove Skype for Business Server Components, click **Run**.
9. On the **Setup Skype for Business Server Components** page, click **Next**. This step will take approximately 10 minutes to run. Continue with the lecture content and return to the demonstration when this step completes.
10. On the **Executing Commands** page, click **View logs** to view the log file in Internet Explorer.



**Note:** Expand **BootstrapFull** and view the logs.

11. Click **Close** to exit Internet Explorer.
12. On the **Executing Commands** page, click **Finish**.



## Demonstration: Deploying Certificates for Skype for Business Server

### Demonstration Steps

1. On NYC-SFB3, on the **Skype for Business Server 2015 - Deployment Wizard** page, next to Step 3: Request, Install or Assign Certificates, click **Run**.
2. In the **Certificate Wizard** dialog box, select **Default Certificate**, and then click **Request**.
3. On the **Certificate Request** page, perform the following steps:
  - a. In the **Select a CA from the list detected in your environment** drop-down list, verify that **LON-DC1.Adatum.com\AdatumCA** is listed.
  - b. In the **Friendly Name** box, type **LON-SFB1 Skype for Business Server Default Certificate**.
  - c. In the **Organization** box, type **A Datum**.
  - d. In the **Organizational Unit** box, type **IT**.
  - e. In the **Country/Region** drop-down list, click **United States**.
  - f. In the **State/Province** box, type **New York**.
  - g. In the **City/Locality** box, type **New York City**.
  - h. In the **Select one or more SIP Domains ... to be added to the subject alternative names list** section, select **Adatum.com**, and then click **Next**.
4. On the **Certificate Request Summary** page, click **Next**.
5. On the **Executing Commands** page, when the Task Status shows **Completed**, click **Next**.
6. On the **Online Certificate Request Status** page, verify that **Assign this certificate to Skype for Business Server certificate usages** is selected, and then click **Finish**.
7. On the **Certificate Assignment** page, click **Next**.
8. On the **Certificate Assignment Summary** page, click **Next**.
9. On the **Executing Commands** page, when the Task Status shows **Completed**, click **Finish**.
10. In the **Certificate Wizard** dialog box, click the down arrow next to **Default Certificate** to expand the **Certificate Type**.
11. Verify that **Server Default**, **Web Services Internal**, and **Web Services External** show as **Assigned**.
12. Click **Close** to exit the **Certificate Wizard** dialog box.

## Lesson 4

# Integrating Skype for Business Server with Exchange Server and SharePoint Server

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## Question and Answers

**Question:** What are the three steps required to integrate Skype for Business Server 2015 with Exchange Server?

- ( ) Assign the appropriate certificates to Skype for Business Server and to Exchange Server.
- ( ) Assign the OAuth certificate to the Skype for Business Server 2015 server.
- ( ) Configure Skype for Business Server to be a partner application for Exchange Server.
- ( ) Configure Exchange Server to be a partner application for Skype for Business Server.
- ( ) Configure Exchange Server to be a partner application for SharePoint Server.

**Answer:**

- (v) Assign the appropriate certificates to Skype for Business Server and to Exchange Server.
- ( ) Assign the OAuth certificate to the Skype for Business Server 2015 server.
- (v) Configure Skype for Business Server to be a partner application for Exchange Server.
- (v) Configure Exchange Server to be a partner application for Skype for Business Server.
- ( ) Configure Exchange Server to be a partner application for SharePoint Server.

**Feedback:** To configure the integration of Skype for Business Server and Exchange Server, you must:

- Assign the appropriate certificates to Skype for Business Server and to Exchange Server.
- Configure Skype for Business Server to be a partner application for Exchange Server.
- Configure Exchange Server to be a partner application for Skype for Business Server.

**Question:** What are the four steps required to enable the discovery of content from Skype for Business Server through eDiscovery in SharePoint Server?

- ( ) Assign the appropriate certificates to each server.
- ( ) Configure Skype for Business Server to be a partner application for Exchange Server.
- ( ) Configure Exchange Server to be a partner application for Skype for Business Server.
- ( ) Configure Exchange Server to be a partner application for SharePoint Server.
- ( ) Install the EWS Managed API 2.2 on each of your servers running SharePoint Server.

**Answer:**

- (v) Assign the appropriate certificates to each server.
- (v) Configure Skype for Business Server to be a partner application for Exchange Server.
- (v) Configure Exchange Server to be a partner application for Skype for Business Server.
- ( ) Configure Exchange Server to be a partner application for SharePoint Server.
- (v) Install the EWS Managed API 2.2 on each of your servers running SharePoint Server.

**Feedback:** To configure integration of Skype for Business Server and Exchange Server, you must:

- Assign the appropriate certificates to each server.
- Configure Skype for Business Server to be a partner application for Exchange Server.

- Configure Exchange Server to be a partner application for Skype for Business Server.
- Install the Exchange Web Services (EWS) Managed application programming interface (API) 2.2 on each of your servers running SharePoint Server.

## Demonstration: Requesting and Installing OAuth Certificates

### Demonstration Steps

1. On NYC-SFB3, on the **Skype for Business Server 2015 - Deployment Wizard** page, next to Step 3: Request, Install or Assign Certificates, click **Run Again**.
2. In the **Certificate Wizard** dialog box, select the **OAuthTokenIssuer** certificate, and then click **Request**.
3. On the **Certificate Request** page, perform the following steps:



**Note:** The OAuthTokenIssuer certificate might already exist. The following steps will overwrite the existing certificate.

- a. In the **Select a CA from the list detected in your environment** drop-down list box, verify that **LON-DC1.Adatum.com\AdatumCA** is listed.
  - b. In the **Friendly Name** box, type **Skype for Business Server OAuth Certificate**.
  - c. In the **Organization** box, type **A Datum**.
  - d. In the **Organizational Unit** box, type **IT**.
  - e. In the **Country/Region** drop-down list, select **United States**.
  - f. In the **State/Province** box, type **New York**.
  - g. In the **City/Locality** box, type **New York City**, and then click **Next**.
4. On the **Certificate Request Summary** page, click **Next**.
  5. On the **Executing Commands** page, when the Task Status shows **Completed**, click **Next**.
  6. On the **Online Certificate Request Status** page, verify that **Assign this certificate to Skype for Business Server certificate usages** is selected, and then click **Finish**.
  7. On the **Certificate Assignment** page, click **Next**.
  8. On the **Certificate Assignment Summary** page, click **Next**.
  9. On the **Executing Commands** page, when the Task Status shows **Completed**, click **Finish**.
  10. In the **Certificate Wizard** dialog box, click the down arrow next to the **OAuthTokenIssuer** certificate to expand the **Certificate Type**.
  11. Verify that OAuthTokenIssuer shows as **Assigned**.
  12. On LON-SFB1, click **Skype for Business Server – Deployment Wizard** on the taskbar, and then click **Install or Update Skype for Business Server System**.
  13. On the **Skype for Business Server 2015 - Deployment Wizard** page, next to Step 3: Request, Install or Assign Certificates, click **Run Again**.
  14. In the **Certificate Wizard** dialog box, click the **OAuthTokenIssuer** certificate, and then click **View**.
  15. Review the OAuthTokenIssuer certificate and compare the friendly name and issuance date to confirm that it is the same certificate.



**Note:** You might have to wait approximately 5–10 minutes for the certificate to be available on LON-SFB1.

## Module Review and Takeaways

### Review Question(s)

**Question:** Which Skype for Business feature or integration excites you the most about the product? Which Skype for Business feature or integration intimidates you the most in design or deployment? Why?

**Answer:** Discuss as a class and determine how you might overcome challenges when deploying Skype for Business Server in your organization.

**Question:** To where does the Central Management Database replicate configuration changes? How is that beneficial?

**Answer:** The Central Management Database replicates configuration changes to all the servers in your deployment. Therefore, configuration changes that you make in a single location apply to all the servers in your Skype for Business Server deployment.

### Real-world Issues and Scenarios

Skype for Business Server is capable of integrating with more non-Microsoft products and services than any of its predecessors. It might be tempting to design a large-scale deployment with any and all of these technologies. However, you might experience more success and wider adoption of the technology by starting with smaller deployments and then building up additional services in Skype for Business Server.

### Tools

The tools used in this module include:

- Skype for Business Server Topology Builder. This tool configures the design of your Skype for Business Server 2015 deployment and publishes the topology to Active Directory Domain Services (AD DS).
- Skype for Business Server Deployment Wizard. This tool installs the components, databases, certificates, and administrative tools in your Skype for Business Server Standard or Enterprise Edition deployment.
- The Skype for Business Server Management Shell. This tool allows you to manage your Skype for Business Server deployment from a command-line interface.
- DNS Manager. This tool allows you to create and manage the Domain Name System (DNS) records required in your Skype for Business Server deployment.
- The Certificates console. This tool allows you to manage the certificates required in your Skype for Business Server deployment.

### Common Issues and Troubleshooting Tips

Common Issue	Troubleshooting Tip
The certificate assignment task might fail with an error stating that a Type has not been provided.	In the event that the role assignment becomes lost between the request and assignment wizards, then the assignment task might fail with an error stating that a Type has not been provided. If that occurs, simply cancel the wizard and return to the main wizard page. On the Certificate Wizard main page, if the check boxes for the <b>Server Default</b> , <b>Web Service Internal</b> , and <b>Web Service External</b> roles are no longer selected, reselect them, and then click <b>Assign</b> .

# Lab Review Questions and Answers

## Lab A: Configuring DNS and Simple URLs for Skype for Business Server

### Question and Answers

**Question:** What is the purpose of the **weight** attribute in a SRV record?

**Answer:** The **weight** attribute provides a recommended order of target hosts to the client. In a disaster recovery scenario, you might want clients to connect to different target hosts. If the **weight** attribute is the same on multiple SRV records, then the target hosts share the load equally and receive the same number of client requests.

**Question:** Why do some SRV records reference port 5061 and others reference port 443?

**Answer:** Most Skype for Business Server environments use port 5061 for internal client connectivity and for federation to the Access Edge Server. Port 443 is commonly used for remote access. Although port 5061 is a common SIP port, most Internet firewalls do not allow it through. On the other hand, port 443 is a common HTTPS port that most Internet firewalls allow through.

Consider this scenario: you are a visitor at another company and you attempt to access your Skype for Business Server 2015 server remotely over their network. If you published remote access over port 5061, then you might experience issues when you connect. On the other hand, if you published remote access over port 443, then you have a greater chance of successfully connecting to your Skype for Business Server 2015 server through the company's firewall.

## Lab B: Deploying Skype for Business Server

### Question and Answers

**Question:** For a new deployment of Skype for Business Server or migration from a legacy version, which two actions must you complete before you can publish a topology by using Topology Builder?

**Answer:** You must prepare AD DS and have a Microsoft SQL Server instance deployed for the Central Management store.

**Question:** After publishing the topology, but before clicking **Finish** in the publishing wizard, what should you do?

**Answer:** You must review any logs with warnings and errors, and view the to-do list for any additional steps that might be required. The to-do list is extremely important because it provides the next set of steps, such as re-running the setup, requesting new certificates, or initiating other actions that might be required to complete any configuration changes.

# Module 3

## Administering Skype for Business Server 2015

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## Lesson 1

# Using Skype for Business Server Control Panel

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## Question and Answers

**Question:** In which tab of Skype for Business Server Control Panel can you configure the assignment of a user's meeting policy?

- ☐ Conferencing
- ☐ Users
- ☐ Meeting
- ☐ Clients
- ☐ Policy

**Answer:**

- ☐ Conferencing
- ☒ Users
- ☐ Meeting
- ☐ Clients
- ☐ Policy

**Feedback:** You always assign a user policy in the **Users** tab.

## Demonstration: Working with Skype for Business Server Control Panel

### Demonstration Steps

1. On SFB1, on the taskbar, click **Skype for Business Server Control Panel**.
2. At the Windows Security prompt, type **Administrator** with the password **Pa\$\$w0rd**.
3. Click the **Users** node.
4. Click **Enable Users**.
5. Review the **User Search** page.
6. Click **Add**.
7. On the **Select from Active Directory** page, type **Alex Darrow**, and then click **Find**.
8. Click **Alex Darrow**, and then click **OK**.
9. On the **User Search** page, in the Assign users to a pool section, select **pool.adatum.com**.
10. Review the policy setting options.
11. Click **Enable**.
12. Click **Enable users**.
13. On the **User Search** page, click **Add**.
14. In the **Select from Active Directory** page, click **Add filter**.
15. Change the **City** drop-down box to **Department**.
16. Ensure that **Equal to** is selected, and then type **IT**.
17. Click **Find**.
18. Select all the users, and then click **OK**.
19. In the Assign users to a pool section, select **pool.adatum.com**.

20. Click **Enable**.
21. On the **User Search** page, type **Amr Zaki**, and then click **Find**.
22. Confirm that **Amr Zaki** is enabled for Skype for Business by verifying that there is a check mark in the enabled column.
23. Clear the search field, and then click **Find** to view all the enabled users.

## Lesson 2

# Using the Skype for Business Server Management Shell

### Contents:

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Demonstration: Working with the Skype for Business Server Management Shell	6

## Question and Answers

**Question:** A domain administrator can run scripts in the Skype for Business Server Management Shell regardless of the execution policy.

- ( ) True
- ( ) False

**Answer:**

- ( ) True
- (√) False

**Feedback:** In addition to requiring the permission to run a script, the execution policy also must permit the script to run.

**Question:** Which of the following cmdlets activates the recently installed services on a Skype for Business Server 2015 server?

- ( ) Enable-CsComputer
- ( ) Set-CsCertificate
- ( ) Test-CsPresence
- ( ) Enable-CsTopology

**Answer:**

- (√) Enable-CsComputer
- ( ) Set-CsCertificate
- ( ) Test-CsPresence
- ( ) Enable-CsTopology

**Feedback:** The **Enable-CsComputer** cmdlet activates the recently installed services on a Skype for Business Server 2015 server.

## Demonstration: Working with the Skype for Business Server Management Shell

### Demonstration Steps

1. On the taskbar, click **Skype for Business Server Management Shell**.
2. At the command prompt, type **Enable-CsUser –Identity “Aidan Delaney” –RegistrarPool “pool.adatum.com” –SipAddressType SamAccountName –SipDomain Adatum.com**, and then press Enter.
3. Confirm that the user account is enabled by typing **Get-CsUser –Identity “Aidan Delaney”**, and then pressing Enter.
4. At the command prompt, type **Get-AdUser -filter \* -Searchbase “ou=managers,dc=adatum,dc=com” | ForEach {Enable-CsUser –Identity \$\_.Name -RegistrarPool “pool.adatum.com” –SipAddressType SamAccountName –SipDomain Adatum.com}**, and then pressing Enter.
5. Confirm that the user account is enabled by typing **Get-CsUser –Identity “Carol Troup”**, and then pressing Enter. Notice that Carol Troup, who is a member of the Managers organizational unit, is now enabled for Skype for Business.

## Lesson 3

# Implementing Role-Based Access Control

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## Question and Answers

**Question:** What roles are capable of disabling a Skype for Business user?

- ( ) CSHelpDesk
- ( ) CsServerAdministrator
- ( ) CsAdministrator
- ( ) CsUserAdministrator

**Answer:**

- ( ) CSHelpDesk
- ( ) CsServerAdministrator
- (√) CsAdministrator
- (√) CsUserAdministrator

**Feedback:** You can determine the roles that can run a particular cmdlet by using the following command:

**Get-CsAdminRole | ? {\$\_.cmdlets -match "disable-CsUser"}**

## Demonstration: Creating a New RBAC Role

### Demonstration Steps

1. On LON-DC1, in Server Manager, click **Tools**.
2. Click **Active Directory Users and Computers**.
3. Expand **Adatum.com**.
4. Right-click **Users**, click **New**, and then click **Group**.
5. In the dialog box, type **CsLondonHelpDesk**, click the **Universal** scope, and then click **OK**.
6. Open the **Users** container, double-click the **CsLondonHelpDesk** group, click **Members**, and then add **Brad Sutton** to the group.
7. Click **OK** to close the CsLondonHelpDesk Properties window.
8. Switch to LON-SFB1.
9. In the Skype for Business Server Management Shell, type **New-CsAdminRole -Identity "CsLondonHelpDesk" -Template "CsHelpDesk" -ConfigScopes "site:1"**, and then press Enter.
10. Confirm that **Brad Sutton** is assigned the **CsLondonHelpDesk** role by typing **Get-CsAdminRoleAssignment -Identity "Brad"**, and then press Enter.

## Lesson 4

# Using Test Cmdlets

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## Question and Answers

**Question:** It is necessary to set up test accounts prior to running a Test cmdlet.

☐ True

☐ False

**Answer:**

☐ True

☒ False

**Feedback:** You can include any user account in a Test cmdlet. You must add the user's credentials when you run the cmdlet.

## Demonstration: Using Test Cmdlets

### Demonstration Steps

1. On LON-SFB1, on the taskbar, click **Skype for Business Management Shell**.
2. Type **New-CsHealthMonitoringConfiguration -Identity pool.adatum.com -FirstTestUserSipUri "sip:don@adatum.com" -SecondTestUserSipUri "sip:holly@adatum.com"**, and then press Enter.
3. Type **Test-CsIM -TargetFqdn pool.adatum.com**, and then press Enter.
4. Examine the output.

## Lesson 5

# Tools for Troubleshooting Skype for Business

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## Question and Answers

**Question:** Which Microsoft tool should you use to perform protocol tracing?

- ( ) Centralized Logging Service
- ( ) Snooper
- ( ) Message Analyzer
- ( ) Remote Connectivity Analyzer

**Answer:**

- ( ) Centralized Logging Service
- ( ) Snooper
- (v) Message Analyzer
- ( ) Remote Connectivity Analyzer

## Demonstration: Using the Skype for Business Troubleshooting Tools

### Demonstration Steps

1. On LON-SFB1, open the Skype for Business Server Management Shell.
2. In the Skype for Business Server Management Shell, type the following command, and then press Enter:

```
Get-CsClsConfiguration
```

3. Start the **AlwaysOn** logging scenario with the Centralized Logging Service by typing the following command, and then pressing Enter:

```
Start-CsClsLogging -Scenario AlwaysOn -Pools pool.adatum.com
```

4. On LON-CL1, in the Skype for Business window, click the drop-down arrow next to the settings icon, and then click **Meet Now**.
5. If a **Join Meeting Audio** dialog box appears, select **Use Skype for Business** and **Don't show this again**, and then click **OK**.
6. In the new conversation window, click **Invite More People**.
7. In the **Send an IM** dialog box, type **Amr**. Select **Amr Zaki**, and then click **OK**.
8. Type some text to Amr.
9. On LON-CL2, click the **Ed Meadows** notification that appears on the screen.
10. Type some text back to Ed.
11. On LON-SFB1, on the taskbar, click **Skype for Business Management Shell**.
12. Flush the data cache by typing the following command and pressing Enter:

```
Sync-CsClsLogging
```

13. Execute a search against the currently running logging scenario and output the results to a file by running the following command and pressing Enter:

```
Search-CsClsLogging -OutputFilePath "c:\Labfiles\SearchResult.txt"
```

14. Stop the AlwaysOn logging scenario by entering the following command and pressing Enter:

```
Stop-CsClsLogging -Scenario AlwaysOn -Pools pool.adatum.com
```

15. In File Explorer, go to **C:\Program Files\Skype for Business Server 2015\Debugging Tools\**, and then double-click **Snooper.exe**.
16. In Snooper, on the **File** menu, click **OpenFile**.
17. Go to **C:\Labfiles**, and then select **SearchResult.txt**. Click **Open**.
18. Click the **Messages** tab, and then review the collected data.

