

Module 2: Deploying Live Communications Server 2005 with SP1 Enterprise Edition

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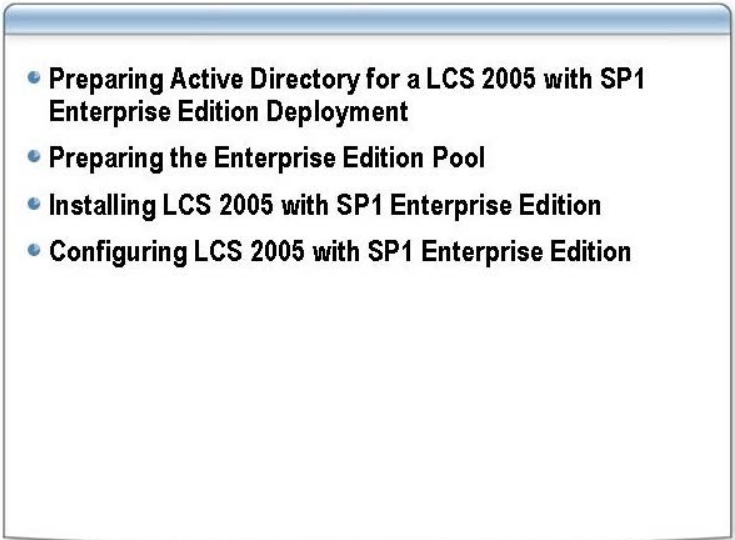
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Overview

- 
- **Preparing Active Directory for a LCS 2005 with SP1 Enterprise Edition Deployment**
 - **Preparing the Enterprise Edition Pool**
 - **Installing LCS 2005 with SP1 Enterprise Edition**
 - **Configuring LCS 2005 with SP1 Enterprise Edition**

Introduction

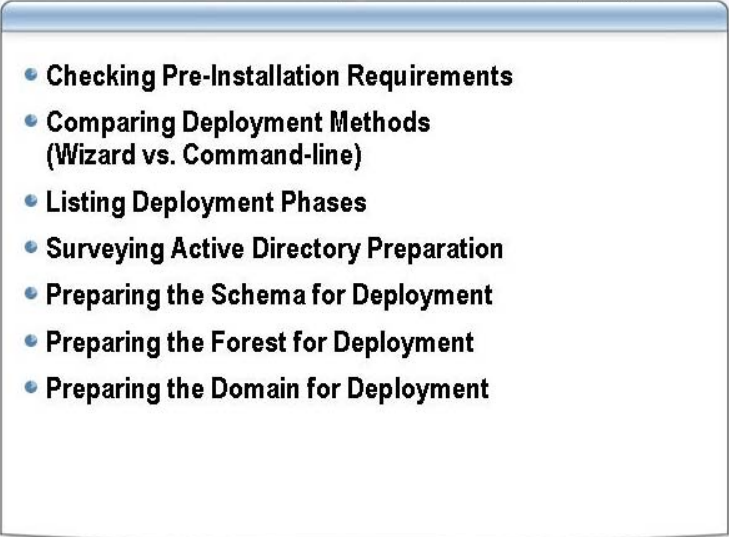
This module explains the procedure for preparing your Active Directory® infrastructure before you install Live Communications Server (LCS) 2005 with SP1 Enterprise Edition. It also explains how to install LCS 2005 with SP1 Enterprise Edition using the Setup Wizard. Finally, it explains how to configure your LCS servers after deployment for client access.

Objectives

After completing this module, you will be able to:

- Prepare Active Directory for the deployment of LCS 2005 with SP1 Enterprise Edition.
- Prepare the Enterprise Edition pool for a LCS 2005 with SP1 Enterprise Edition deployment.
- Install LCS 2005 with SP1 Enterprise Edition.
- Configure LCS 2005 with SP1 Enterprise Edition for client access.

Lesson: Preparing Active Directory for a LCS 2005 with SP1 Enterprise Edition Deployment

- 
- **Checking Pre-Installation Requirements**
 - **Comparing Deployment Methods (Wizard vs. Command-line)**
 - **Listing Deployment Phases**
 - **Surveying Active Directory Preparation**
 - **Preparing the Schema for Deployment**
 - **Preparing the Forest for Deployment**
 - **Preparing the Domain for Deployment**

Introduction

In any new deployment of Microsoft® Live Communications Server 2005 with Service Pack 1 (LCS with SP1), you begin by preparing Active Directory before you deploy your first Enterprise Edition Server. Preparing Active Directory for LCS 2005 with SP1 extends the schema and updates Active Directory objects in the forest and domain where you are installing your first server. If you run the Setup Wizard to deploy your first server, Setup automatically detects that your Active Directory needs preparation and prompts you to run necessary tasks.

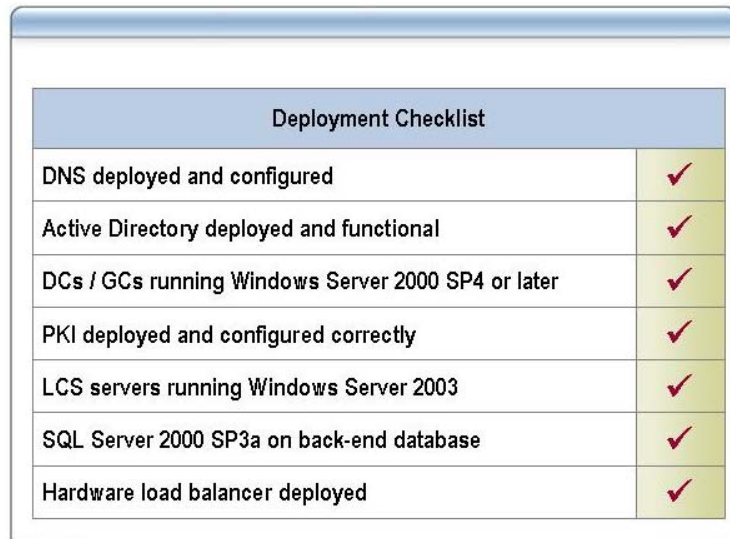
In this lesson, you will look at the pre-installation requirements for LCS 2005 with SP1, and compare the deployment options. You will also discuss the different phases of deployment and then learn how to prepare Active Directory for an LCS 2005 with SP1 deployment.

Lesson objectives

After you complete this lesson, you will be able to:

- Check the pre-installation requirements for an LCS 2005 with SP1 Enterprise Edition deployment.
- Explain the different deployment methods for LCS 2005 with SP1 Enterprise Edition.
- List the phases of an LCS 2005 with SP1 Enterprise Edition deployment.
- Describe the basic Active Directory preparation steps.
- Prepare an Active Directory schema for a LCS 2005 with SP1 Enterprise Edition deployment.
- Prepare a forest for a LCS 2005 with SP1 Enterprise Edition deployment.
- Prepare a domain for a LCS 2005 with SP1 Enterprise Edition deployment.

Checking Pre-Installation Requirements



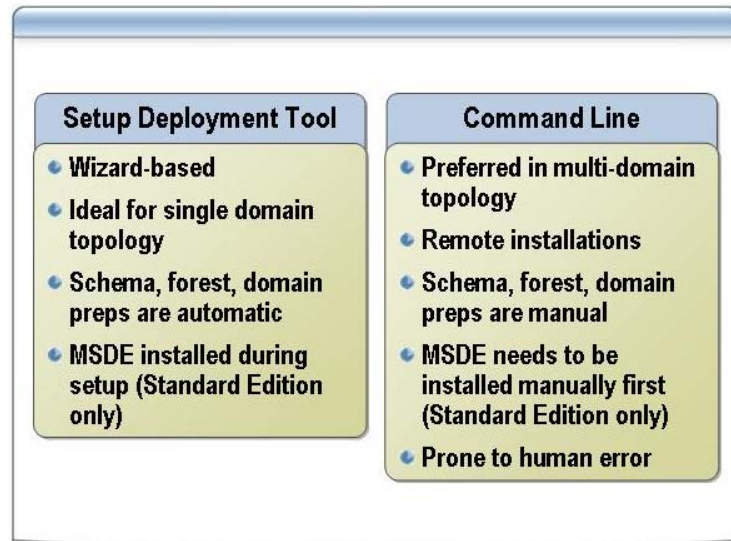
Deployment Checklist	
DNS deployed and configured	✓
Active Directory deployed and functional	✓
DCs / GCs running Windows Server 2000 SP4 or later	✓
PKI deployed and configured correctly	✓
LCS servers running Windows Server 2003	✓
SQL Server 2000 SP3a on back-end database	✓
Hardware load balancer deployed	✓