# Module Review and Takeaways

## Best Practices

### Troubleshooting Basics

When troubleshooting, define the issue by using the following guidelines:

- Use open-ended questions to gather information and increase understanding:
  - Can you tell me more about your problem?
  - Could you help me understand your issue?
  - What have you tried?
- Ask questions to clarify the problem, rather than make assumptions:
  - What do you mean when you say that the Skype for Business client is slow?
  - Can you show me how it is slow?
  - What do you mean when you say it does not work?
- Ask core questions to narrow the problem:
  - When did the problem start?
  - Has this ever worked before?
  - Does the problem produce any error message? If so, what is the exact message?
  - How often does the problem occur?
  - What might have changed before the problem started?
  - What was the last change in the environment, and when did it occur?

Next, establish the scope of the problem. Is it related to a single user, multiple users, a single location, or is it an enterprise-wide issue or outage? The larger the scope, the higher the priority becomes in resolving the problem.

The most common problems that you will encounter with a Skype for Business Server deployment will involve the network infrastructure. To investigate network issues, you can perform standard network tests by using Ping, Telnet, NSLookup, and Internet Explorer.

## Real-world Issues and Scenarios

When Skype for Business users are unable to access the registration servers, your initial concern must involve name resolution. The Skype for Business client uses automatic discovery of the Skype for Business pool by querying its DNS server for the appropriate DNS records.

Running **IPCONFIG/DisplayDNS** will show the current client DNS resolver cache on the local computer. You can follow this with queries to the `lyncdiscover.domainname` record. As a last resort, you should examine the DNS Service Location records, which the client will use if the Autodiscover records are not available.

## Review Question(s)

**Question:** Which Skype for Business Server cmdlets can you use to verify service activation and group permissions for your installation of Skype for Business Server?

**Answer:** `Test-CsTopology`

**Question:** For Centralized Logging Service to work, the controller must be able to contact each Skype for Business Server Centralized Logging Service agent. Which ports must you open inbound on every Skype for Business Server 2015 server, including the Skype for Business Edge Server?

**Answer:** Ports TCP 50001, 50002, and 50003

## Common Issues and Troubleshooting Tips

Common Issue	Troubleshooting Tip
Unable to stop Centralized Logging Service logging	Recover by running the following command on the computer where the problem occurred: Sc stop rtcclsagt Tracelog -stop CLS_WPP Sc start rtcclsag

## Lab Review Questions and Answers

### Lab A: Using the Administrative Tools to Manage Skype for Business Server

#### Question and Answers

**Question:** Northwind Traders has a large Skype for Business deployment with three pools in their headquarters in Chicago. This year, Northwind Traders will add two dozen new Skype for Business users per week. You will assign the new users to their pools based on their departments. As the administrator responsible for enabling these users, what is the best method you can use for accomplishing the task?

**Answer:** You must create a Skype for Business Server Management Shell script to enable the large number of new users. You can create the script in such a way that you can also use it to filter for group membership, which will help you make the pool assignments.

**Question:** Adventure Works Cycles has a small deployment of Skype for Business Server with a single pool and plans to add no more than 20 users to Skype for Business over the next year. As the administrator responsible for enabling these users, what is the best method you can use for accomplishing the task?

**Answer:** To enable a relatively small number of users, Skype for Business Server Control Panel is ideal. However, you can accomplish the same task by using the Skype for Business Server Management Shell, where you can run individual commands or a script.

### Lab B: Using the Skype for Business Troubleshooting Tools

#### Question and Answers

**Question:** A. Datum wants to ensure that message logs are maintained at all times without generating a substantial amount of data. What CLSLogging scenario should you apply?

**Answer:** You must apply the AlwaysOn scenario. Despite its name, the AlwaysOn scenario does not run by default. You must enable it for an entire pool by using a short command.

**Question:** When attempting to enable a member of the Domain Admins group by using Skype for Business Server Control Panel, Amr Zaki received an error message. What is he doing wrong?

**Answer:** Amr Zaki cannot enable the members of the Domain Admins group from Skype for Business Server Control Panel. He should enable them in the Skype for Business Server Management Shell.

# Module 4

## Configuring Users and Clients in Skype for Business 2015

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## Lesson 1

# Configuring Users

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## Question and Answers

**Question:** A user's Session Initiation Protocol (SIP) address can include which of the following suffixes?

- ( ) @OrganizationUnit
- ( ) The user's email address
- ( ) SAMAccountName@sipdomain
- ( ) The user's principal name

**Answer:**

- ( ) @OrganizationUnit
- (√) The user's email address
- (√) SAMAccountName@sipdomain
- (√) The user's principal name

## Demonstration: Configuring Users

### Demonstration Steps

1. On LON-SFB1 on the taskbar, click **Skype for Business Server Control Panel**. Sign in as **Adatum\Administrator** with the password **Pa\$\$w0rd**.
2. Click **Users**, and then click **Find**.
3. On the **User Search** page, double-click **Ed Meadows**.
4. On the **Edit Skype for Business Server User-Ed Meadows** page, in the **Telephony** drop-down list, click **Enterprise Voice**, and then click **Commit**.
5. On the taskbar, click **Skype for Business Server Management Shell**.
6. At the command prompt, type the following command, and then press **Enter**:

```
Get-CsUser -Identity "Ed Meadows"
```

Confirm that the *EnterpriseVoiceEnabled* parameter of the Ed Meadows' account is set to **TRUE**.

7. At the command prompt, type the following command, and then press **Enter**:

```
Set-CsUser -Identity "Ed Meadows" -Enabled $False
```

This command disables the account but does not remove the settings.

8. At the command prompt, type the following command, and then press **Enter**:

```
Get-CsUser -Identity "Ed Meadows"
```

Confirm that the *Enabled* parameter of the account is set to **FALSE** but that the *EnterpriseVoiceEnabled* parameter is set to **TRUE**.

9. At the command prompt, type the following command, and then press **Enter**:

```
Disable-CsUser -Identity "Ed Meadows"
```

This command removes the user from the Skype for Business database along with any settings that apply to the user.

10. At the command prompt, type the following command, and then press **Enter**:

```
Get-CsUser -Identity "Ed Meadows"
```

An error message appears.

11. At the command prompt, type the following command, and then press **Enter**:

```
Enable-CsAdUser -Identity "Ed Meadows" -RegistrarPool pool.adatum.com -SipAddressType  
EmailAddress
```

12. At the command prompt, type the following command, and then press **Enter**:

```
Get-CsUser -Identity "Ed Meadows"
```

Confirm that the *Enabled* parameter of the account is set to **TRUE** but that the *EnterpriseVoiceEnabled* parameter is set to **FALSE**.

You can remove the previously set *EnterpriseVoiceEnabled* parameter and any other settings that the **Disable-CSUser** cmdlet would configure.

## Lesson 2

# Deploying the Skype for Business Client

### Contents:

Question and Answers

6

## Question and Answers

**Question:** Contoso, Ltd. has been using Lync Server 2010 and Lync Server 2013 in two of its three locations:

Boston has 5,000 Lync 2010 and Microsoft Office 2010 users.

Atlanta has 2,000 Lync 2013 and Microsoft Office 2013 users.

Los Angeles has 500 users who will receive Office 365 accounts, including Microsoft Office Professional Plus.

Contoso wants to ensure that all of its users receive the Skype for Business user experience. What are the available deployment options?

**Answer:** Answers will vary.

**Feedback:**

- For the Boston office, a new installation is necessary. Users can receive the Skype for Business 2015 client by first deploying Office 2013, and then upgrading the Lync 2013 client.
- The Atlanta office users can upgrade from Lync 2013.
- For Boston or Atlanta, an Office 2016 installation will provide the users with the Skype for Business 2016 client.
- For the Los Angeles office, users can receive the Skype for Business client that comes with the Office 2016 client through Click-to-Run or through an administrative installation of Office 365 ProPlus.

## Lesson 3

# Registration, Sign-In, and Authentication

### Contents:

Demonstration: Exploring the Sign-In Process

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## Demonstration: Exploring the Sign-In Process

### Demonstration Steps

1. On LON-CL1, type **Skype for Business 2016** in the search box to open **Skype for Business 2016**. If the **First things first** dialog box appears, select **Ask me later**, and then click **Accept**.
2. In the **Skype for Business 2016** client on LON-CL1, click the **gear icon**, click **Tools**, and then click **Options**.
3. On the **General** page, confirm that **Logging in Skype for Business** is set to **Full**, and then click **OK**.
4. Exit the **Skype for Business** client.
5. Open **File Explorer**, and then browse to **C:\Users\Amr\AppData\Local\Microsoft\Office\16.0\Lync\Tracing**.



**Note:** If you cannot find the AppData folder, on the **View** tab, click **Options**, and then select **Change folder and search options**. In the Folder Options window, click the **View** tab, and then under the Hidden files and folders section, select **Show hidden files, folders, and drives**. Do not select the **Hide extensions for known file types** check box.

6. Select all the files with the **.log** extension, and then delete them.
7. Close **File Explorer**.
8. In the search box, type and then click **Skype for Business**, and then confirm that you signed in as **Amr**.
9. Switch to LON-SFB1.
10. Open File Explorer, browse to **C:\Program Files\Skype for Business Server 2015\Debugging Tools\**, and then double-click **Snooper.exe**.
11. In Snooper, on the **File** menu, click **OpenFile**.
12. Browse to **\\LON-CL1\C\$\Users\Amr\AppData\Local\Microsoft\Office\16.0\Lync\Tracing\Lync-UccApi-0.UccApilog**.
13. In Snooper, on the **Messages** tab, right-click the first message, and then click **Find Related** on the menu.
14. Click each of the messages, and then point out the corresponding information in the details pane.

## Lesson 4

# Configuring Skype for Business Client Policies

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## Question and Answers

**Question:** Bob is a user in the New York site, and he is tagged with a conferencing policy named Limited User. The Limited User policy does not allow users to send invitations to anonymous users or to start multiple video streams. However, the New York site policy allows both anonymous users and multiple video streams. Don, a user in the London site, organizes a meeting and invites Bob. Bob wants to invite anonymous users. Will he be able to do so?

**Answer:** Yes, Bob will be able to invite anonymous users.

## Demonstration: Configuring In-Band Policies

### Demonstration Steps

1. On LON-SFB1, in the **Skype for Business Server Control Panel**, click **Federation and External Access**.
2. Double-click the **Global** External Access Policy.
3. Select **Enable communications with remote users**, and then click **Commit**.
4. Verify that a check mark is in the **Remote user access** column.
5. Click **New**.
6. Click **Site policy**.
7. In the Select a Site pop-up window, click **Adatum Headquarters**, and then click **OK**.
8. Select all four check boxes.
9. Click **Commit**.
10. Click **New**.
11. Click **User Policy**.
12. In the **Name text** box, type **Limited Access**, and then click **Commit**.
13. Verify that the **Adatum** policy has check marks in all columns and that the **Limited Access policy** has no check marks in all columns.

## Demonstration: Configuring Group Policies

### Demonstration Steps

1. On LON-DC1, open File Manager, and then copy **C:\Labfiles\lync15.admx** to **C:\Windows\PolicyDefinitions**.
2. In File Manager, copy **C:\Labfiles\lync15.adml** to **C:\Windows\PolicyDefinitions\EN-US**.
3. In the **Server Manager**, click **Tools**, and then click **Group Policy Management**.
4. In the **Group Policy Management Console (GPMC)**, expand **Forest**, expand **Domains**, right-click **Adatum.com**, and then click **Create a GPO in the domain, and Link it here**.
5. In the **Name** text box, type **Address Book No Delay GPO**, and then click **OK**.
6. In the console tree, expand **Adatum.com**, and then click **Group Policy Objects**. Right-click **Address Book No Delay GPO**, and then click **Edit**.
7. On LON-DC1, in the **Group Policy Management Editor**, expand **User Configuration**, expand **Policies**, expand **Administrative Templates**, expand **Microsoft Lync 2013**, click **Microsoft Lync Features Policies**, and then double-click **Global Address Book Download Initial Delay**.
8. Click **Enabled**, in maximum possible number of minutes to delay download type **0**, and then click **OK**.

9. Close the **Group Policy Management Editor** and the GPMC.

## Lesson 5

# Managing the Skype for Business Address Book

### Contents:

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## Question and Answers

**Question:** From where does the Address Book generate?

- ( ) Global Address List in AD DS
- ( ) A SharePoint users database
- ( ) Microsoft Exchange mailbox databases
- ( ) Distribution Group Expansion
- ( ) Skype for Business Address List Service

**Answer:**

- (√) Global Address List in AD DS
- ( ) A SharePoint users database
- ( ) Microsoft Exchange mailbox databases
- (√) Distribution Group Expansion
- ( ) Skype for Business Address List Service

## Demonstration: Managing the Address Book

### Demonstration Steps

1. In LON-SFB01, in the **Skype for Business Server Management Shell**, type the following command, and then press Enter to get the current configuration:

```
Get-Help Get-CsAddressBookConfiguration -full
```

2. Examine the description, list of available parameters and examples, type the following command, and then press Enter to get the current configuration:

```
Get-  
CsAddressBookConfiguration
```

3. Notice the *-RunTimeOfDay* parameter.
4. Type the following command, and then press Enter:

```
New-CsAddressBookConfiguration -Identity site:"adatum headquarters" -RunTimeOfDay  
02:30:00
```

5. Type the following command, and then press Enter:

```
Get-CsAddressBookConfiguration -Identity site:"Adatum headquarters"
```

6. Confirm that the Address Book download time changed to 2:30 A.M.

When you finish the demonstration, revert the virtual machines to their initial state. To do this, perform the following steps:

1. On the host computer, start Hyper-V Manager.
2. In the **Virtual Machines** list, right-click **20334B-LON-DC1**, and then click **Revert**.
3. In the **Revert Virtual Machine** dialog box, click **Revert**.
4. Repeat steps 2 and 3 for all running virtual machines.

## Module Review and Takeaways

### Real-world Issues and Scenarios

When planning for clients to use automatic discovery to find their registration point for a given SIP Uniform Resource Identifier (URI), you can run into issues in environments that do not want or use split-brain DNS. In split-brain DNS, one set of internally managed DNS servers provide resolution for DNS queries for internal resources, and a set of externally managed DNS servers provide resolution for DNS queries to external resources that are for access from the Internet. In split-brain DNS environments, the solution for publishing DNS records that are required for Lync clients is straightforward. Additionally, putting internal records in external DNS could reveal internal addressing to the outside world.

What do you do? The answer is to create *pinpoint* DNS zones. This type of DNS zone is a single record that is represented by the zone itself. For example, if you need to have `_sipinternaltls_tcp.adatum.com` as a service (SRV) resource record that points to `pool.adatum.com` for internal client resolution, you would create a pinpoint DNS zone record for both zones, "`_sipinternaltls_tcp.adatum.com`" and "`pool.adatum.com`" by using, for example, the **Dnscmd** command-line tool.

The following is an example:

```
dnscmd . /zoneadd _sipinternaltls_tcp.adatum.com. /dsprimary
```

```
dnscmd . /recordadd _sipinternaltls_tcp.adatum.com. @ SRV 0 0 5061 pool.adatum.com.
```

```
dnscmd . /zoneadd pool.adatum.com. /dsprimary
```

```
dnscmd . /recordadd pool.adatum.com. @ A 192.168.1.25
```

### Common Issues and Troubleshooting Tips

Common Issue	Troubleshooting Tip
During sign-in, a warning appears that contains the following message: "Skype for Business cannot verify that the server is trusted for your sign-in address. Connect anyway?"	Verify that the domain name in the dialog box is a trusted server in your organization—for example, <b>domainName.contoso.com</b> . Ask the user to select the <b>Always trust this server</b> check box, and then click <b>Connect</b> .
System clock out of synchronization with the server clock	Ensure that your network domain controller synchronizes with a reliable external time source. For details, refer to the Microsoft Knowledge Base article: <a href="http://aka.ms/h9ltin">http://aka.ms/h9ltin</a> .

# Lab Review Questions and Answers

## Lab A: Configuring Users and Clients in Skype for Business 2015

### Question and Answers

**Question:** Besides the local logs, are there any other logs that you can use to diagnose a problem with a user's sign-in?

**Answer:** The logs that the Centralized Logging Service generates can also be effective in diagnosing problems with client authentication.

## Lab B: Configuring Policies and the Address Book in Skype for Business Server

### Question and Answers

**Question:** What do you use to deploy Skype for Business Group Policy settings?

**Answer:** In versions of Lync and Microsoft Office Communicator prior to Lync 2013, a stand-alone Communicator.adm administrative template was available for configuring client Group Policy settings. For Skype for Business Server 2015, the Office Group Policy administrative template includes new administrative template files (.admx and .adml files). The availability of Lync 2013 and Skype for Business .admx and .adml files enables you to download templates and to manage Group Policy settings centrally for all of your Office apps and language packs. For details, refer to the Group Policy Administrative Template files (ADMX, ADML) and Office Customization Tool (OCT) files for Office 2013 documentation.

**Group Policy Administrative Template files (ADMX, ADML) and Office Customization Tool (OCT) files for Office 2013**

<http://aka.ms/ictobw>

**Question:** Some users in your organization want to keep using Lync 2013 after upgrading the clients to Skype for Business 2015. What is the best way to accomplish this?

**Answer:** Configure those users with a policy that permits them to use the Lync 2013 client after the Windows Update installation of Skype for Business. The Lync UI will not be available if the Skype for Business installation deployed by using Office 2016 or Office 365 ProPlus Click-to-Run.

# Module 5

## Configuring and Implementing Conferencing in Skype for Business 2015

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## Lesson 1

# Introduction to Conferencing in Skype for Business 2015

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## Question and Answers

**Question:** How do you install the New Skype Meeting plug-in in Microsoft Outlook?

**Answer:** The plug-in automatically installs in Microsoft Outlook 2010, Outlook 2013, and Outlook 2016 when installing or upgrading to the Skype for Business client.

**Question:** Installing the Skype for Business Web App plug-in requires administrative privileges.

☐ True

☐ False

**Answer:**

☐ True

☒ False

**Feedback:** The plug-in runs in the user context and does not require administrative privileges. Be aware that configuring Windows Firewall does require administrative privileges.