Introduction

Before you install LCS 2005 with SP1 Enterprise Edition, you must ensure that your environment meets the following prerequisites:

- A Domain Name System (DNS) infrastructure is deployed and configured correctly.
- Active Directory is deployed and fully functional.
- Domain controllers are running Microsoft Windows® 2000 SP4 or Windows Server® 2003.
- Global catalog servers are running Windows 2000 SP4 or Windows Server 2003, and that you have at least one global catalog server in the forest root. Global catalog servers are recommended in each LCS domain to optimize performance of Live Communications Servers.
- A Public Key Infrastructure (PKI) is deployed and configured, using either a Microsoft or third-party Certification Authority (CA) infrastructure.
- The servers that will host Live Communications Server 2005 with SP1 Enterprise Edition are running Windows Server 2003 Standard Edition, Windows Server 2003 Enterprise Edition, or Windows Server 2003 Datacenter Edition. These servers should also have static IP addresses.
- SQL Server™ 2000 SP3a is installed on the server that will host the LCS 2005 with SP1 Enterprise Edition back-end database for the pool. The SQL Server instance should be installed using the Local System account with either Windows or Mixed Mode Authentication. LCS 2005 with SP1 supports either the default instance or a named instance of SQL Server.
- A hardware load balancer is deployed for the servers in the Enterprise pool. The load balancer should have a virtual IP address published as a DNS Address (A) record so that your clients can route to it.

Comparing Deployment Methods



Introduction

You can deploy Live Communications Server (LCS) 2005 with SP1 by either of the following methods:

- Install using the Setup Deployment Tool
- Install using command-line tools

Setup Deployment Tool

The Setup Deployment Tool (Setup.exe) is ideal for installing a Live Communications Server in a simple single-domain topology. When you install a Live Communications Server using the Setup Wizard, tasks, such as schema, forest, domain, and server preparation can be performed easily using the Graphical User Interface (GUI). To help facilitate the process, Setup.exe explains tasks, provides tips about permissions and prerequisites, includes warnings, and uses task wizards to lead you through the steps.

This Setup Deployment Tool is a user-friendly wizard which enables you to install the various components of LCS 2005 with SP1 Enterprise Edition in a single-domain topology.

Running the wizard prompts you with the following options:

- Install Enterprise Pool
- Install Proxy
- Install Access Proxy
- Install Archiving Service

Note If you were installing LCS 2005 with SP1 Standard Edition, then the Microsoft SQL Server Desktop Engine (MSDE) database would also be installed during setup.

Deployment State Checking

After you select the Enterprise Pool option on the main deployment page, Setup checks the status of your deployment tasks in three ways. Setup specifically checks the following areas:

1. **Task completion.** If a task has already been completed, Setup places a check mark next to the task and disables the task so you do not run it again unnecessarily.
2. **Task prerequisites.** Setup detects whether the required prerequisites and dependencies for a task have completed. For example, the first time you open the deployment page in a new installation of LCS 2005 with SP1, the only tasks that can be run are **Prep Schema**, the first deployment task, and the **Install Files for Enterprise Edition Server** task, which copies files to the local computer. The **Prep Forest**, **Prep Domain**, and **Activate Enterprise Edition Server** tasks are unavailable because they cannot be run until all the prerequisite Active Directory and installation tasks are complete.
3. **Task necessity.** Finally, Setup checks whether certain tasks are necessary. For example, the **Domain Add to Forest Root** task will be unnecessary and therefore disabled, if you are attempting to deploy in the forest root domain.

Command Line Deployment

In a multi-domain environment, you may want to perform some of the installation steps remotely. In this case, you can use the command line to prepare the schema, forest, domain, and server, and also run the installation files to install LCS 2005 with SP1 Enterprise Edition.

When you use the command line method, it is important that you follow the correct sequence of steps and use the correct syntaxes.

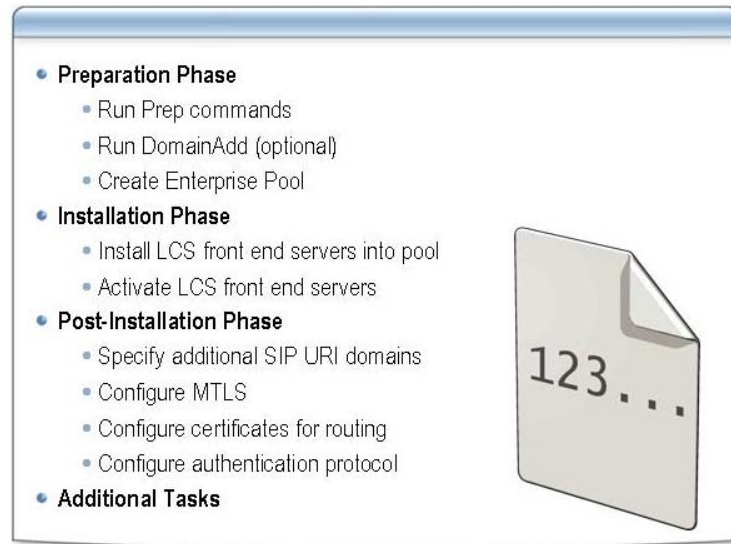
Command Line Deployment Tools

You can use the following tools to deploy LCS 2005 with SP1 Enterprise Edition from the command line.

- **LcsCmd.exe** can be used for almost all deployment procedures except for the installation of the LCServer.msi files.
- **LCServer.msi** installs the files used by LCS 2005 with SP1 Enterprise Edition. You should run the LCServer.msi file locally from the computer where you want to install LCS 2005 with SP1 Enterprise Edition.
- **SqlSetup.exe** is required to install the instance of MSDE for LCS 2005 Standard Edition. For LCS 2005 Enterprise Edition, you need to install Microsoft SQL Server on your planned back-end database separately (or you can use an existing instance of SQL Server).

For more information about using the command line tools to deploy LCS 2005 with SP1, see the Live Communications Server 2005 with SP1 Command-Line Reference guide in the **Additional Reading** materials included with this course.

Listing Deployment Phases



Introduction

There are many parts to the deployment of LCS 2005 with SP1 Enterprise Edition, including the preparation of the Active Directory environment, the creation of the pool, the installation of LCS 2005 with SP1 Enterprise Edition files, and the activation of the server pool. There are also several post-setup tasks that need to run.

There are three distinct phases to the deployment process:

- Preparation Phase
- Installation Phase
- Post-Installation Phase

Preparation Phase

The tasks in the preparation phase are:

1. Run Prep Schema task on the forest root.
2. Run Prep Forest task on the forest root.
3. Run Prep Domain task for the domains where Enterprise Pools will be deployed.
4. **(Optional)** Run Domain Add to Forest Root task for any child domains that will host Enterprise Pools.
5. Run Create/Upgrade Enterprise Edition Pool on servers that will run LCS 2005 with SP1 Enterprise Edition.

Installation Phase

The tasks in the installation phase are:

1. Run Install Files for Enterprise Edition Server on servers that will run LCS 2005 with SP1 Enterprise Edition.
2. Run Activate Enterprise Edition Server on servers running LCS 2005 with SP1 Enterprise Edition.

A Domain Administrator who is also a member of the RTCDomainServerAdmins group for the domain can perform this procedure from a remote machine.

Post-Installation Phase

After initial setup of the pools, and installation of the files, you need to run the following post-setup initial configuration tasks:

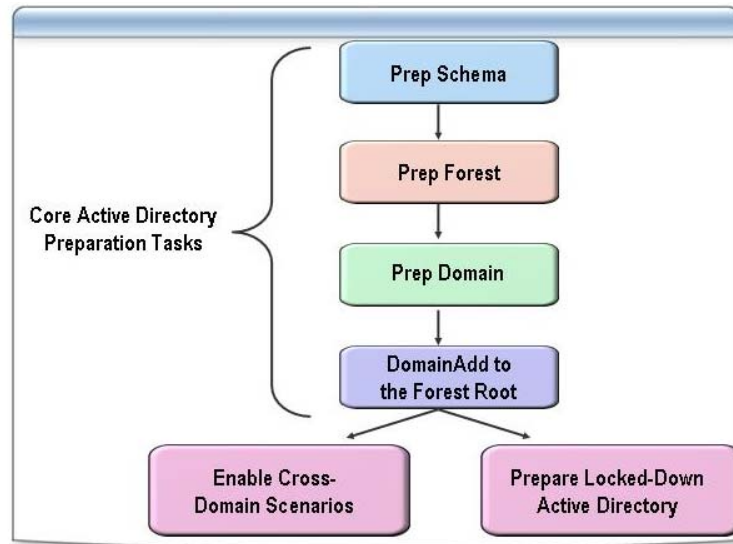
1. Specify additional Session Initiation Protocol (SIP) Uniform Resource Identifier (URI) domains that need to be part of your LCS 2005 with SP1 Enterprise Edition deployment. You run this procedure initially to add any domains other than your root domain to your SIP URI namespace, that is, any SIP URI domains that are not in your forest root, such as a child domain.
2. Configure Mutual TLS (MTLS) connections between the pools.
3. Configure certificate used for routing.
4. Configure preferred authentication protocol.