**Question:** What happens to a presenter's presence when he or she chooses to share his or her desktop?

☐ Presence stays in the current state—probably Busy in a meeting.

☐ Presence changes to Presenting—the same as Busy.

☐ Presence changes to Presenting—the same as Do Not Disturb.

☐ Presence changes to Presenting—simply to keep others informed, which has no effect.

**Answer:**

☐ Presence stays in the current state—probably Busy in a meeting.

☐ Presence changes to Presenting—the same as Busy.

☒ Presence changes to Presenting—the same as Do Not Disturb.

☐ Presence changes to Presenting—simply to keep others informed, which has no effect.

**Feedback:** Note that the first time users share their desktop, they are informed of the Presenting presence, and they can choose to accept the presence change for future sharing sessions.

## Demonstration: Exploring Skype for Business 2015 Clients

### Demonstration Steps

1. Browse to **C:\Program Files\Microsoft Learning\20334\Drives** and double-click **LON-CL1.RDP**. Click **Connect** and accept all other notifications.
2. Sign in to LON-CL1 as **Adatum\Ed** with the password **Pa\$\$w0rd**.
3. Skype for Business should automatically start and sign Ed in. If not, use **ed@adatum.com** as the sign-in address and **Pa\$\$w0rd** as the password.
4. In the Skype for Business window, to the right of the **Contacts**, **Conversations**, and **Meetings** icons, click the downward-pointing triangle to the right of the **Options** menu.
5. Click **Meet Now** to start an ad hoc meeting. At the **Join Meeting Audio** prompt, click **OK**.
6. In the Conversation (1 Participant) window, in the lower-right corner, click **More Options**, and then click **Meeting Entry Info**.
7. Highlight and copy the meeting URL, which is found under **Meeting link** and is displayed in `https://meet.adatum.com/ed/meetingID` format—you now have the URL on the clipboard.

8. On LON-CL1, open Internet Explorer.
9. Paste the URL from the clipboard into the address bar by right-clicking the address bar and then clicking **Paste**.
10. Append **?SL=1** to the end of the meeting URL, and then press Enter.
11. At the Windows Security box, click **Cancel**.
12. In the Skype for Business Web App, click **Sign in as a guest to the meeting**.
13. In the **Guest, type your name below** text box, type your first name, and then click **Join the meeting**. If not installed, accept to install the Skype for Business Web App plug-in, and then accept the warning about using the plug-in against the adatum.com domain. At the **Smartscreen** prompt, click **Run Anyways**.

You have now connected to the meeting by using the Skype for Business Web App.

## Lesson 2

# Integrating Skype for Business Server and Office Online Server

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Demonstration: Installing and Configuring Office Online Server for Skype for Business 2015	6

## Question and Answers

The following are the steps for installing and configuring Office Online for Skype for Business. Arrange them in the correct order by numbering each step.

	Steps
	Install server prerequisites.
	Install Office Online Server.
	Obtain a certificate.
	Configure an Office Online Server farm by using Windows PowerShell.
	Add an association to the Skype for Business Topology Builder.
	Publish the topology.

**Answer:**

	Steps
1	Install server prerequisites.
2	Install Office Online Server.
3	Obtain a certificate.
4	Configure an Office Online Server farm by using Windows PowerShell.
5	Add an association to the Skype for Business Topology Builder.
6	Publish the topology.

## Demonstration: Installing and Configuring Office Online Server for Skype for Business 2015

### Demonstration Steps

1. Switch to LON-SVR1.
2. In File Explorer, open drive D, right-click **Setup.exe**, and then click **Run as administrator**.
3. On the **Microsoft Office Online Server 2016 – Read the Microsoft Software License Terms** page, select **I accept the terms of this agreement**, and then click **Continue**.
4. Select **C:\Program Files\Microsoft Office Online** as the installation location, and then click **Install Now**. The installation progress bar displays. Go to the next step while Office Online Server is being installed.
5. On the taskbar, right-click the Start button, and then click **Run**.
6. In the **Run** dialog box, type **MMC**, and then press Enter. An empty Microsoft Management Console (MMC) window named Console1 - [Console Root] opens.
7. On the **File** menu, click **Add/Remove Snap-In**.
8. In the Add or Remove Snap-ins window, select **Certificates**, and then click **Add**.
9. In the **Certificates snap-in** dialog box, select **Computer account**, and then click **Next**.

10. On **Select Computer** page, accept the default **Local computer: (the computer this console is running on)**, and then click **Finish**.
11. In the Add or Remove Snap-ins window, click **OK**.
12. In the Console1 - [Console Root] window, expand **Certificates (Local Computer)**. This displays the different certificate stores on the local computer.
13. Right-click the **Personal** store, click **All Tasks**, and then click **Request New Certificate**. The Certificate Enrollment Wizard opens.
14. On the **Before You Begin** page, click **Next**.
15. On the **Select Certificate Enrollment Policy** page, accept the default **Active Directory Enrollment Policy**, and then click **Next**. Be patient while the templates load, which can take several seconds.
16. On the **Request Certificates** page, select **Adatum Web Server**, and then click the link with the yellow exclamation point (!) named **More information is required to enroll for this certificate. Click here to configure settings**. The **Certificate Properties** dialog box opens.
17. In the **Certificate Properties** dialog box, on the **Subject** tab, in the **Subject name** list, click **Common Name**.
18. In the **Value** text box, type **LON-SVR1.adatum.com**, and then click **Add**. The name moves to the right pane in the format of CN LON-SVR1.adatum.com.
19. In the left navigation pane, in the **Alternative name** list, click **DNS**.
20. In the **Value** text box, type **LON-SVR1.adatum.com**, and then click **Add**. The name moves to the right pane in the format of DNS LON-SVR1.adatum.com.
21. In the same **Value** text box, type **wac.adatum.com**, and then click **Add**. The name moves to the right pane below LON-SVR1.adatum.com.
22. Switch to the **General** tab, and then in the **Friendly name** text box, type **WACcert**.
23. Switch to the **Private Key** tab.
24. On the **Key options** menu, click **Make private key exportable**, click **Apply**, and then click **OK**. This takes you back to the Request Certificates window.
25. In the Request Certificates window, click **Enroll**. Wait for the "Requesting certificates. Please wait" message to go away, and then click **Finish**. This takes you back to the Console1 - [Console Root] window.
26. Highlight **Certificates (Local Computer) – Personal – Certificates**, and then validate that the certificate with the friendly name WACcert is listed.
27. Click **Close** to exit the MMC window.
28. In the Save console settings to Console1 pop-up window, click **No**.
29. Switch back to the Microsoft Office Online Server 2016 Installation Wizard. The installation process should be complete by now.
30. Click **Close** to exit the installer.
31. On the taskbar, right-click **Windows PowerShell**, and then click **Run as Administrator**. An administrative Windows PowerShell command-line interface window opens.
32. Type the following command, and then press Enter:

```
New-OfficeWebAppsFarm -InternalURL https://LON-SVR1.adatum.com -ExternalURL  
https://wac.adatum.com -CertificateName WACcert
```

33. Wait for the setup to complete. You will get a list of all the settings on the new Office Online Server farm.
34. From the **Start** page, open Internet Explorer, type **https://LON-SVR1.adatum.com/hosting/discovery** in the address bar, and then press Enter.
35. Verify that LON-SVR1 returns an XML document that shows the current settings.
36. Switch to LON-SFB1.
37. If not already signed in, sign in as **Adatum\Administrator** with the password **Pa\$\$w0rd**.
38. Click start button and then right click on Skype for Business Server Topology Builder and click on run as Administrator.
39. In the Topology Builder window, select **Download Topology from existing deployment**, and then click **OK**. The current topology starts downloading. Wait for the task to complete.
40. In the **Save Topology As** dialog box, in the **File name** text box, type **Lab5A**, and then click **Save**.
41. In the Skype for Business Server, Topology Builder window, expand **Skype for Business Server**, expand **Adatum Headquarters**, expand **Skype for Business Server 2015**, expand **Enterprise Edition Front End pools**, and then select **pool.adatum.com**.
42. Right-click **pool.adatum.com**, and then click **Edit Properties**. The **Edit Properties** dialog box opens.
43. On the **General** page, under Associations, select **Associate pool with an Office Web Apps Server**, and then click **New**.
44. In the Define New Office Web Apps Server window, in the **Office Web Apps Server FQDN** text box, type **LON-SVR1.adatum.com**, and then click **OK**.
45. In the Edit Properties window, click **OK** to close and return to Topology Builder.
46. In the navigation pane, right-click **Skype for Business Server**, and then click **Publish Topology**. Click **Next**, wait for the Publish Topology task to complete, and then click **Finish**.
47. Close the Topology Builder.

## Lesson 3

# Bandwidth Planning

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## Question and Answers

**Question:** What can you control by using CAC?

**Answer:** By using CAC, you can control:

- The total bandwidth allowance for audio and limit per session.
- The total bandwidth allowance for video and limit per session.
- Traffic that flows in and out of a specific site.
- Traffic that traverses region links.

**Question:** What happens if the CAC limit is reached?

**Answer:** The call can be redirected by using the Internet or a public switched telephone network (PSTN). Only audio calls can reroute by using PSTN.

## Demonstration: Configuring CAC

### Demonstration Steps

1. On LON-SFB1, on the taskbar, click **Skype for Business Server Control Panel**.
2. Sign in as **Adatum\Administrator** with the password **Pa\$\$word**.
3. At the bottom of the navigation pane, to the left, click **Network Configuration**.
4. On the **REGION** tab, click **+New** to add a new region.
5. In the **New Region** dialog box, in the **Name** box, type **Europe**.
6. In the **Central site** list, click **Adatum Headquarters**, and then click **Commit**. This takes you back to the **Region** page.
7. Switch to the **SITE** tab, and then click **+New** to add a new site.
8. In the New Site window, in the **Name** text box, type **London**.
9. In the **Region** list, click **Europe**, and then click **Commit**. This takes you back to the **Site** page.
10. Switch to the **SUBNET** tab, and then click **+New** to add a new subnet.
11. In the **New Subnet** window, in the **Subnet ID** text box, type **172.16.0.0**.
12. In the **Mask** text box, type **24**.
13. In the **Network site ID** list, click **London**, and then click **Commit**. This takes you back to the **Subnet** page.
14. Switch to the **BANDWIDTH POLICY** tab, and then click **+New** to create a new bandwidth policy.
15. In the New Bandwidth Policy window, in the **Name** text box, type **London Limit**.
16. In the **Audio Limit** text box, type **1200**.
17. In the **Audio session limit** text box, type **60**.
18. In the **Video limit** text box, type **2500**.
19. In the **Video session limit** text box, type **250**, and then click **Commit**. This takes you back to the **Bandwidth Policy** page.
20. Switch to the **SITE** tab, and then highlight the **London** site.
21. On the **Edit** menu, click **Show details**.
22. In the **Bandwidth policy** list, select **London Limit**.
23. Click **Commit**.



## Lesson 4

# Configuring Conferencing Settings

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## Question and Answers

**Question:** You have access to the same conferencing policy settings whether you use Skype for Business Control Panel or the Skype for Business Server Management Shell.

( ) True

( ) False

**Answer:**

( ) True

(√) False

**Feedback:** With the Skype for Business Server Management Shell, you have access to the bandwidth allowance for conferences.

**Question:** Which conferencing policy is applied in a meeting: that of the organizer or the current presenter?

**Answer:** The conferencing policy of the organizer applies for all meetings. Because of this, Standard client access license (CAL) users are able to share content in meetings that an Enterprise CAL set up, if they are promoted to presenters.

## Demonstration: Managing Conferencing Policies by Using the Skype for Business Server Management Shell

### Demonstration Steps

1. On LON-SFB1, start the Skype for Business Server Management Shell from the taskbar.
2. In the Skype for Business Server Management Shell, type the following command, and then press Enter:

```
New-CsConferencingPolicy -Identity Testpol
```

3. When the Testpol conferencing policy is ready, the default settings are listed. Note that **AllowQandA** is set to **True** by default.
4. In the Skype for Business Server Management Shell, type the following command, and then press Enter to disallow the use of Q&A sessions in the Testpol conferencing policy:

```
Set-CsConferencingPolicy -Identity Testpol -AllowQandA 0
```

5. In the Skype for Business Server Management Shell, type the following command, and then press Enter to display the current settings in the Testpol conferencing policy:

```
Get-CsConferencingPolicy -Identity Testpol
```

Note that **Allow QandA** is now set to **False**.

6. In the Skype for Business Server Management Shell, type the following command, and then press Enter to assign the Testpol conferencing policy to ed@adatum.com:

```
Grant-CsConferencingPolicy -Identity ed@adatum.com -PolicyName Testpol
```

The above command is one line—no space after any of the dashes.

7. In the Skype for Business Server Management Shell, type the following command, and then press Enter to list Ed Meadows' settings:

```
Get-CsUser ed@adatum.com
```

Validate that the **ConferencingPolicy** is set to **Testpol**.

8. In the Skype for Business Server Management Shell, type the following command, and then press Enter to remove Testpol conferencing policy from Ed Meadows:

```
Grant-CsConferencingPolicy -Identity ed@adatum.com -PolicyName ""
```

9. In the Skype for Business Server Management Shell, type the following command, and then press Enter to delete the Testpol conferencing policy:

```
Remove-CsConferencingPolicy -Identity Testpol
```

10. In the Skype for Business Server Management Shell, type the following command, and then press Enter to list the available conferencing policies sorted by identity:

```
Get-CsConferencingPolicy | FL Identity
```

Note that the list only contains **Identity : Global**—no other policies exist.

# Module Review and Takeaways

## Best Practice

Users will need some introduction to Skype for Business conferencing features. Neglecting an introduction to Skype for Business will limit your return on investment.

## Review Question(s)

**Question:** What is the default meeting size?

**Answer:** The default meeting size for new conferencing policies is 250 participants.

## Real-world Issues and Scenarios

- Beware of PCs with multiple network connections—that is, wired *and* wireless. Always use only one connection.
- High-definition video is not enabled by default; you can enable it by using **Set-CsMediaConfiguration**.

## Common Issues and Troubleshooting Tips

Common Issue	Troubleshooting Tip
Unable to join a meeting from the meeting link in Outlook	<p>Check that the hostname used in the simple meeting URL has been added to Domain Name System (DNS).</p> <p>Validate that you can find all simple URLs in the configured certificates.</p> <p>Validate certificate trust.</p> <p>Validate URL ReWrite filters are updated on Front-Ends.</p>
Bad audio	<p>Always check the call quality before starting a meeting—then you will detect whether audio equipment is set up correctly.</p>

## Lab Review Questions and Answers

### Lab A: Installing and Configuring Office Online Server

#### Question and Answers

**Question:** Why did you add the name LON-SVR1.adatum.com twice on the request certificate?

**Answer:** When a certificate contains names on the subject alternative name list, the subject name is ignored and only the subject alternative name is used. Hence, the subject alternative name needs to contain the subject name.

**Question:** Can you use the same name as both an internal and external URL when configuring Office Online Server?

**Answer:** The name can be the same, but for troubleshooting purposes, it might be useful to differentiate between the external and the internal URL. Additionally, note that internal server names often are different from the external names.

### Lab B: Configuring Conferencing in Skype for Business Server

#### Question and Answers

**Question:** When would you use the Skype for Business Server Management Shell be over Skype for Business Control Panel?

**Answer:** The Skype for Business Server Management Shell is the better choice when you need to perform bulk operations.

**Question:** How do you validate Office Online Server functionality?

**Answer:** Check <https://OfficeWebAppsServerFQDN/hosting/discovery>.

Validate by sharing a PowerPoint presentation in a meeting.

# Module 6

## Implementing Additional Conferencing Options in Skype for Business Server 2015

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## Lesson 1

# Overview of the Conferencing Life Cycle

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## Question and Answers

**Question:** What are the three different scopes in which you can apply a conferencing configuration?

**Answer:** You can only apply conferencing configuration at the global, site, or service level. Service equals the conferencing server, which in turn equals the pool name.

**Question:** When does content delete from the meeting file share?

**Answer:** For Meet Now meetings, content deletes after eight hours, and for scheduled meetings, after 15 days by default. Recurring meetings in Outlook do not expire unless they delete from the calendar.

## Demonstration: Configuring Conferences

### Demonstration Steps

1. On LON-SFB1, open the Skype for Business Server Management Shell as an administrator.
2. Type the following command, and then press Enter to get the current configuration:

```
Get-CsConferencingConfiguration
```

3. Highlight the *ContentGracePeriod* parameter, and then note the value of 15 days.
4. Highlight the *MaxContentStorageMb* parameter, and then note the default value of 500 megabytes (MB).
5. Highlight the *MaxBandwidthPerAppSharingServiceMb* parameter, and then note the default value of 375 MB.
6. In the Skype for Business Server Management Shell, type the following, and then press Enter to create a new conferencing configuration for the A. Datum Corporation headquarters site:

```
New-CsConferencingConfiguration -Identity "site:Adatum Headquarters" | Set-CsconferencingConfiguration -ContentGracePeriod 01.00:00:00
```

This creates a new configuration for the site and then pipes the command to a **Set** command that configures the content grace period to 1 day.

7. In the Skype for Business Server Management Shell, type the following, and then press Enter to list the conferencing configuration settings:

```
Get-CsConferencingConfiguration
```

8. Scroll to the *Identity: Site:Adatum Headquarters* parameter, highlight **ContentGracePeriod**, and then note that it is configured to 1 day.
9. In the Skype for Business Server Management Shell, type the following command, and then press Enter to delete the A. Datum headquarters conferencing configuration:

```
Remove-CsConferencingConfiguration -Identity "Site:Adatum Headquarters"
```



## Lesson 2

# Designing and Configuring Audio/Video and Web Conferencing Policies

### Contents:

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Demonstration: Customizing Meeting Invitations	5

## Question and Answers

**Question:** To which scope can a participant policy apply: global, site, pool, user, or all?

**Answer:** Participant policy is an integral part of a conferencing policy. It can apply to the global, site, and user scope.

## Demonstration: Customizing Meeting Invitations

### Demonstration Steps

1. Sign in to LON-SFB1, and then open Skype for Business Server 2015 Control Panel.
2. Sign in as **Adatum\Administrator** with the password **Pa\$\$w0rd**.
3. In the navigation pane, click **Conferencing**, click the **MEETING CONFIGURATION** tab, and then double-click the **Global** meeting configuration. This opens the global settings.
4. At the bottom part of the screen, in the **Custom footer text** text box, type **This just added by *your\_first\_name***, and then click **Commit**.
5. Switch to LON-CL1.
6. Open Outlook 2016, and then go to Calendar.
7. In the ribbon, click **New Skype Meeting**, and then note that the custom footer is now visible in the invitation.
8. Close all open windows.

## Lesson 3

# Deploying Dial-In Conferencing

### Contents:

Question and Answers	7
Demonstration: Deploying Dial-In Conferencing (optional)	7

## Question and Answers

**Question:** How many languages can be offered per dial-in access number?

**Answer:** Five. You need to define one primary language. Optionally, you can add up to four additional languages.

**Question:** Why did we run Bootstrapper.exe?

**Answer:** You run Bootstrapper.exe to let the servers perform necessary reconfigurations and add or remove components.

## Demonstration: Deploying Dial-In Conferencing (optional)

### Demonstration Steps

1. Switch to LON-SFB1.
2. Open Skype for Business Server Topology Builder as an administrator.
3. In Topology Builder, accept the default to **Download Topology from existing deployment**, and then click **OK**. Wait for the download to complete.
4. In the **Save Topology As** dialog box, type **Dialin** in the **File name** text box, and then click **Save**.
5. In the console tree, expand **Skype for Business Server**, expand **Adatum Headquarters**, expand **Skype for Business Server 2015**, expand **Enterprise Edition Front-End Pool**, right-click **pool.adatum.com**, and then click **Edit Properties**. This opens the Edit Properties window.
6. Under Features and Functionality, under Conferencing (includes audio, video, and application sharing), select **Dial-in (PSTN) conferencing** and **Enterprise Voice**, and then click **OK**. This takes you back to the Topology Builder window.
7. In the console tree, expand **Skype for Business Server**, expand **Adatum Headquarters**, expand **Shared Components**, and then select **PSTN gateways**.
8. Right-click **PSTN gateways**, and then click **New IP/PSTN Gateway** in the shortcut menu.
9. In the **Define New IP/PSTN Gateway** dialog box, in the **FQDN** text box, type **trunk1.adatum.com**, and then click **Next**.
10. On the **Define the IP addresses** page, accept the default settings, and then click **Next**.
11. On the **Define the root trunk** page, note the default settings for Transport Layer Security, and then click **Finish**. This takes you back to the Topology Builder window.
12. In the console tree, right-click any container, point to **Topology**, and then click **Publish**.
13. In the Publish the topology window, click **Next**. Wait for the "Publishing in progress" message to go away, and then resolve any errors.
14. On the **Publishing wizard complete** page, under Next steps, click **Click here to open to-do list**. Note the message that states that replication and local setup has to occur on our two Front End Servers.
15. Close Notepad, and then click **Finish**.
16. If not already running, open the Skype for Business Server Management Shell as an administrator.
17. Type the following command, and then press Enter:

```
Get-CsManagementStoreReplicationStatus
```

This shows you the current status UpToDate: True. If the status is not True, then run the command again until the status is True.

18. Type the following command, and then press Enter:

```
Get-CsPoolUpgradeReadinessState
```

Note the status of True, which indicates that both servers are ready for upgrade.

19. Type the following command and then press Enter. This takes you to the Deployment folder:

```
cd "C:\Program Files\Skype for Business Server 2015\Deployment"
```

20. Type **.\Bootstrapper.exe**, and then press Enter. Wait for Bootstrapper.exe to complete.
21. Switch to LON-SFB2.
22. Open Skype for Business Server Management Shell, and then repeat steps 19 and 20 on LON-SFB2.
23. Wait while Bootstrapper.exe completes.
24. Switch back to LON-SFB1.
25. In the Skype for Business Server 2015 Control Panel, in the navigation pane, click **Voice Routing**. This opens the DIAL PLAN window.
26. In the **Dial plan** list, select **Global**.
27. On the **Edit** menu, select **Show details**.
28. In the **Dial-in conferencing region** text box, type **Europe**, and then click **OK**. Note the Uncommitted status.
29. In the menu bar, click **Commit**, and then click **Commit all**.
30. In the Uncommitted Voice Configuration Settings window, click **OK**.
31. When the status displays as Committed, in the Successfully published voice routing configuration window, click **Close**.
32. In the navigation pane, click **Conferencing**, and then click the **DIAL-IN ACCESS NUMBER** tab.
33. On the empty page, click **NEW**. This opens the **New Dial-in Access Number** page.
34. On the **New Dial-in Access Number** page, type the following information into the relevant boxes, and then click **Commit**:
- Display number: **+1 (555) 111-2222**
  - Display name: **A. Datum US East**
  - Line URI: **tel:+15551112222**
  - SIP URI: **sip:confuseast@adatum.com**
  - Pool: **pool.adatum.com**
  - Primary language: **English (United States)**
  - Secondary languages (maximum of four): **Español (México)**
  - Associated Regions: **Europe**

## Lesson 4

# Configuring an LRS

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## Demonstration: Preparing to Deploy LRS (optional)

### Demonstration Steps

1. Switch to LON-EX1.
2. Open the Microsoft Exchange Management Shell as an administrator.
3. Type the following command, and then press Enter to create a resource mailbox for LRS:

```
New-Mailbox -UserPrincipalName LRS01@adatum.com -Alias LRS01 -Name "LRS-01" -Room -
EnableRoomMailboxAccount $true -RoomMailboxPassword (ConvertTo-SecureString -String
Pa$$w0rd -AsPlainText -Force)
```

4. Type the following command, and then press Enter to enable automatic calendar processing for the room:

```
Set-CalendarProcessing -Identity LRS01 -AutomateProcessing AutoAccept -
AddOrganizerToSubject $false -DeleteSubject $false -RemovePrivateProperty $false
```

5. Type the following command, and then press Enter to enable reminder tips for organizers that this is an LRS:

```
Set-Mailbox -Identity LRS01@adatum.com -MailTip "This room is equipped with Lync Room
System (LRS). Please make it a Skype Meeting to take advantage of the enhanced
meeting experience from LRS"
```

6. Switch to LON-SFB1.
7. On LON-SFB1, in the Skype for Business Server Management Shell, type the following command, and then press Enter to enable the LRS account in Skype for Business Server:

```
Enable-CsMeetingRoom -SipAddress "sip:LRS01@adatum.com" -RegistrarPool
pool.adatum.com -Identity LRS01
```

8. On LON-SFB1, type the following command, and then press Enter to enable LRS for Enterprise Voice:

```
Set-CsMeetingRoom -Identity LRS01 -EnterpriseVoiceEnabled $true
```

## Lesson 5

# Configuring Large Meetings and Skype Meeting Broadcasts

### Contents:

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## Question and Answers

**Question:** What is the default maximum meeting size in Skype for Business Server?

**Answer:** The default meeting size allows up to 250 participants.

**Question:** You are setting up a large meeting pool—should this be a Standard Edition or Enterprise Edition of Skype for Business Server 2015?

**Answer:** Both will work if hardware is up to specifications, but Enterprise Edition is necessary if high availability is a requirement.

## Demonstration: Configuring Skype Meeting Broadcast

### Demonstration Steps

1. Switch to LON-SFB1.
2. Open the Skype for Business Server Management Shell as an administrator.
3. Type the following command, and then press Enter:

```
New-CsHostingProvider -Identity LyncOnlineResources -ProxyFqdn  
sipfed.resources.lync.com -VerificationLevel AlwaysVerifiable -Enabled $True -  
EnabledSharedAddressSpace $True -HostsOCSUsers $True -IsLocal $False
```

4. Run the following four commands, and then press Enter after each command to add the allowed domains:

```
New-CsAllowedDomain -Identity "noammeetings.lync.com"  
New-CsAllowedDomain -Identity "emeameetings.lync.com"  
New-CsAllowedDomain -Identity "apacmeetings.lync.com"  
New-CsAllowedDomain -Identity "resources.lync.com"
```

You are now ready to start scheduling Skype Meeting Broadcast via the <https://broadcast.skype.com> scheduling URL.

## Module Review and Takeaways

### Best Practices

- Always consider the *ContentGracePeriod*. Ask yourself if 15 days of retention on all meeting content is desirable.
- Note that changing the **Assigned conference type by default** setting might result in existing scheduled Skype meetings needing to be re-sent.
- Dial-in conferencing has the same requirements as Enterprise Voice regarding trunks and gateways.
- LRS is a stand-alone meeting room client.
- Skype Meeting Broadcast allows town hall-like meetings with up to 10,000 participants by relaying PowerPoint presentations, audio, and video via a Microsoft Office 365 infrastructure—this requires a cloud or hybrid setup.

### Review Question(s)

**Question:** What are the benefits of allowing meeting invitation customization?

**Answer:** Answers will vary but might include a custom logo, help and legal URLs, and a custom footer.

### Real-world Issues and Scenarios

Organizations that currently use VTCs should consider LRS for future rooms.

If the current VTC solution is based on Cisco Unified Communications Manager, consider using the Skype for Business Video Interop Server role.

Configuring a trunk for dial-in conferencing is the same as Enterprise Voice.

### Tools

The following tool is covered in this module:

**Microsoft Lync Room System Administrative Web Portal for Skype for Business Server 2015:**

<http://aka.ms/ft8z29>

### Common Issues and Troubleshooting Tips

Common Issue	Troubleshooting Tip
Dial-in conferencing not working	<p>Dial-in conferencing has the same requirements as Enterprise Voice. Issues that relate to dial-in conferencing most commonly relate to the trunk and the gateway.</p> <p>Network address translation (NAT) is not officially supported between a Mediation Server and a PSTN gateway. However, you can often circumvent this. Unlike the Edge server role, you cannot configure Mediation Server with an alternative address to use for NAT. Therefore, when NAT deploys, the trunk provider needs to address this issue—typically by changing SIP data in the Session Description Protocol portion of SIP invitations.</p>

## Lab Review Questions and Answers

### Lab A: Implementing and Troubleshooting Conferencing Policies

#### Question and Answers

**Question:** Why use the Skype for Business Server Management Shell?

**Answer:** The Skype for Business Server Management Shell is always the better choice for automation and bulk operations, or for using queries like in the lab.

**Question:** Share your findings about Amr's recording issue.

**Answer:** Amr got a user-level policy with a similar name granted by a script that prohibits recording. Because the conferencing policy names are very similar, it easily could be overlooked.

The correct solution is to set Amr Zakis conferencing policy back to Automatic, either by using Skype for Business Control Panel or the Skype for Business Server Management Shell so that he again receives A. Datum's conferencing policies.

### Lab B: Configuring Additional Conferencing Modalities

#### Question and Answers

**Question:** Besides the setup in the lab, what are other dial-in conferencing requirements?

**Answer:** Answers might include Session Initiation Protocol (SIP) trunks, PSTN gateways, dial plans, and voice policies.

**Question:** Do you have any real life experience with LRSs or other Video TeleConferences (VTCs)?

**Answer:** Start a dialog about integration differences between native Microsoft technologies and third-party technologies.

# Module 7

## Designing and Implementing Monitoring and Archiving in Skype for Business 2015

### Contents:

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## Lesson 1

# Components of the Monitoring Service

### Contents:

Question and Answers

3

## Question and Answers

### Call Quality Dashboard

**Question:** Does the CQD rely on SQL Server Reporting Services like the monitoring service?

**Answer:** No, the CQD uses the SQL Server Analysis Services cube.

## Lesson 2

# Overview of Archiving

### Contents:

Question and Answers

5

## Question and Answers

### Archiving Deployment Options

**Question:** In what scenarios might you decide not to use Exchange Server 2013 as your archiving storage even if you have deployed Exchange Server 2013 integration?

**Answer:** Some scenarios might include:

- A lack of available storage in Exchange Server for archiving from Skype for Business Server.
- Different legal compliance requirements for Exchange Server and Skype for Business Server.



## Lesson 3

# Designing an Archiving Policy

### Contents:

Question and Answers

7

## Question and Answers

### Exchange Archiving

**Question:** Is it possible to archive to Skype for Business Server storage and to Exchange Server storage at the same time?

**Answer:** No. While you can enable archiving to separate targets for different users, you are limited to archiving content to one of the targets.

## Lesson 4

# Implementing Archiving

### Contents:

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Demonstration: Configuring Archiving Policies	9

## Question and Answers

### Implementing Archiving by Using Exchange Server

**Question:** Can you enable archiving in Skype for Business Server to use a SQL Server store and Exchange Server 2013 simultaneously?

**Answer:** Yes, you can enable archiving in Skype for Business Server to use a SQL Server store and Exchange Server 2013 simultaneously. However, only one archiving strategy can be enabled for each user.

**Feedback:** Yes, you can enable archiving in Skype for Business Server to use a SQL Server store and Exchange Server 2013 simultaneously. However, only one archiving strategy can be enabled for each user. A common scenario for which you might deploy this topology includes some of the Skype for Business Server users who have a mailbox in Exchange Server 2013 and other Skype for Business Server users who are not mail-enabled. In this scenario, you might consider enabling archiving to Exchange Server 2013 for the mailbox users but use the SQL Server store to archive the other users.

## Demonstration: Configuring Archiving Policies

### Demonstration Steps

1. On LON-SFB1, click **Start**, click **Administrative Tools**, and then double-click **Active Directory Users and Computers**.
2. In the left navigation pane, expand **Adatum.com**, and then click **Users**.
3. In the right navigation pane, right-click **Administrator**, and then click **Properties**.
4. In the **Administrator properties** dialog box, click the **Member Of** tab, and then click **Add**.
5. In the **Select Groups** dialog box, in the **Enter the object names to select** text box, type **CSArchivingAdministrator**, and then click **Check Names**. Ensure that the typed name is underlined, and then click **OK**.
6. In the **Administrator Properties** dialog box, click **OK** to close the dialog box.
7. Sign out from LON-SFB1, and then sign back in to LON-SFB1 as **Adatum\Administrator**.
8. On LON-SFB1, on the task bar, click **Skype for Business Server Topology Builder**.
9. In the Skype for Business Server Topology Builder, click **Download Topology from existing deployment**, and then click **OK**.



**Note:** If the Download Current Topology window appears, wait a few seconds before continuing.

10. In the **Save Topology As** dialog box, save the topology to the desktop as **Demo7b.tbxml**.
11. In the Skype for Business Server Topology Builder, expand **Skype for Business Server**, expand **Adatum Headquarters**, expand **Skype for Business Server 2015**, expand **Enterprise Edition Front End Pools**, right-click **pool.adatum.com**, and then click **Edit Properties**.
12. In the Edit Properties window, click **General**.
13. In the General pane, select **Archiving**.
14. In the **Archiving SQL Server store** drop-down list, select **LON-SQL1.adatum.com/Default**, and then click **OK**.

15. On the top-left in Topology Builder, in the **Action** drop-down list box, select **Topology**, and then click **Publish** to publish the changes in the topology.
16. In the **Publish Topology** window, click **Next** to validate the changes that were made in the topology.
17. On the **Select databases** page, ensure that **LON-SQL1.adatum.com\Default** is selected, and then click **Next**. Wait while the topology publishes.
18. On the **Publishing wizard complete** page, verify that all the steps are marked as Success or Warning.
19. On the **Publishing wizard complete** page, click the **Click here to open the to-do list** link.
20. When the new file opens in Notepad, read the steps that are listed, and then close Notepad.
21. On the **Publishing wizard complete** page, click **Finish**.
22. Close the Skype for Business Server Topology Builder.
23. On LON-SFB1, on the task bar, click **Skype for Business Server Management Shell**.
24. Type the following command, and then press Enter to start the stopped Skype for Business Server services:

```
Start-CsWindowsService
```

25. Type the following command, and then press Enter to enable the Archiving configuration globally:

```
Set-CsArchivingConfiguration -Identity Global -EnableArchiving ImAndWebConf
```

26. Type the following command, and then press Enter to enable the archiving policy globally:

```
Set-CsArchivingPolicy -Identity Global -ArchiveInternal $True -ArchiveExternal $True
```

Leave the Skype for Business Server Management Shell open.

27. On LON-SFB1, on the task bar, click **Skype for Business Server Control Panel**.
28. In the **Windows Security** dialog box, in the **User Name** text box, type **Administrator**, in the password text box, type **Pa\$\$w0rd**, and then click **OK**.
29. Click **Monitoring and Archiving**.
30. Click the **Archiving Policy** tab, click **New**, and then from the drop-down list box, click **User Policy**.
31. In the **Name** text box, type **LondonArchivingPolicy**, select **Archive internal communications** and **Archive external communications**, and then click **Commit**.
32. In the left navigation pane, click **Users**.
33. In the search box, type **Ed**, click **Find**, and then double-click the **Ed Meadows** user. Scroll down to the **Archiving Policy**, click the drop-down arrow, select **LondonArchivingPolicy**, and then click **Commit**.
34. In the Skype for Business Server Management Shell, type the following command, and then press Enter to enable Archiving for all users in the London pool:

```
Get-CsUser -Filter {RegistrarPool -eq "pool.adatum.com"} | Set-CsUser -ExchangeArchivingPolicy UseLyncArchivingPolicy
```

35. Type the following command in the Skype for Business Server Management Shell, and then press Enter to display the list of users that have been enabled for archiving:

```
Get-CsUser | Where-Object {$_.ExchangeArchivingPolicy -eq "UseLyncArchivingPolicy"} | Select-Object DisplayName
```

36. Switch to LON-CL1.
37. Generate data for the archive by having Ed initiate an IM to Amr, and have Amr responding to that IM. Then, have Amr create a conference and invite Ed.
38. End the session between Ed and Amr.
39. Switch to LON-SFB1.
40. On LON-SFB1, in the Skype for Business Server Management Shell, type the following command, and then press Enter to export the archiving data from the SQL Server store:

```
Export-CsArchivingData -Identity "ArchivingDatabase:lon-sql1.adatum.com" -StartDate 9/1/2015 -OutputFolder "C:\ArchiveExport"
```

41. Switch to LON-CL1.
42. On the desktop, on the taskbar, click the **File Explorer** icon.
43. In File Explorer, go to **\\LON-SFB1.adatum.com\c\$**, and sign in with **Adatum\Administrator**.
44. Navigate to **\\ArchiveExport\OutputFolder**, and double-click the .eml file to review the archive file with Microsoft Outlook.

## Module Review and Takeaways

### Review Question(s)

**Question:** Can multiple central sites share archiving or monitoring that has deployed in only one central site?

**Answer:** Yes. A single monitoring and/or archiving database instance can be used by multiple Front End pools. If you have four Front End pools in your organization then you could associate all four of those pools with the same backend store. However, you should consider the location of the Front End pools, in relation to one another, as network speed might cause issues with a single monitoring and/or archiving database instance.

### Real-world Issues and Scenarios

In most organizations, IT administrators typically try to deploy cost-effective solutions. Unfortunately, the same applies to their Skype for Business and overall UC deployments. In previous versions, such as Lync Server 2013 and earlier, this oversight had serious consequences and resulted in poor call quality and less-than-optimal availability of UC services. However, many of the new Skype for Business Server features provide IT administrators with the ability to diagnose almost any issue, starting organizationally at the top and down to individual users.

# Module 8

## Deploying Skype for Business 2015 External Access

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## Lesson 1

# Overview of External Access

### Contents:

Question and Answers

3

## Question and Answers

**Question:** Which Skype for Business Server role is necessary to enable external access?

**Answer:** External access requires an Edge server and reverse proxy. Using a virtual private network (VPN) is not considered external access, because the Skype for Business 2015 Client is on the inside.