Additional Tasks

After deployment of the pool, you may want to perform some additional tasks to support your Active Directory topology and administration requirements.

- Run DomainAdd for any user-only domains. This is required if you want users in another child domain to be hosted from a pool already deployed in the root domain.
- Run procedures to enable cross-domain administration capabilities. This is required if you want to centralize your administration so that the RTCDomainServerAdmins group in the root domain can manage users and pools in all other domains.
- Enable your users and clients for LCS 2005 with SP1, by updating client computers to the latest client for LCS 2005 SP1 and enabling user accounts in Active Directory for LCS 2005 SP1.

Overview of Active Directory Preparation



Introduction

To prepare Active Directory for LCS 2005 with SP1 requires you to perform four basic steps and two additional steps, depending on your specific Active Directory topology.

Core Preparation Tasks

The following core tasks are required for a LCS 2005 with SP1 deployment:

- **Prep Schema.** Extends the Active Directory schema so that the new classes and attributes required for LCS 2005 with SP1 can be added to the schema. Prep Schema is required and run once on an Active Directory forest.
- **Prep Forest.** Creates LCS 2005 with SP1 objects and attributes under the Systems container in the root domain and under the configuration naming context. These objects and attributes are required for LCS 2005 with SP1 deployment and operations. Prep Forest is required and run once on an Active Directory forest.
- **Prep Domain.** Creates groups and permissions in the domain, which are required for the operations, deployment, and administration of LCS 2005 with SP1. Prep Domain is required and must be run once in each domain where you deploy Live Communications Server.
- **DomainAdd to the Forest Root.** If you have child domains in your environment, you will need to run this task in every child domain where a Live Communications Server is being deployed. It grants the added child domain the necessary permissions to access Live Communications Server objects stored in the forest root.

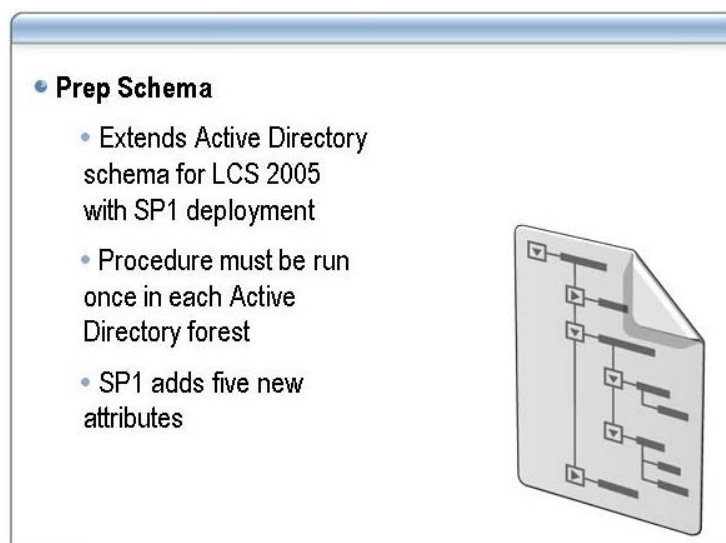
Note If you are deploying in the forest root, the DomainAdd to the Forest Root step is not necessary and the task itself is unavailable in the Setup Wizard.

Additional Steps

These additional steps are required for organizations with a more complex Active Directory topology that has cross-domain scenarios or a “locked-down” Active Directory to consider.