**Question:** Is a VPN a Skype for Business external access solution?

**Answer:** No. When on a VPN, the Skype for Business 2015 client can communicate with the Skype for Business 2015 Front End Server directly, so it is considered an internal user. You should be aware that the use of VPN will likely cause issues with audio, video, and sharing.

## Lesson 2

# Configuring External Access Policies and Security

### Contents:

Question and Answers

5

## Question and Answers

**Question:** On which levels can you configure external access policies?

**Answer:** You can configure external access policies on global, site, and user levels.

**Question:** What is the purpose of the Director server role?

**Answer:** The Director role act as a next hop for the Edge server, handles external validation, forwards external traffic to users' own pools, and redirects internal users to their own pools. It also hosts web services for external users.

## Lesson 3

# Configuring External Access Network and Certificates

### Contents:

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Demonstration: Installing Certificates on the Edge Server	9

## Question and Answers

**Question:** Can you combine hardware load balancing with NAT?

**Answer:** No. When you use hardware load balancing, routing is necessary.

## Demonstration: Installing the Edge Server Role

### Demonstration Steps

1. On LON-SFB1, on the taskbar, click **Skype for Business Server Topology Builder**.
2. In the Topology Builder window, select **Download Topology from existing deployment**, and then click **OK**. The current topology starts downloading. Wait for the task to complete.
3. In the **Save Topology As** dialog box, in the **File name** text box, type **demo08.tbxml**, and then click **Save**.
4. Expand **Skype for Business Server**, expand **Adatum Headquarters**, and then expand **Skype for Business Server 2015**.
5. Right-click **Edge pools**, and then select **New Edge Pool** from the shortcut menu.
6. In the Define the New Edge Pool window, click **Next**.
7. In the Define the Edge pool FQDN window, in the **Pool FQDN** text box, type **lon-edg.adatum.com**, select **This pool has one server**, and then click **Next**.
8. On the **Enable federation** page, enable all options, and then click **Next**.
9. On the Select features page, select **Use a single FQDN and IP address**, and then click **Next**.
10. On the **Select IP options** page, leave all the default options, and then click **Next**.
11. On the **External FQDNs** page, in the **Access Edge Service** text box, type **sip.adatum.com**, and then click **Next**.
12. On the Define the internal IP address page, in the **Internal IPv4 address** text box, type **172.16.0.5**, and then click **Next**.
13. On the Define the external IP address page, in the **External IPv4 address** text box, type **192.168.1.5**, and then click **Next**.
14. On the Define the next hop server page, accept the default of **pool.adatum.com Adatum Headquarters**, and then click **Next**.
15. On the Associate Front End or Mediation pool page, select **pool.adatum.com**, and then click **Finish**.
16. In the navigation pane, right-click **Adatum Headquarters**, and then click **Edit Properties**.
17. In the Edit Properties window, in the left navigation pane, click **Federation route**.
18. Under **Site federation route assignment**, select **Enable SIP federation**, and then select **lon-edg.adatum.com Adatum Headquarters Edge** in the drop-down list.
19. Select **Enable XMPP federation**, select **lon-edg.adatum.com Adatum Headquarters Edge** in the drop-down list, and then click **OK**.
20. In the left navigation pane, right-click **Adatum Headquarters**, from the shortcut menu, expand **Topology**, and then click **Publish**.
21. On the **Publish the topology** page, select **Next**.
22. Wait for the Publish Topology task to complete. When complete, click **Finish**.
23. Open the Skype for Business Server Management Shell from the taskbar.

24. Type the following command, and then press Enter:

```
Export-CsConfiguration -FileName c:\export.zip
```

25. On the host machine, in Hyper-V Manager, right-click **20334B-LON-EDG**, and then click **Settings**.
26. From the **Hardware** list, click **DVD Drive**, click **Image File**, click **Browse**, and then browse to **C:\Program Files\Microsoft Learning\20334\Drives\**.
27. Select **Sfb-E-9319.0-enUS.ISO**, click **Open**, and then click **OK**.
28. Switch to LON-EDG. If not signed in, sign in as **administrator** with the password **Pa\$\$w0rd**.
29. Open Server Manager from the taskbar.
30. In the left navigation pane, click **Local Server**.
31. In the main window, click **LON-EDG**.
32. On the **System Properties** page, click **Change**.
33. In the Computer Name/Domain Changes window, click **More**.
34. In the DNS Suffix and NetBIOS Computer Name window, in the **Primary DNS suffix of this computer text** box, type **adatum.com**, and then click **OK**.
35. In the Computer Name/Domain Changes window, click **OK**.
36. In the pop-up window with the “**You must restart your computer to apply these changes**” message, click **OK**.
37. In the System Properties window, click **Close**.
38. In the pop-up window with the “**You must restart your computer to apply these changes**” message, click **Restart Now**.
39. Wait while LON-EDG restarts. Sign back in as **administrator** with the password **Pa\$\$w0rd**.
40. Open File Explorer, browse to **D:\Setup\amd64**, and then run **Setup.exe**.
41. Wait while Microsoft Visual C++ 2013 Redistributable installs.
42. In the Skype for Business Server Check for Updates window, select **Don’t check for updates right now**, accept the default installation location, and then click **Install**.
43. Accept the license agreement, and then click **OK**.
44. Wait while the installer installs the core components. When complete, the Skype for Business Server 2015 Deployment Wizard opens automatically.
45. On the Welcome to Skype for Business Server 2015 deployment page, click **Install or Update Skype for Business Server System**.
46. On the Install or update member system page, go to Step 1: Install Local Configuration Store, and then click Run.



**Note:** The message that the configuration cannot be collected automatically is expected because this computer is not a member of the Adatum.com domain.

In the Configure Local Replica of Central Management Store window, in the **Import from a file (recommended for Edge Servers) text** box, type the following, and then click **Next**:

```
\\lon-sfb1\c$\export.zip
```

47. Wait for the Install Local Configuration Store task to complete. When complete, click **Finish**. This closes the Install Local Configuration Store Wizard.
48. Back on the Install or update member system page, go to **Step 2: Setup or Remove Skype for Business Server Components**, and then click **Run**.
49. In the Set Up Skype for Business Server Components window, click **Next**.
50. Minimize LON-EDG while the Edge server components install.
51. Continue with the course while the Edge server components are installing—this demonstration will continue with certificate installation after the next session. Click **Finish** when installation is complete.

## Demonstration: Installing Certificates on the Edge Server

### Demonstration Steps

1. Switch to LON-EDG.
2. Open Internet Explorer, and then go to <http://lon-dc1.adatum.com/certsrv>.
3. In the Windows Security window, connect by using the user name **adatum\administrator** with the password **Pa\$\$w0rd**.
4. On the **Microsoft Active Directory Certificate Services – AdatumCA** page, click **Download a CA certificate, certificate chain, or CRL**.
5. On the **Download a CA Certificate, Certificate Chain, or CRL** page, click **Download CA certificate**.
6. In the **Do you want to open or save certnew.cer (863 bytes) from lon-dc1.adatum.com?** window, click **Open**.
7. In the **The certnew.cer download has completed** window, click **Open**.
8. In the Certificate window, click **Install Certificate**.
9. On the **Certificate Import Wizard** page, select **Local Machine**, and then click **Next**.
10. On the **Certificate Store** page, select **Place all certificates in the following store**, and then click **Browse**.
11. On the **Select Certificate Store** page, select **Trusted Root Certification Authorities**, and then click **OK**.
12. In the Certificate Store window, click **Next**.
13. On the **Completing the Certificate Import Wizard** page, click **Finish**.
14. Click **OK** to close the pop-up message window.
15. In the Certificate window, click **OK** to close it.
16. Switch back to the Skype for Business Server Deployment Wizard.
 **Note:** If the previous steps completed without error, you can continue even if Step 2 is not marked as complete.
17. Go to **Step 3: Request, Install or Assign Certificates**, and then click **Run**. This opens the Certificate Wizard.
18. In the Certificate Wizard, select **Edge Internal**, and then click **Request**.
19. On the Certificate Request page, accept the default selection **Send the request immediately to an online certification authority**, and then click **Next**.



20. On the **Choose a Certification Authority (CA)** page, in the **Specify another certification authority text** box, type **lon-dc1.adatum.com\AdatumCA**, and then click **Next**.
21. On the **Specify alternate credentials for the certification authority** page, accept the default selection, type **adatum\administrator** in the **User name text** box and **Pa\$\$w0rd** in the **Password text** box, and then click **Next**.
22. On the **Specify Alternate Certificate Template** page, click **Next**.
23. On the Name and Security Settings page, select **Mark the certificate's private key as exportable**, and then click **Next**.
24. On the Organization Information page, in the **Organization text** box, type **A Datum**.
25. In the **Organizational unit** text box, type **IT**, and then click **Next**.
26. On the Geographical Information page, in the **Country/Region** drop-down list, select **United Kingdom**.
27. In the **State/Province text** box, type **UK**.
28. In the **City/Locality text** box, type **London**, and then click **Next**.
29. On Subject Name / Subject Alternate Names page, click **Next**.
30. On the Configure Additional Subject Alternative Names page, click **Next**.
31. On the Certificate Request Summary page, select **Next**.
32. On the **Executing Commands** page, wait for the task to complete. When the **Completed** status displays, click **Next**.
33. On the Online Certificate Request Status **page**, accept the default selection for **Assign this certificate to Skype for Business Server certificate usages**, and then click **Finish**.
34. On the Certificate Assignment page, click **Next**.
35. On the Certificate Assignment Summary page, click **Next**.
36. Wait for the assignment to complete. After the assignment completes, click **Finish**. This closes the Certificate Assignment Wizard and takes you back to the Certificate Wizard.
37. In the Certificate Wizard, click to select **External Edge certificate (public Internet)**, and then click **Request**.
38. In the Delayed or Immediate Requests window, select **Prepare the request now, but send it later (offline certificate request)**, and then click **Next**.
39. On the **Certificate Request File** page, in the **File name** text box, type **c:\CertReq.req**, and then click **Next**.
40. On the Specify Alternate Certificate Template page, click **Next**.
41. On the Name and Security Settings page, click **Next**.
42. On the Organization Information page, click **Next**.
43. On the Geographical Information page, click **Next**.
44. On the Subject Name / Subject Alternative Names page, click **Next**.
45. On the SIP Domain setting in the Subject Alternative Names page, click **Next**.
46. On the **Configure Additional Subject Alternative Names** page, add the following names because you will use the same certificate for reverse proxy. After adding them, click **Next**:
  - **Lyncdiscover.adatum.com**

- **Dialin.adatum.com**
  - **Meet.adatum.com**
  - **Pool.adatum.com**
  - **Wac.adatum.com**
47. On the **Certificate Request Summary** page, click **Next**.
  48. On the **Executing Commands** page, wait for the commands to execute. Click **Next** when it is available.
  49. On the **Certificate Request File** page, click **View**. This opens the **CertReq.req** file in Notepad.
  50. Click somewhere in the CertReq.reg content, select all the content by pressing **Ctrl+A**, and then copy it to the Clipboard by pressing **Ctrl+C**. Now you have the request data on the Clipboard.
  51. On the **Certificate Request File** page, click **Finish** to close it.
  52. Switch back to Internet Explorer. On the **AdatumCA** page, in the top-right corner, click **Home**.
  53. On the **Microsoft Active Directory Certificate Services - AdatumCA** home page, click **Request a certificate**.
  54. On the **Request a Certificate** page, click **Advanced certificate request**.
  55. On the **Advanced Certificate Request** page, click **Submit a certificate request by using a base-64-encoded CMC or PKCS#10 file, or submit a renewal request by using a base-64-encoded PKCS #7 file**.
  56. Paste the content from the Clipboard into the **Saved Request** text box by pressing **Ctrl+V**.
  57. In the **Certificate Template** drop-down list, select **Web Server**, and then click **Submit**.
  58. On the **Certificate Issued** page, click **Download certificate**.
  59. Click **Open** when asked whether to open or save.
  60. In the **The certnew.cer download has completed** dialog box, click **Open**.
  61. In the Certificate Information window, click **Install Certificate**. This opens the **Certificate Import Wizard**.
  62. In the Welcome to the Certificate Import Wizard, under **Store Location**, select **Local Machine**, and then click **Next**.
  63. In the Certificate Store window, select **Place all certificates in the following store**, and then click **Browse**.
  64. In the Select Certificate Store window, select the **Personal** store, and then click **OK**.
  65. On the **Certificate Store** page, click **Next**.
  66. In the Completing the Certificate Import Wizard window, click **Finish**.
  67. In the **The import was successful** pop-up window, click **OK**.
  68. Click **OK** to close the Certificate window.
  69. Switch back to the Certificate Wizard.
  70. Select **External Edge certificate (public Internet)**, and then click **Assign**.
  71. On the **Certificate Assignment Wizard** page, click **Next**.
  72. On the **Certificate Store** page, click **Skype for Business Server 2015 External Edge certificate**, and then click **Next**.

73. On the **Certificate Assignment Summary** page, click **Next**.
74. Wait for the certificate assignment to complete, and then click **Finish**.
75. In the Certificate Wizard, note the green check marks, and then click **Close**.
76. Open the Skype for Business Server Management Shell, type the following command, and then press **Enter**:

```
Start-CsWindowsService
```

77. In the Skype for Business Server Management Shell, type the following command, and then press **Enter** to validate that the services are running:

```
Get-CsWindowsService
```



**Note:** FabricHostSvc should be stopped.

Please leave all virtual machines running. You will need them in the next demonstration.

## Lesson 4

# Configuring Reverse Proxy

### Contents:

Demonstration: Configuring Windows Server Web Application Proxy	14
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## Demonstration: Configuring Windows Server Web Application Proxy

### Demonstration Steps

1. Sign in to LON-PXY as **adatum\administrator** with the password **Pa\$\$w0rd**.
2. In Server Manager, on the **Tools** menu, click **Remote Access Management**.
3. In the Remote Access Management Console, click **Web Application Proxy**.
4. In the main window, under **Configure Web Application Proxy**, click **Run the Web Application Proxy Configuration Wizard**.
5. On the Welcome screen, click **Next**.
6. On the **Federation Server** page, in the **Federation service name** text box, type **adfs1.adatum.com**.
7. In the **User Name** text box, type **adatum\administrator**.
8. In the **Password** text box, type **Pa\$\$w0rd**, and then click **Next**.
9. In the AD FS Proxy Certificate window, select **adfs1.adatum.com**, and then click **Next**.
10. On the **Confirmation** page, click **Configure**.
11. Wait for the configuration to complete, and then click **Close**.
12. Switch to LON-EDG.
13. Right-click **Start**, and then from the shortcut menu, click **Run**.
14. In the **Run** dialog box, type **MMC**, and then click **OK**. This opens an empty Microsoft Management Console (MMC).
15. On the **File** menu, click **Add/Remove Snap-in**.
16. In the Add or Remove Snap-ins window, click **Certificates**, and then click **Add**.
17. In the **Certificates snap-in** dialog box, click **Computer account**, and then click **Next**.
18. In the Select Computer window, click **Finish**.
19. In the Add or Remove Snap-ins, window, click **OK**.
20. In the left navigation pane, expand **Certificates (Local Computer)**, expand **Personal**, and then click **Certificates**. This lists the installed certificates.
21. Select the **sip.adatum.com** certificate, right-click it, on the shortcut menu, click **All Tasks**, and then click **Export**.
22. In the Welcome to the Certificate Export **Wizard**, click **Next**.
23. On the **Export Private Key** page, click **Yes, export the private key**, and then click **Next**.
24. On the **Export File Format** page, click **Next**.
25. Click **Password**. In the **Password** dialog box, type **Pa\$\$w0rd** in both password boxes to confirm the password, and then click **Next**.
26. In the **File to Export** dialog box, click **Browse**.
27. Save the exported certificate to **C:\EdgeExport.pfx**.
28. Back in the **File to Export** dialog box, click **Next**.
29. On the **Completing the Certificate Export Wizard** page, click **Finish**, and then click **OK**.
30. Switch back to LON-PXY.

31. Browse to **\\lon-edg\c\$\**, and then double-click **EdgeExport.pfx**.
32. In the **Welcome to the Certificate Import Wizard**, select **Local Machine**, and then click **Next**.
33. In the **File to Import** dialog box, type the following, and then click **Next**:

**\\lon-edg\c\$\EdgeExport.pfx**

34. In the Private key protection window, in the **Password text** box, type **Pa\$\$word**, select **Mark this key as exportable**, and then click **Next**.
35. In the **Certificate Store** window, click **Next**.
36. Click **Finish**, and then click **OK**.
37. In the Remote Access Management Console, under **Tasks**, click **Publish**.
38. On the **Welcome** page, click **Next**.
39. On the **Preauthentication** page, select **Pass-through**, and then click **Next**.
40. On the **Publishing Settings** page, in the **Name** text box, type **lyncdiscover**.
41. In the **External URL** text box, type **https://lyncdiscover.adatum.com**.
42. On the **External certificate** menu, click **sip.adatum.com**.
43. In the **Backend server URL** text box, type **https://lyncdiscover.adatum.com:4443**.
44. Ignore the warning about the naming, and then click **Next**.
45. On the **Confirmation** page, click **Publish**.
46. On the **Results** page, click **Close**.
47. Repeat steps 37 through 46 for the following, and change the name where appropriate:
  - Meet.adatum.com
  - Dialin.adatum.com
  - Pool.adatum.com
48. Repeat steps 37 through 46 for wac.adatum.com, but in step 43 type **https://wac.adatum.com**, with no **":4443"** redirection.
49. Minimize LON-PXY.

## Lesson 5

# Designing Mobility in Skype for Business Server

### Contents:

Demonstration: Configuring Settings for External Access  
to the Skype for Business Mobility Service

17

## Demonstration: Configuring Settings for External Access to the Skype for Business Mobility Service

### Demonstration Steps

1. Sign in to LON-SFB1 as **adatum\administrator** with the password **Pa\$\$w0rd**.
2. Open the Skype for Business Server Management Shell from the taskbar.
3. Type the following command, and then press **Enter**:

```
Get-CsMcxConfiguration
```

4. Describe the settings to the students.
5. Type the following command, and then press **Enter**:

```
Get-CsMobilityPolicy
```

6. Describe the settings to the students.



**Note:** This completes the last demonstration in this module—please revert all virtual machines.

### Revert all virtual machines:

1. On the host computer, start Hyper-V Manager.
2. In the **Virtual Machines** list, right-click **20334B-LON-CL1**, and then click **Revert**.
3. In the **Revert Virtual Machine** dialog box, click **Revert**.
4. Repeat steps 2 and 3 for the following virtual machines:
  - **20334B-LON-CL2**
  - **20334B-LON-DC1**
  - **20334B-LON-SFB1**
  - **20334B-LON-SFB2**
  - **20334B-LON-SQL1**
  - **20334B-LON-EDG**
  - **20334B-LON-PXY**



## Module Review and Takeaways

### Best Practices

- Use public certificates on public interfaces.
- Do not place NAT between the internal network adapter on the Edge server and the local area network (LAN).
- Skype public requires the Public IM Connectivity provisioning process to complete before you can enable it.
- Extensible Messaging and Presence Protocol (XMPP) federation only allows presence and one-to-one instant messaging (IM).
- Federation can be either open, direct, or enhanced.
- TLS/443 towards the Edge server is not HTTPS. Be aware of the application-layer firewall.

### Review Question(s)

**Question:** What type of federation might your organization deploy?

**Answer:** Students will have different reasons for the type of deployed federation. Most organizations deploy open federation. Always monitor the Edge Server Skype for Business Event log for domains that you might need to add to the Allowed domain list to avoid throttling.

### Real-world Issues and Scenarios

- When you deploy multiple, geographically dispersed pools, you will also have to deploy multiple Edge servers and reverse proxies.
- An organization can have only one active federation route per SIP domain, so manual action might be necessary in case of an outage.
- Use the service (SRV) resource record priority in DNS to add backup routes for federation and remote user access.

### Common Issues and Troubleshooting Tips

Common Issue	Troubleshooting Tip
Federation not working	TLS/5061 is the Microsoft implementation of Session Initiation Protocol (SIP). Be aware that certain firewalls with predefined filters for SIP/5061 might block the traffic if using these predefined filters. To resolve this, you can create your own definition for TLS/5061.
Some users have issues with external A/V and sharing	All networks with clients need access to the internal network adapter on the Edge server on TLS/443 and UDP/3478.
Some users experience delays in internal one-to-one calls	Skype for Business Server expects full routing between all users on the inside. If a direct connection cannot establish, the call can relay via the internal network adapter on the Edge server. This can make the call leg substantially longer with higher round trip times.

# Lab Review Questions and Answers

## Lab A: Designing and Implementing External User Access

### Question and Answers

**Question:** Why did you do an offline certificate request for the external interface on LON-EDG?

**Answer:** No online option exists for public certificates.

**Question:** Why did you add the DNS suffix to LON-EDG?

**Answer:** If the name in the topology does not match the name of the host, besides the local configuration store, no components will install.

## Lab B: Installing the Components for External Users

### Question and Answers

**Question:** Why did you add “:4443” to the published Skype for Business Server URLs?

**Answer:** The Front End Servers or Directors provide the external web services on TLS/4443. In Web Application Proxy, this is how you set up port redirection.

**Question:** Why did you install the AdatumCA root certificate on LON-EDG and LON-PXY?

**Answer:** The computers in the perimeter network are not members of the internal Active Directory Domain Services (AD DS) and so do not receive Group Policy Objects (GPOs). Domain member machines automatically trust internal CAs. Adding the root certificate enables the trust without using Group Policy.

# Module 9

## Implementing Persistent Chat in Skype for Business 2015

### Contents:

<b>Lesson 1:</b> Designing a Persistent Chat Server Topology	2
<b>Lesson 2:</b> Deploying Persistent Chat Server	4
<b>Lesson 3:</b> Configuring and Managing Persistent Chat	7
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## Lesson 1

# Designing a Persistent Chat Server Topology

### Contents:

Question and Answers

3

## Question and Answers

**Question:** You are the administrator for an organization that has 25,000 users. Fifty percent of the users will be enabled for Persistent Chat. Your Chief Financial Officer (CFO) said that you must implement a communications solution that minimizes cost. Your Chief Technology Officer (CTO) said that you must implement a solution that can scale to 100 percent of the users over the next 12 months. What design recommendations would you make to leadership?

**Answer:** A single collocated server topology will minimize the cost and work but will not scale. A multiple-server topology will solve the problem, but it does not minimize the deployment cost. Therefore, the best solution is to deploy a single stand-alone Persistent Chat Server instance on the Skype for Business Server 2015 Standard Edition server and then to add a second server next year when necessary.

**Question:** You are the administrator for an organization that has 3,000 users. Ten percent of the users will be enabled for Persistent Chat. Your CFO said that you must implement a communications solution that minimizes cost. Your CTO said that none of the content is critically important. Your Chief Security Officer (CSO) stated that all electronic communications must be discoverable by legal counsel. What design recommendations would you make to leadership?

**Answer:** A single collocated server topology will minimize cost and is a good fit for this scenario. A multiple-server topology will solve the problem, but it does not minimize the deployment cost. The Microsoft best practice is to avoid a collocated server whenever possible. Therefore, we recommend a single dedicated server that is running Skype for Business Server Standard Edition. This solution will also allow you to enable the Persistent Chat Compliance service to meet the CSO's eDiscovery requirement.

## Overview of Persistent Chat Server

**Question:** Identify the scenarios where you can use Persistent Chat Server.

- ☐ Employees in the United States need to have running conversations with peers in the United Kingdom on international sales activity.
- ☐ Executives are inundated with communications from various business units and want to be notified if a priority conversation takes place.
- ☐ Management needs to disseminate policy changes in the organization.
- ☐ Project teams need to search for conversations that occurred several months back.
- ☐ Conversations need to archive to Microsoft Exchange Server 2013.

**Answer:**

- ☒ Employees in the United States need to have running conversations with peers in the United Kingdom on international sales activity.
- ☒ Executives are inundated with communications from various business units and want to be notified if a priority conversation takes place.
- ☒ Management needs to disseminate policy changes in the organization.
- ☒ Project teams need to search for conversations that occurred several months back.
- ☐ Conversations need to archive to Microsoft Exchange Server 2013.

**Feedback:** Persistent Chat Server in Skype for Business Server 2015 can meet all of these organizational challenges except for archiving Persistent Chat conversations to Exchange Server.

## Lesson 2

# Deploying Persistent Chat Server

### Contents:

Question and Answers	5
Demonstration: Deploying a Single Server Topology	5

## Question and Answers

**Question:** Scenario: You work for a small business that has decided to deploy Skype for Business. You identified an organizational requirement for Sales department executives to keep a running conversation about sales. You want to enhance the executives' experience by adding the portal for the customer relationship management (CRM) app to their chat room. What steps must you perform?

**Answer:**

1. Document the URL for the CRM app.
2. Create a new add-in object by using the **New-CsPersistentChatAddin** cmdlet.
3. Associate the add-in with a Persistent Chat room by using the **Set-CsPersistentChatRoom** cmdlet.
4. Test the functionality from the Skype for Business client.

## Best Practices for Chat Room Design

**Question:** If your organization decides to deploy Persistent Chat Server, which of the following capacity planning methods do you feel would be appropriate for your organization?

- Plan capacity for number of users
- Plan capacity for chat room access
- Plan capacity for chat room access by invitation
- Plan capacity for performance

**Answer:** Answers will vary. Use the Capacity planning for Persistent Chat Server in Skype for Business Server 2015 webpage at <http://aka.ms/lzqeei> to review the four capacity planning scenarios.

## Demonstration: Deploying a Single Server Topology

**Question:** At what point are the Persistent Chat stores created on the Back End Server?

- ( ) They are created when you add a new SQL Server for the Persistent Chat Server pool in Topology Builder, but before you publish the topology.
- ( ) They are created when you add a new SQL Server for the Persistent Chat Server pool in Topology Builder while you are publishing the topology.
- ( ) They are created after publishing a new SQL Server for the Persistent Chat Server pool in Topology Builder by using the Windows PowerShell command-line interface.

**Answer:**

- ( ) They are created when you add a new SQL Server for the Persistent Chat Server pool in Topology Builder, but before you publish the topology.
- (√) They are created when you add a new SQL Server for the Persistent Chat Server pool in Topology Builder while you are publishing the topology.
- (√) They are created after publishing a new SQL Server for the Persistent Chat Server pool in Topology Builder by using the Windows PowerShell command-line interface.

**Feedback:** You can invoke the Install-CsDatabase cmdlet while publishing a new Microsoft SQL Server for the Persistent Chat Server pool in the topology. You also can run it manually from Windows PowerShell.

## Demonstration Steps

1. On LON-SFB1, on the taskbar, click **Skype for Business Topology Builder**.
2. In Topology Builder, select **Download Topology from existing deployment**, and then click **OK**.
3. In the dialog box, type **Persistent Chat** for the file name, and then click **Save**.

4. Expand **Skype for Business Server**, expand **Adatum Headquarters**, and then expand **Skype for Business Server 2015**.
5. Right-click the **Persistent Chat pools** container, and then click **New Persistent Chat Pool**.
6. On the **Define the Persistent Chat pool FQDN** page, type **pchatpool.adatum.com** for the **Pool FQDN**. Verify that **This pool has multiple servers** is selected, and then click **Next**.
7. On the **Define the computers in this pool** page, in the **Computer FQDN** text box, type **lon-svr1.adatum.com**, click **Add**, and then click **Next**.
8. On the **Define properties of the Persistent Chat pool** page, type **Adatum Headquarters Persistent Chat Pool** for the **Display name of the Persistent Chat pool**. Confirm that the **Persistent Chat Port** is **5041**. Select **Enable compliance** and leave the **Use backup SQL Server stores to enable disaster recovery** cleared. Verify that **Use this pool as a default for site Adatum Headquarters** is selected, and then click **Next**.
9. On the **Define the SQL Server store** page, click the drop-down arrow, and then select **LON-SQL1.adatum.com\Default**, and then click **Next**.
10. On the **Define the compliance SQL Server store** page, select **lon-sql1.adatum.com\Default** as the Compliance SQL Server store, and then click **Next**.
11. On the **Define the file store** page, select **Define a new file store**.
12. In the **File server FQDN** text box, type **LON-SQL1.adatum.com**.
13. In the **File share** text box, type **PChatShare**, and then click **Next**.
14. On the **Select the next hop server** page, click **Finish**.
15. On LON-SFB1, verify that Topology Builder is still open from the previous task, click the **Action** menu, select **Topology**, click **Publish**, and then click **Next**.
16. On the **Select databases** page, verify that **lon-sql1.adatum.com\Default** is selected in the **Choose the databases you would like to create when you publish your topology** list, and then click **Next**.
17. Confirm that all the steps are successful.
18. On the **Publishing wizard complete** page, click **Click here to open to-do list** in the Next Steps section.
19. After reviewing the NextSteps.txt file, close Notepad, and then click **Finish**.
20. Close the Topology Builder window.



## Lesson 3

# Configuring and Managing Persistent Chat

### Contents:

Question and Answers

8

## Question and Answers

**Question:** Troubleshooting scenario: You have deployed Persistent Chat, but your users are having problems when they try to view previous conversations in a room. All of the real-time communications are working fine. What could be causing the problem?

**Answer:** Answers might vary. The most likely cause of the problem is that the category is misconfigured. You should also confirm that the chat history is not disabled.

**Question:** You need to create a new chat room called **Research Project X** for the Research department. The room must not be visible to anyone but the members of the chat room. Which command will you use to accomplish this?

- ( ) `New-CsPersistentChatRoom -Name "Research Project X" -PersistentChatPoolFqdn "pchatpool.adatum.com"-Category "Research"`
- ( ) `New-CsPersistentChatRoom -Name "Research Project X" -PersistentChatPoolFqdn "pchatpool.adatum.com"-Category "All Users" -Privacy Closed`
- ( ) `New-CsPersistentChatRoom -Name "Research Project X" -PersistentChatPoolFqdn "pchatpool.adatum.com"-Category "Research" -Privacy Closed`
- ( ) `New-CsPersistentChatRoom -Name "Research Project X" -PersistentChatPoolFqdn "pchatpool.adatum.com"-Category "All Users" -Privacy Secret`

**Answer:**

- ( ) `New-CsPersistentChatRoom -Name "Research Project X" -PersistentChatPoolFqdn "pchatpool.adatum.com"-Category "Research"`
- ( ) `New-CsPersistentChatRoom -Name "Research Project X" -PersistentChatPoolFqdn "pchatpool.adatum.com"-Category "All Users" -Privacy Closed`
- ( ) `New-CsPersistentChatRoom -Name "Research Project X" -PersistentChatPoolFqdn "pchatpool.adatum.com"-Category "Research" -Privacy Closed`
- (√) `New-CsPersistentChatRoom -Name "Research Project X" -PersistentChatPoolFqdn "pchatpool.adatum.com"-Category "All Users" -Privacy Secret`

**Feedback:** The allowed members of a category will be able to search for all chat rooms that are associated with the category unless the chat room is configured with the *-Privacy Secret* parameter. The **New-CsPersistentChatRoom -Name "Research Project X" -PersistentChatPoolFqdn "pchatpool.adatum.com"-Category "All Users" -Privacy Secret** command is the best answer.

## Module Review and Takeaways

### Best Practices

- Even if you only need one Persistent Chat Server in your organization, you should avoid collocating Persistent Chat with the Standard Edition of Skype for Business Server.
- Use categories to configure as many of the settings as you can for your chat rooms so that you do not have as much administrative work to do when managing a large number of chat rooms.
- Decide who will be a manager of a chat room before you create the chat room.

### Review Question(s)

**Question:** Invitations are a great way to let people know that they are a member of a chat group. Why would you want to avoid using invitations?

**Answer:** The first reason relates to privacy or secrecy. The second reason is that in large environments, if too many invitations are sent out, it can cause severe performance degradation.

### Real-world Issues and Scenarios

Organizations that are heavily regulated and geopolitically dispersed are most likely to benefit from Persistent Chat. Persistent Chat is available only for on-premises deployments of Skype for Business Server. Skype for Business Online does not offer it.

### Tools

The following tools are covered in this module:

The Lync Server 2013 Persistent Chat Resource Kit, which still works with Skype for Business Persistent Chat, can be found at the following website.

#### Microsoft Lync Server 2013 Persistent Chat Resource Kit

<http://aka.ms/t6al82>

This resource kit includes:

- AffCheck, which checks database affiliations with Active Directory Domain Services (AD DS).
- ChatMonitoringSummary, which summarizes data from the monitoring database.
- The ChatStress Tool, which simulates Persistent Chat traffic.
- ChatUpgrade Verifier, which compares Group Chat databases with Persistent Chat databases to verify post-migration health.
- ChatUsageReport, which provides HTML usage report of users and chat rooms.
- ScheduleADSyncForPrincipal, which forces synchronization between SQL and AD DS.

### Common Issues and Troubleshooting Tips

Common Issue	Troubleshooting Tip
Persistent Chat Server setup fails with domain or DNS errors	<p>When you run the Skype for Business Server 2015 Deployment Wizard, the setup process might fail with domain or Domain Name System (DNS) errors.</p> <p>This might happen when the name of the server that you are on does not match the published information in the topology. It can also be because of typos in the DNS records, certificate subject names, and subject alternative names.</p> <p>As a preventative measure, when you enter data for your topology or populate fields in the deployment wizard, have someone check your data entry before</p>

Common Issue	Troubleshooting Tip
	<p>you publish the topology or request certificates. Small typos can lead to big problems.</p> <p>Additionally, if the computer that you are on is not a domain member or if it is missing any prerequisite software, the setup will fail.</p>

# Lab Review Questions and Answers

## Lab A: Designing and Deploying Persistent Chat Server

### Question and Answers

**Question:** Persistent Chat Server can collocate on a stand-alone Enterprise Edition Skype for Business Server.

☐ True

☐ False

**Answer:**

☐ True

☒ False

**Feedback:** Persistent Chat Server can collocate only on a Standard Edition Skype for Business Server.

**Question:** A. Datum acquires another company that has 30,000 users. You need to extend the Persistent Chat infrastructure to support all of the new users. What is the fastest way to accomplish this based on the current infrastructure?

**Answer:** The current solution will support up to 20,000 concurrent connections. First, determine how many of the 30,000 users will concurrently connect. If the total number combined with A. Datum's number exceeds 20,000 users, you can add a second server to the existing Persistent Chat pool to support up to 40,000 concurrent connections.

## Lab B: Configuring and Using Persistent Chat

### Question and Answers

**Question:** What is the purpose of a category in Skype for Business Server Persistent Chat?

**Answer:** Categories are logical containers for organizing chat rooms. Configurations that are made in categories are inherited by the chat rooms with which they are associated. Categories are effective constructs in creating ethical walls between users within an organization.

**Question:** When you create a new chat room, which of the following tools can you use?

☐ The Skype for Business Server Management Shell

☐ Skype for Business Server Control Panel

☐ The Skype for Business client

☐ Custom workflows

**Answer:**

☒ The Skype for Business Server Management Shell

☐ Skype for Business Server Control Panel

☒ The Skype for Business client

☒ Custom workflows

# Module 10

## Implementing High Availability in Skype for Business 2015

### Contents:

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## Lesson 1

# Planning for Front End Pool High Availability

### Contents:

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Demonstration: Managing a Front End Pool	3

## Question and Answers

**Question:** A. Datum Corporation plans to deploy Skype for Business Server 2015. They would also like to deploy Enterprise Voice soon afterwards. A. Datum's current messaging system is Microsoft Exchange Server 2007, but they will be upgrading to Microsoft Exchange Server 2013 in six months. How will this affect the current Skype for Business Server 2015 deployment from a high-availability perspective?

**Answer:** There are two key ways that Exchange Server 2007 could impact the high-availability design for A. Datum:

- Microsoft Exchange Server 2007 Unified Messaging does not support DNS load balancing. If A. Datum decides to deploy Enterprise Voice within the next six months, it will require a hardware load-balancing solution.
- A. Datum might have to postpone the Enterprise Voice deployment until after Exchange Server 2013 deployment, if a hardware load-balancing solution is not possible.

**Question:** Which of the following are benefits of Windows Fabric?

- ( ) Back End Servers are no longer a performance bottleneck for client requests.
- ( ) You can have a total of 12 Front End Servers in each Front End pool.
- ( ) Windows Fabric supports in-place upgrades from Lync Server 2013.
- ( ) Windows Fabric allows the Back End Server to create AlwaysOn Availability Groups.
- ( ) Windows Fabric eliminates the need for an HLB in an organization.

**Answer:**

- (v) Back End Servers are no longer a performance bottleneck for client requests.
- (v) You can have a total of 12 Front End Servers in each Front End pool.
- (v) Windows Fabric supports in-place upgrades from Lync Server 2013.
- ( ) Windows Fabric allows the Back End Server to create AlwaysOn Availability Groups.
- ( ) Windows Fabric eliminates the need for an HLB in an organization.

**Feedback:** AlwaysOn Availability Groups is a Microsoft SQL Server feature. Also, all Skype for Business organizations need an HLB for web services.

## Demonstration: Managing a Front End Pool

### Demonstration Steps



**Note:** Verify that all Skype for Business Server services set to Automatic (Delayed Start) are running on LON-SFB1 and LON-SFB2 before you begin this demonstration.

1. On LON-SFB1, sign in as **Administrator@adatum.com** with the password **Pa\$\$w0rd**.
2. Click **Start**, click **Power Options** (the power icon at the top-right corner), and then click **Shutdown**. Click **Continue** to confirm that you want to shut down. Wait for it to shut down completely.
3. On LON-SFB2, click the **Server Manager** icon on the taskbar.
4. In Server Manager, on the **Tools** menu, click **Event Viewer**.
5. In Event Viewer, expand **Applications and Services Logs**, and then click the **Lync Server** log.



6. In the **Lync Server** log, look for the most recent **Event ID 32108** from the **LS User Services**. Confirm the warning "Pool Manager changed state of Registrar with FQDN: LON-SFB1.Adatum.com to Inactive". Minimize the Event Viewer window.
7. On LON-SFB2, click **Start**, and then click **Internet Explorer**.
8. In Internet Explorer, navigate to **https://lon-sfb2.adatum.com/cscp** to connect to the Skype for Business Server Control Panel.



**Note:** Because of the way DNS is currently set up, it resolves the admin.adatum.com simple URL to lon-sfb1.adatum.com's IP address, which is currently offline.

9. In the **Windows Security** dialog box, type **Adatum\Administrator** for the user name and **Pa\$\$w0rd** for the password.
10. In the left navigation pane, click **Users**.
11. On the **User Search** page, click **Enable users**.
12. On the **New Skype for Business Server User** page, click **Add**.
13. On the **Select from Active Directory** page, change the **Maximum users to display** value to **400**. Leave the search box blank, and then click **Find**.
14. In the search results, click **Adam Barr**, press Ctrl+A to select all the users in the list, and then click **OK**.
15. In the **Users** list, locate **Administrator** and **Guest**, and any **HealthMailbox\***, **Krbtgt**, **Discovery search**, **SystemMailbox**, and **Microsoft Exchange\*** users. Select each account, and then click **Remove**.
16. In the Assign users to a pool section, select **pool.adatum.com** from the drop-down list.
17. In the Generate user's SIP URI section, confirm that **Use the user principal name (UPN)** is selected.
18. On the **New Skype for Business Server User** page, leave the default values for all other settings, and then click **Enable**.



**Note:** System/health mailboxes for Microsoft Exchange Server are expected to fail. You can disregard these errors and continue with the demonstration.

19. On the **New Skype for Business Server User** page, click **Cancel** to return to **User Search**. Leave the search box blank, change **Maximum users** to display **400**, and then click **Find**.
20. Confirm that all users in the organization are now enabled for Skype for Business.
21. On LON-CL1, sign in as **Adam@adatum.com** with the password **Pa\$\$w0rd**.
22. Click **Start**, click **All Apps**, and then select **Skype for Business 2016**. In the **First things first** dialog box, select **Ask me later**, and then click **Accept**. If the Microsoft Office Activation Wizard window appears, click **Close**.

Skype for Business 2016 signs in automatically as adam@adatum.com. It may take up to five minutes for Adam to sign in if routing groups are still being reassigned to LON-SFB2. You can continue to next step while it is signing in.
23. On LON-SFB2, click the **Windows PowerShell** icon on the taskbar.
24. In Windows PowerShell, run the following cmdlet to see the information about the routing group that Adam's account is in:

```
Get-CsUserPoolInfo -Identity sip:adam@adatum.com
```

Document the following information for Adam.

PrimaryPoolFQDN	Pool.adatum.com
UserServicesPoolFQDN	<b>Pool.adatum.com</b>
PrimaryPoolMachinesInPreferredOrder	
PrimaryPoolPrimaryRegistrars	
PrimaryPoolPrimaryUserService	

25. In Windows PowerShell, run the following command to get the current state of Windows Fabric:

```
Get-CsPoolFabricState -PoolFqdn "pool.adatum.com"
```

26. Review the results. Locate the Pool All Server and Services Summary section and point out the suggested resolution to the problem.

**Answer:** One or more servers is shut down, unhealthy, or deactivated. Ensure that they are running and activated. Restart a server if problems persist.

27. On LON-SFB2, click **Start**, click **Power Options** (the power icon at the top-right corner), and then click **Shutdown**. Click **Continue** to confirm that you want to shut down. Wait for it to shut down completely.
28. On LON-CL1, confirm that Adam is disconnected from the server.
29. In Microsoft Hyper-V Manager, in the Virtual Machines section, start **20334B-LON-SFB1** and **20334B-LON-SFB2**. Right-click each virtual machine, click **Connect**, and then wait for them to start.
30. On LON-SFB1, sign in as **Adatum\Administrator** with the password **Pa\$\$w0rd**.
31. On LON-SFB2, sign in as **Adatum\Administrator** with the password **Pa\$\$w0rd**.



**Note:** Verify that all Skype for Business Server services set to **Automatic (Delayed Start)** are running on LON-SFB1 and LON-SFB2 before continuing.

32. On LON-SFB1, click the **Server Manager** icon on the taskbar.
33. In Server Manager, on the **Tools** menu, click **Event Viewer**.
34. In Event Viewer, expand **Applications and Services logs**, and then select the **Lync Server** log.
35. In the Actions pane, click **Filter Current log**.
36. In the Filter Current Log window, expand the **Event sources** drop-down list, and then select **LS User Services**, **LS Storage Service**, and **LS AppDomain Host Process**. After selecting the sources, click **OK**.
37. Review the **Lync Server** log with for errors or warnings.
- Answer:** There should be a number of warnings and some errors from these Skype for Business Server Windows Fabric event sources that are generated when shutting down the primary routing group registrar.
38. In the Actions pane, click **Find**. Use the **Find** dialog box to look for the following Event IDs. Review one of each of the event with the students:

- 32176 from the LS User Service
  - 32174 from the LS User Service
  - 50012 from the LS AppDomain Host Process
  - 32163 from the LS User Service
  - 32027 from LS Storage Service
39. On LON-CL1, confirm that Adam is now connected. You might have to cancel the current connection attempt in order to sign in.

## Lesson 2

# Planning for Back End Server High Availability

### Contents:

Question and Answers

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## Question and Answers

**Question:** You are a Skype for Business Server 2015 consultant. Your client has determined that Skype for Business Server communications are mission-critical. They have asked you, their trusted advisor, to recommend a high-availability solution for their Back End Servers. They currently have a single-server Enterprise Edition Front End pool deployed for 800 of their 8000 users. They have a single SQL Server 2014 server deployed as their Back End Server. What should you recommend?

**Answer:** The client should first deploy a new AlwaysOn Availability Group. Then they should associate the Front End pool with the new AlwaysOn Availability Group. They should also deploy another Standard Edition server or Front End pool to move the Central Management store before changing the association of the current pool with a new SQL Server instance.

## Lesson 3

# High Availability for Other Component Servers

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## Question and Answers

**Question:** Your organization needs to implement a high-availability solution for all remote user connections. Your company had supportability problems with the designs of some other information technology (IT) projects. For this reason, your organization now requires that all solutions follow the best practice guidelines from Microsoft. You currently have five public IP addresses available. What should you recommend?

The following are the steps for deploying an Office Web Apps Server farm. Put them in the correct order.

	Steps
	Install prerequisite software for Office Web Apps Server.
	Install Office Web Apps Server with SP1.
	Install language packs.
	Run the New-OfficeWebAppsFarm cmdlet.
	Run the New-OfficeWebAppsMachine cmdlet.
	Connect to <a href="https://servername.adatum.com/discovery">https://servername.adatum.com/discovery</a> .
	Configure Skype for Business Server for Office Web App integration.

**Answer:**

	Steps
1	Install prerequisite software for Office Web Apps Server.
2	Install Office Web Apps Server with SP1.
3	Install language packs.
4	Run the New-OfficeWebAppsFarm cmdlet.
5	Run the New-OfficeWebAppsMachine cmdlet.
6	Connect to <a href="https://servername.adatum.com/discovery">https://servername.adatum.com/discovery</a> .
7	Configure Skype for Business Server for Office Web App integration.

## Resources

### Deploying Office Online Server Farms



**Additional Reading:** For more information about configuring Skype for Business Server 2015 with Office Online Server, refer to Module 6, "Implementing Additional Conferencing Options in Skype for Business Server 2015".

# Module Review and Takeaways

## Best Practice

When you deploy a high-availability solution for Skype for Business Server, you will require an HLB even if you use DNS load balancing. As a best practice, select an HLB from the qualified list of devices at the Unified Communications Open Interoperability website. This will prevent potential compatibility issues and provide prescriptive guidance specifically on how to configure the device(s) for Skype for Business Server 2015.

## Infrastructure qualified for Microsoft Lync

<http://aka.ms/srppfi>

## Review Question(s)

**Question:** Based on what you learned in this module, do you plan to change anything in your production deployments or in your Skype for Business Server designs for upcoming deployments?

**Answer:** Answers will vary. Some responses might be:

- I will change my operational procedures for maintenance windows.
- We have decided to implement redundant web proxies and use NLB with them.

## Real-world Issues and Scenarios

Virtualization of Skype for Business Server 2015 servers is fully supported. Many organizations will deploy their servers on a hypervisor. If you do not carefully plan virtualization of a highly available solution, the hosts of the virtualization solution can actually counteract the benefits of deploying Front End pools and other high-availability solutions. This is because a single host can potentially shut down a large number of virtual machines simultaneously. From a Front End pool perspective, that could cause the quorum to fail. If you are using Hyper-V to virtualize your Skype for Business Server roles, consider using availability sets to overcome this issue. For more information on configuring availability sets, refer to the following website:

## How to Configure Availability Sets in VMM for Virtual Machines on a Host Cluster

<http://aka.ms/y2t7i2>

## Tools

The following tools are covered in this module:

- PortQryUI. Allows you to create custom configuration files for scanning the TCP and User Datagram Protocol (UDP) ports' availability on your high-availability solutions.

### PortQryUI - User Interface for the PortQry Command Line Port Scanner

<http://aka.ms/os9I3I>

- Database Mirror Manager. If you deploy mirrored databases without the AlwaysOn Availability Groups, this tool can help you manage the databases on the mirror.

### My Skype Lab

<http://aka.ms/hytott>



## Common Issues and Troubleshooting Tips

Common Issue	Troubleshooting Tip
When moving from a stand-alone SQL Server back-end solution to an AlwaysOn Availability Group, you are prohibited from changing the SQL store for a Front End pool in Topology Builder.	Check to see if the Front End pool in question is the current Central Management store. If it is, then you will need to move the Central Management store to another Standard Edition server or another Front End pool in the organization. If there are no other servers or pools, you will need to temporarily deploy one server or pool just for this purpose.
When performing maintenance on a Front End pool, users might lose connectivity to Skype for Business Server even though there are servers in the pool that are still running.	Check to see if the pool-level quorum and routing group-level quorum are met. Services will stop on member servers of a pool if the pool-level quorum is not met.

# Lab Review Questions and Answers

## Lab B: Implementing High Availability

### Question and Answers

**Question:** Carol Troup recently started as the new chief financial officer (CFO) for A. Datum. You enabled her account for Skype for Business Server 2015. Unfortunately, she cannot sign in with the new account. Other users in the accounting department are able to sign in. Your desktop support team has confirmed that the CFO's machine is configured properly and her account appears to be configured properly. What can you do to check if it is a Front End pool issue?

**Answer:** You can run **Get-CsUserPoolInfo -Identity sip:carol@adatum.com** to see if the registrar that Carol is associated with is online and functional. You can also run **Get-CsPoolFabricState -PoolFqdn "pool.adatum.com"** to determine if any known issues exist with the pool level quorum.

**Question:** During a recent maintenance period, the hardware load-balancing solution for A. Datum went offline. This caused a large number of after-hours users to lose connectivity to Skype for Business. Because this was during a planned maintenance period, there were no repercussions for the outage. However, A. Datum management expects the implemented high-availability solution to allow Skype for Business Server services to be available for after-hours users even in the event that a single server goes offline. To prevent this type of outage in the future, what should you recommend to A. Datum management?

**Answer:** The best solution would be to have a highly available hardware load-balancing solution, so that if one of the HLBs goes down, other devices can continue functioning. Additionally, you could implement certain procedures to address this problem rapidly. The DNS administrator can change the IP address on the VIP or VIPs for the hardware load-balancing solution to point directly to the IP address of a Director or Front End pool server. This will allow the after-hours users to continue with their work during the restoration of the hardware load-balancing solution.

# Module 11

## Implementing Disaster Recovery in Skype for Business 2015

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## Lesson 1

# Disaster Recovery Options in Skype for Business Server

### Contents:

Question and Answers

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## Question and Answers

**Question:** Which of the following statements are true about Front End pool pairing?

- ☐ Enterprise pools can pair with Enterprise pools.
- ☐ Enterprise pools cannot pair with Standard Edition servers.
- ☐ Pool pairing is always a 1:1 relationship.
- ☐ Standard Edition servers cannot be paired.
- ☐ Branch site users will register on the backup pool if the central site pool fails.

**Answer:**

- ☒ Enterprise pools can pair with Enterprise pools.
- ☒ Enterprise pools cannot pair with Standard Edition servers.
- ☒ Pool pairing is always a 1:1 relationship.
- ☐ Standard Edition servers cannot be paired.
- ☐ Branch site users will register on the backup pool if the central site pool fails.

**Feedback:** Although Topology Builder does not prevent you from pairing a Standard Edition server with an Enterprise Edition server, it is a best practice to pair a Standard Edition server only with another Standard Edition server. Additionally, Survivable Branch Appliances and Survivable Branch Servers in branch sites do not benefit from pool pairing.

**Question:** You have deployed a Persistent Chat Server pool for A. Datum Corporation. Your task is to configure disaster recovery for Persistent Chat by using a new disaster recovery site. You have already enabled compliance and deployed database mirroring at the current site. How many additional dedicated database instances are required?

**Answer:** In this case, you require four new database instances. Because you have already deployed database mirroring for the Persistent Chat store and the Persistent Chat Compliance store, you require only the database instances in the disaster recovery site: a primary and a mirror for the Persistent Chat store and another primary and mirror for the Compliance store at the disaster recovery site. If A. Datum is comfortable with placing the Compliance store on the same instance as the Persistent Chat store, then only two new database instances will be required.

## Lesson 2

# Implementing Disaster Recovery in Skype for Business Server

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## Question and Answers

**Question:** Which of the following statements are true about the BCP of an organization that implements Skype for Business?

- ☐ Requires a disaster-recovery solution
- ☐ Identifies what type of disasters Skype for Business Server needs protection against
- ☐ Requires a GeoDNS load-balancing service
- ☐ Defines Skype for Business Server's RTOs
- ☐ Defines the organization's RPOs

**Answer:**

- ☒ Requires a disaster-recovery solution
- ☒ Identifies what type of disasters Skype for Business Server needs protection against
- ☐ Requires a GeoDNS load-balancing service
- ☐ Defines Skype for Business Server's RTOs
- ☒ Defines the organization's RPOs

**Feedback:** Although a BCP might require namespace failover, there are other ways besides GeoDNS to manage namespace failover for paired pools. Additionally, a BCP cannot define Skype for Business Server RTOs because Microsoft defines them. An organization might define a specific RPO goal. However, if that number is less than what Skype for Business is capable of providing, you might have to revise the BCP specifically for Skype for Business Server.

## Sequencing Activity

The following are the steps for implementing GeoDNS. Arrange them in the correct order by numbering each step.

	Steps
	Document the Autodiscover and Simple URL setting.
	Create the GeoDNS host (A) resource records that will resolve to the IP address of the GeoDNS service.
	Configure the distribution method on the GeoDNS service.
	Configure alias (CNAME) resource records that resolve to the corresponding GeoDNS records.

**Answer:**

	Steps
1	Document the Autodiscover and Simple URL setting.
2	Create the GeoDNS host (A) resource records that will resolve to the IP address of the GeoDNS service.
3	Configure the distribution method on the GeoDNS service.
4	Configure alias (CNAME) resource records that resolve to the corresponding GeoDNS records.

## Demonstration: Implementing Pool Pairing

### Demonstration Steps

#### Move Sales users to NYC Front End pool

1. On LON-SFB1, click the **Skype for Business Server Management Shell** icon on the taskbar.
2. To move the Sales users, at the Windows PowerShell command prompt, type the following command, and then press Enter:

```
Get-CsUser -OU "ou=Sales,dc=Adatum,dc=com" | Move-CsUser -Target "ny-pool.adatum.com"
```

3. Type **A** and press Enter.
4. Close the Skype for Business Server Management Shell window.

#### Define the paired pool in Topology Builder and publish the topology

1. On LON-SFB1, click the **Skype for Business Server Topology Builder** icon on the taskbar.
2. In Skype for Business Server 2015 Topology Builder, select **Download Topology from existing deployment**, and then click **OK**. If the Download Current Topology Wizard appears, wait a few seconds.
3. In the **Save Topology As** dialog box, type **PoolPairing** for the **File name**, and then click **Save**.
4. In Skype for Business Server 2015 Topology Builder, expand **Skype for Business Server**, expand **Adatum Headquarters**, expand **Skype for Business Server 2015**, expand **Enterprise Edition Front End pools**, right-click **pool.adatum.com**, and then click **Edit Properties**.
5. In the **Edit Properties** dialog box, click **Resiliency** in the navigation pane, and then select **Associated Backup Pool**.
6. Under the Resiliency section, in the box below **Associated Backup Pool**, select **ny-pool.adatum.com**. Select **Automatic failover and failback for Voice**, and then click **OK**.
7. In Skype for Business Server 2015 Topology Builder, right-click **pool.adatum.com**, click **Topology**, and then click **Publish**.
8. On the **Publish Topology** page, click **Next**.
9. On the **Select databases** page, verify that **NYC-SQL3.adatum.com\Default** is selected, and then click **Next**.
10. On the **Publishing wizard complete** page, click **Finish**.
11. Close Skype for Business Server 2015 Topology Builder.

#### Update the Front End Servers in both pools

1. On LON-SFB1, click the **Skype for Business Server Management Shell** icon on the taskbar.
2. At the Windows PowerShell command prompt, run the following commands to install and configure the Backup Service:

```
CD "C:\Program Files\Skype for Business Server 2015\Deployment"  
.\Bootstrapper.exe
```

3. At the **Skype for Business Server Management Shell** command prompt, run the following command:

```
Start-CsWindowsService -Name LYNCKBACKUP
```



4. Close Skype for Business Server Management Shell.
5. On LON-SFB2, click the **Skype for Business Server Management Shell** icon on the taskbar.
6. At the Windows PowerShell command prompt, repeat steps 2 through 4.
7. On NYC-SFB3, click **Start**, type **Skype**, and then select the **Skype for Business Server Management Shell**.
8. At the Windows PowerShell command prompt, repeat steps 2 through 4.



**Note:** Verify that the Skype for Business Server Management Shell is closed on NYC-SFB3 before continuing.

### Verify Backup Service synchronization

1. On NYC-SFB3, click **Start**, type **Skype**, and then select **Skype for Business Server Management Shell**. Force data synchronization of both pools by running the following commands:

```
Invoke-CsBackupServiceSync -PoolFqdn pool.adatum.com
```

When prompted, type **Y**, and then press Enter.



**Note:** If the **Invoke-CsBackupServiceSync** cmdlet does not work right away, close and reopen the Skype for Business Server Management Shell.

```
Invoke-CsBackupServiceSync -PoolFqdn ny-pool.adatum.com
```

When prompted, type **Y**, and then press Enter.

2. In the Skype for Business Server Management Shell, verify that the synchronization is occurring in both directions by running the following commands:

```
Get-CsBackupServiceStatus -PoolFqdn pool.adatum.com
Get-CsBackupServiceStatus -PoolFqdn ny-pool.adatum.com
```

3. Point out to the students the **OverallExportStatus** on each pool.  
**SteadyState** or **FinalState** is expected for both pools.
4. Point out to the students the **OverallImportStatus** on each pool.  
**NormalState** is expected for both pools.

## Lesson 3

# **Additional Disaster Recovery Options in Skype for Business Server**

### **Contents:**

Question and Answers

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## Question and Answers

**Question:** Which of the following Skype for Business Server databases stores persistent user data?

- ☐ Xds
- ☐ Lis
- ☐ Rtcxds
- ☐ Lcslog
- ☐ UserDyn

**Answer:**

- ☐ Xds
- ☐ Lis
- ☒ Rtcxds
- ☐ Lcslog
- ☐ UserDyn

**Feedback:** Rtcxds stores persistent user data such as ACLs, contacts, and scheduled conferences.

**Question:** A. Datum user Amr Zaki was accidentally deleted from Active Directory Domain Services (AD DS). AD DS administrators have created a new user account for Amr. You have enabled the new user account as a Skype for Business user. However, when Amr signed in to Skype for Business, he could not see any of his contacts. How should you resolve this issue?

**Answer:** There are two potential solutions to this problem. The best solution is to have Active Directory Domain Services (AD DS) administrators authoritatively restore Amr Zaki's account in AD DS. If this is not possible, the next best solution is to use the Import-CsUserData cmdlet. However, this assumes that before Amr's account was deleted, you ran the Export-CsUserData cmdlet and backed up Amr's data to a file as part of a disaster-recovery solution.

# Module Review and Takeaways

## Best Practices

- Use the organization's BCP as the fundamental guide for your Skype for Business disaster-recovery solution.
- Although there is no limit on the distance between paired pools, we recommend that you keep them in the same geographical area.
- When there is a low-bandwidth and high-latency WAN connection between Persistent Chat Server stretched pools, place all the active servers in the same site.
- Use a GeoDNS solution to reduce the administrative effort involved with failing over web traffic during a pool failure.

## Review Question(s)

**Question:** Describe a few scenarios where it would be inappropriate to pair two Standard Edition servers for disaster recovery.

**Answer:** It might be inappropriate to pair Standard Edition servers for disaster recovery in the following two scenarios:

- If an organization has more than 5,000 users, a pair of Standard Edition servers will not be able to support that many users.
- If the BCP requires that services must continue to run in the event of a single-server failure, then you cannot use Standard Edition servers because they do not provide high availability.

## Real-world Issues and Scenarios

With the popularity of virtualization technology, it is likely that your organization will have some or even all your Skype for Business infrastructure on virtual machines. Microsoft fully supports virtualizing all the Skype for Business Server roles. From a disaster recovery perspective, you can pair virtualized pools only with other virtualized pools. Skype for Business Server Topology Builder will not warn you about combining platforms (physical with virtual), which is not supported, yet it is likely that you might combine platforms in your production environment.

## Tools

The following tools are covered in this module:

- Traffic Manager. You can use Traffic Manager for GeoDNS load balancing.

### Traffic Manager

<http://aka.ms/dji7a9>

- Lync Server 2013 Planning Tool. You can use the Lync Server 2013 Planning Tool to plan a disaster-recovery solution for Skype for Business Server 2015.

### Microsoft Lync Server 2013, Planning Tool

<http://aka.ms/ikzdqb>

# Lab Review Questions and Answers

## Lab: Implementing and Performing Disaster Recovery

### Question and Answers

**Question:** Based on your experience in the lab, what recommendation would you make to A. Datum to improve the failover and failback process in the future?

**Answer:** Recommendations might include the following:

- For additional high availability, deploy AlwaysOn Availability Groups before you implement pool pairing.
- Instead of running individual scripts, you can create a Windows PowerShell script file that you can run.

**Question:** The **Invoke-CsPoolFailover** cmdlet has a *-DisasterMode* parameter. Identify a scenario where you would not want to use this parameter.

**Answer:** Maintenance and upgrade procedures do not require the *-DisasterMode* parameter. If both pools are online during the failover, you can perform a transfer without using this overriding parameter.

# Module 12

## Integrating with Skype for Business Online

### Contents:

<b>Lesson 1:</b> Overview of Skype for Business Online	2
<b>Lesson 2:</b> Preparing for a Hybrid Skype for Business Deployment	4
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## Lesson 1

# Overview of Skype for Business Online

### Contents:

Question and Answers

3

## Question and Answers

### Using the Skype for Business Server Management Shell to Manage Skype for Business Online

**Question:** You configured an Office 365 tenant and created a user account in your tenant. What must you do next to ensure that the user can sign in to Skype for Business Online?

- ( ) Configure the DNS resource records for your domain to reference Skype for Business Online.
- ( ) Configure directory synchronization.
- ( ) Configure the Skype for Business Online settings for the user account.
- ( ) Assign a license that includes Skype for Business Online to the user account.

**Answer:**

- ( ) Configure the DNS resource records for your domain to reference Skype for Business Online.
- ( ) Configure directory synchronization.
- ( ) Configure the Skype for Business Online settings for the user account.
- (√) Assign a license that includes Skype for Business Online to the user account.

**Feedback:** For a user to connect to Skype for Business Online, you need to assign an Office 365 license to the user, and the license must be part of a subscription that includes Skype for Business Online.



## Lesson 2

# Preparing for a Hybrid Skype for Business Deployment

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Demonstration: Configuring Directory Synchronization	5
Demonstration: Configuring SSO	6

## Question and Answers

### Configuring SSO

**Question:** As part of a hybrid Skype for Business deployment at A. Datum Corporation, you need to configure appropriate DNS resource records to ensure that clients can automatically connect to both the on-premises and cloud deployments of Skype for Business. Which of the following DNS resource records do you need to configure?

- ( ) Lyncdiscover.Adatum.com that is pointing to your on-premises Edge Servers.
- ( ) Lyncdiscover.Adatum.com that is pointing to the Skype for Business Online URL.
- ( ) \_sip.\_tls.Adatum.com that is pointing to your on-premises Edge Servers.
- ( ) \_sip.\_tls.Adatum.com that is pointing to the Skype for Business Online URL.
- ( ) \_sipfederationtls.\_tcp.Adatum.com that is pointing to your on-premises Edge Servers.

**Answer:**

- (v) Lyncdiscover.Adatum.com that is pointing to your on-premises Edge Servers.
- ( ) Lyncdiscover.Adatum.com that is pointing to the Skype for Business Online URL.
- (v) \_sip.\_tls.Adatum.com that is pointing to your on-premises Edge Servers.
- ( ) \_sip.\_tls.Adatum.com that is pointing to the Skype for Business Online URL.
- ( ) \_sipfederationtls.\_tcp.Adatum.com that is pointing to your on-premises Edge Servers.

**Feedback:** You need to configure the lyncdiscover and \_sip DNS resource records, and you need to configure them to point to on-premises Edge Servers. The \_sipfederationtls record is not necessary for client authentication, but it is required for federation. Additionally, the records must point to the Edge Servers and not to the Skype for Business Online environment.

## Demonstration: Verifying Prerequisites

### Demonstration Steps

1. Run the Verify Prerequisites.mp4 file.
2. Point out the default domain (srts.onmicrosoft.com) and the custom domain (srts.ca) that are configured for the Office 365 tenant.
3. Point out the Skype for Business DNS records that are configured for the srts.ca domain. Because GoDaddy hosts the srts.ca domain, the text (TXT) resource record that is used for verification is not required.
4. Point out that the domain is already configured for Active Directory Domain Services (AD DS) synchronization. Review the steps that have been completed to configure the tenant.

## Demonstration: Configuring Directory Synchronization

### Demonstration Steps

1. Point out that the demonstration uses custom settings for the Azure AD Connect tool. We recommend express installation for a single domain where you want to synchronize all user accounts in a single domain, to configure password synchronization, and to synchronize all attributes. This demonstration shows how to synchronize specific users to simulate a pilot deployment.
2. Mention that in this demonstration, the option to configure password synchronization is selected, and AD FS will be enabled in the next demonstration.

3. Point out that when the user signs in to Office 365, Azure AD authenticates the user. Compare this to the user experience after enabling SSO.

## **Demonstration: Configuring SSO**

### **Demonstration Steps**

1. Point out that you can configure AD FS and Web Application Proxy by using built-in Windows Server 2012 R2 tools. The Azure AD Connect tool just makes it easier to configure these components when you configure SSO for Azure.
2. Point out the credentials and certificates that are necessary to configure the two components. The Web Application Proxy server requires administrator credentials on the AD FS server so that it can retrieve the correct certificate from the AD FS server.
3. Mention that in the demonstration environment, the Web Application Proxy server is already configured to communicate with the AD FS server, so this step is not included when you configure SSO.
4. Point out that when you select the Azure AD domain, the domain automatically switches to a federated domain, which means that all users who are using the domain name must use AD FS to authenticate.
5. Point out the difference in the user experience when you sign in to Azure AD after enabling SSO. Now the user account authenticates by using the on-premises AD DS domain through AD FS.
6. Review the information provided by the Remote Connectivity Analyzer.

## Lesson 3

# Configuring a Hybrid Skype for Business Environment

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Demonstration: Configuring a Hybrid Skype for Business Environment by Using Skype for Business Server Control Panel	8
Demonstration: Moving Users to Skype for Business Online	8

## Question and Answers

### Moving Users from Skype for Business Online to On-Premises Skype for Business

**Question:** Your manager tells you that after deploying a hybrid Skype for Business Server environment, you can create all user accounts in Office 365. Is this statement true or false?

- ☐ True  
☐ False

**Answer:**

- ☐ True  
☒ False

**Feedback:** A hybrid Skype for Business deployment requires directory synchronization. Therefore, you must create user accounts on-premises, and directory synchronization will synchronize the accounts with Azure AD.

**Question:** You have deployed a hybrid Skype for Business environment. A user in Skype for Business Online has a **HostingProvider** attribute value of **sipfed.online.lync.com**. This means that the user's client will always connect directly to Skype for Business Online when the user opens the client.

- ☐ True  
☐ False

**Answer:**

- ☐ True  
☒ False

**Feedback:** The client will first use DNS service (SRV) resource records to connect to the on-premises Skype for Business Edge Server. After authenticating, the client will redirect to Skype for Business Online.

### Demonstration: Configuring a Hybrid Skype for Business Environment by Using Skype for Business Server Control Panel

#### Demonstration Steps

- Review the changes to the environment when you run the Set up Hybrid with Skype for Business Online Wizard. Federation is enabled on-premises and online, and the shared Session Initiation Protocol (SIP) address space is configured.

### Demonstration: Moving Users to Skype for Business Online

#### Demonstration Steps

- Point out the changes to the user account after the user account moves to Skype for Business Online.

# Module Review and Takeaways

## Best Practice

If you just want to try out Skype for Business Online, you can subscribe to a tenant and configure users with onmicrosoft.com domain names. If you decide to expand the deployment and include an on-premises deployment of Skype for Business, you can add your domain name and configure a hybrid environment later by using the same tenant.

## Review Question(s)

**Question:** How can you mitigate any security concerns with either directory synchronization with password synchronization or SSO?

**Answer:** Directory synchronization with password synchronization does not replicate a copy of a user's password to Azure. It only replicates the hash of the password. This hash is then compared with the hash that generates from the user signing in to Azure. The hashes will only match if the underlying password is correct.

SSO also does not replicate passwords to Azure. With SSO, authentication takes place in on-premises AD DS, and then the federation trust enables the exchange of the token that contains claims about the signed-in user. This token is then used to generate a security token that grants access to resources.

## Real-world Issues and Scenarios

With the popularity of virtualization technology, your organization will likely have some or even all of your Skype for Business infrastructure on virtual machines. Microsoft fully supports virtualizing all the Skype for Business Server roles. From a disaster recovery perspective, you can pair virtualized pools only with other virtualized pools. Skype for Business Server Topology Builder will not warn you about combining platforms (physical with virtual), which is not supported, yet it is likely that you might combine platforms in your production environment.

## Tools

The following tools are covered in this module:

- Azure AD Connect. Use this tool to synchronize users, groups, and contacts between on-premises AD DS and Azure AD. The Azure AD Connect configuration wizard can also configure AD FS and Web Application Proxy.
- AD FS. Use this security token service (STS) to enable federation between on-premises AD DS and Azure AD.
- Skype for Business Server Control Panel. Use this tool to configure the hybrid mode and to move users between on-premises Skype for Business and Skype for Business Online.
- Skype for Business Server Management Shell. Use this tool to configure the hybrid mode and to configure other Skype for Business Online settings.
- The Skype for Business Online connector module for Windows PowerShell. This provides the Windows PowerShell commands that are necessary to configure Skype for Business Online when you use the Skype for Business Server Management Shell.

## Common Issues and Troubleshooting Tips

Common Issue	Troubleshooting Tip
<p>Users cannot authenticate to Skype for Business Online</p>	<p>Depending on your deployment, you might have to check if the correct DNS resource records are configured and if directory synchronization is working. You might also have to check the firewall settings.</p> <p>Use the Microsoft Remote Connectivity Analyzer at <a href="http://aka.ms/btyn1z">http://aka.ms/btyn1z</a> to test the connectivity to Skype for Business Online. If connectivity fails, the analyzer can provide detailed information describing what failed.</p>

# Lab Review Questions and Answers

## Lab: Designing a Hybrid Skype for Business Deployment

### Question and Answers

**Question:** Why do you need to configure on-premises Skype for Business and Skype for Business Online to share an address space when configuring a hybrid Skype for Business deployment?

**Answer:** You need to configure the shared address space so that you can place users in both environments with the same SIP address space.

**Question:** Why will you decide to include AD FS in your design if you are planning a hybrid Skype for Business deployment?

**Answer:** AD FS enables SSO, so users will always authenticate in the on-premises AD DS. In this lab scenario, you could use password synchronization so that users can use the same user name and password to authenticate, but this is not SSO.



# Module 13

## **Planning and Implementing an Upgrade to Skype for Business Server 2015**

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## Lesson 1

# Overview of Upgrade and Migration Paths

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## Question and Answers

**Question:** What is the difference between the Offline and Move Users upgrade paths?

**Answer:** Offline upgrade keeps all the users and settings on the same server during an upgrade, which means that users cannot access the services for the duration of the upgrade. In the Move Users scenario, you move all users and services to a temporary pool during the upgrade to ensure that all Lync 2013 services are available during the migration.

**Question:** You can use in-place upgrade to upgrade Lync Server 2010 to Skype for Business Server.

☐ True

☐ False

**Answer:**

☐ True

☒ False

**Feedback:** You can use in-place upgrade to upgrade only Lync Server 2013 to Skype for Business Server.

## Lesson 2

# Migrating to Skype for Business 2015

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## Question and Answers

**Question:** When migrating from Lync 2010 or 2013 to Skype for Business, which application endpoints do you usually need to migrate?

**Answer:** Answers include:

- Dial-in conferencing
- Exchange Unified Messaging Contact objects
- Trusted application endpoints

**Question:** You can complete an In-Place upgrade of a Skype for Business Enterprise pool one server at a time while maintaining full Skype for Business services?

☐ True

☐ False

**Answer:**

☐ True

☒ False

**Feedback:** Enterprise pools need to have all pool members upgraded to Skype for Business before you can start the pool by using the Windows PowerShell cmdlet **Start-CsPool**.

## Lesson 3

# In-Place Upgrade to Skype for Business

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## Question and Answers

The following are the steps for performing an in-place upgrade. Arrange them in the correct order by numbering each step.

	Steps
	Install Skype for Business Server Topology Builder.
	In Skype for Business Server Topology Builder, select the Lync Server 2013 server that you want to upgrade.
	Publish the topology.
	Take the Lync Server 2013 pool down.
	Perform an in-place upgrade.
	Start Skype for Business services by using the Windows PowerShell cmdlet Start-CsPool.

**Answer:**

	Steps
1	Install Skype for Business Server Topology Builder.
2	In Skype for Business Server Topology Builder, select the Lync Server 2013 server that you want to upgrade.
3	Publish the topology.
4	Take the Lync Server 2013 pool down.
5	Perform an in-place upgrade.
6	Start Skype for Business services by using the Windows PowerShell cmdlet Start-CsPool.

## Module Review and Takeaways

### Best Practices

In this module, you have learned about the supported migration and upgrade paths for Skype for Business Server 2015. You have learned that only Lync Server 2010 and Lync Server 2013 are candidates for upgrading to Skype for Business Server 2015 and that you only can use an in-place upgrade with Lync Server 2013. However, remember that both Lync Server 2010 and Lync Server 2013 can use the migration path to upgrade to Skype for Business 2015.

- Never troubleshoot under-patched systems. Should unforeseen issues occur during the migration or upgrade to Skype for Business Server 2015, always check and double-check that the systems are fully updated and patched.
- Upgrading to a new version is not a troubleshooting step. Do not expect an upgrade to a newer product version to solve existing problems. Always make sure that the source system is in good condition and fully patched before attempting an upgrade.
- Smart Setup does not work. At the time of writing this material, the Smart Setup, which checks for updates during the installation of Skype for Business Server, is not functioning. Always check for updates immediately after an upgrade or fresh deployment of Skype for Business Server.

### Review Question(s)

**Question:** Are there any reasons not to use the in-place upgrade feature?

**Answer:** When using the in-place upgrade, all existing settings will carry forward to Skype for Business, including misconfigurations and errors. If not fully confident that existing Lync 2013 environment is in pristine condition, do consider migrating to Skype for Business 2015 rather than using the in-place upgrade.



## Lab Review Questions and Answers

### Lab: Performing an In-Place Upgrade of Microsoft Lync 2013 to Skype for Business Server 2015

#### Question and Answers

**Question:** Why did you not install the Skype for Business administrative tools on TREY-LYNC?

**Answer:** Skype for Business administrative tools are incompatible with the previous versions of the Core Components found in Lync Server 2013.

**Question:** Why did you run **Disable-CsComputer –Scorch** instead of **Stop-CsWindowsService** to stop services?

**Answer:** When you run the in-place upgrade, a reboot due to a pending restart might occur. If you used **Stop-CsWindowsService**, a reboot would trigger the services to start again. This could interfere with the in-place upgrade. The **Disable-CsComputer –Scorch** command both stops and deactivates the services, rendering them useless.