- **Cross-Domain Scenarios.** To enable cross-domain scenarios, such as user-only domains, cross-domain user search, and cross-domain administration involves the following steps:
 - **Run DomainAdd.** To grant one domain the permissions to access the accounts enabled for Live Communications Server in another domain.
 - **Run Prep Domain and DomainAdd.** To enable administrators in a user-only domain to manage Live Communications Server settings for users hosted in a different domain.
 - **Assign the correct permissions for administrators.** Administrators from one domain require permissions on Live Communications Servers in a second domain to enable cross-domain administration.
- **Locked-Down Active Directory.** In a locked-down Active Directory environment, permission inheritance is often disabled or authenticated user ACEs (access control entries) are removed from containers. In these cases, additional steps are required to manually assign the proper permissions on Active Directory objects and containers in the forest root and other domains.

Preparing the Schema for Deployment



Introduction

Prep Schema extends the Active Directory schema so that the new classes and attributes required for LCS 2005 with SP1 can be added to the schema. Prep Schema is required and is run once in each Active Directory forest. This is the first procedure that you should run to prepare your environment for your LCS 2005 with SP1 deployment.

What Does Prep Schema Do?

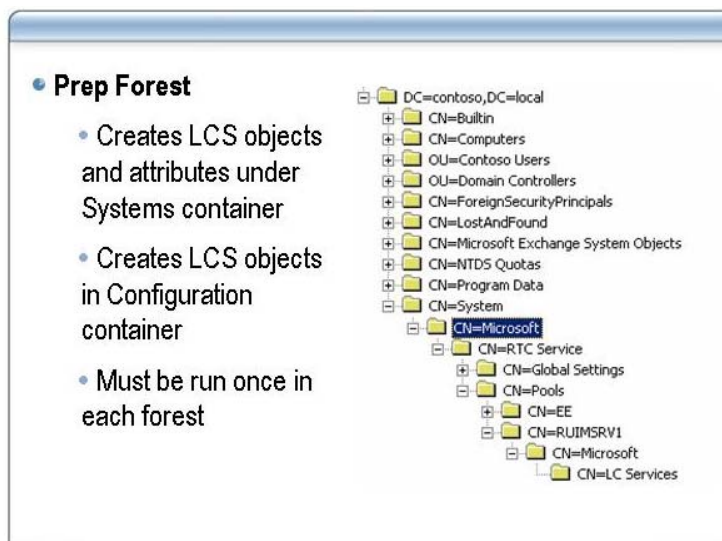
LCS 2003 added eight classes and auxiliary classes, and thirty-four attributes to Active Directory. LCS 2005 with SP1 further extends the Active Directory schema by adding seven new classes and auxiliary classes, and twenty-five new attributes, of which only five were added by Service Pack 1.

The new attributes in Service Pack 1 for LCS 2005 are summarized in the following list.

- Four new attributes are added to the **User** and **Contact** object classes:
 - **msRTCSIP-UserExtension**. This multi-valued attribute contains a list of name-value pairs in the format of “name=value”. This attribute is reserved for future use and is marked for Global Catalog replication.
 - **msRTCSIP-OptionFlags**. These are various options that are enabled for the user or contact object. This attribute is an integer-type value, and each option is represented by a bit value. For example, the bit-value of 1 represents the option for a user object to be enabled for Public Cloud. This attribute is marked for Global Catalog replication.
 - **msRTCSIP-Line**. This single-valued attribute contains the device ID (either the SIP URI or the TEL URI of the phone the user controls) used by Microsoft Office Communicator for telephony integration. This attribute is marked for Global Catalog replication and is indexed.
 - **msRTCSIP-LineServer**. This single-valued attribute contains the SIP URI of the Computer Supported Telephony Application (CSTA)-SIP gateway server. This attribute is marked for Global Catalog replication but is not indexed.

- One new attribute is added to the **msRTCSIP-Pool** class:
 - **msRTCSIP-PoolVersion**. This attribute value defines the pool version. The attribute is of integer type that increments with each major product release. The only valid value at this time is **2.1**, which specifies the LCS 2005 with SP1 product version.

Preparing the Forest for Deployment



Introduction

Prep Forest creates Live Communications Server objects and attributes under the Systems container, in the forest root domain systems container that contains global settings and information about your Live Communications Server deployment. Prep Forest also creates Live Communications Server objects in the configuration container that contain property sets and display specifiers that are used by Live Communications Server. These objects and attributes are required for Live Communications Server deployment and operations. Prep Forest is required, and is run once in each Active Directory forest where you plan to deploy LCS 2005 with SP1.

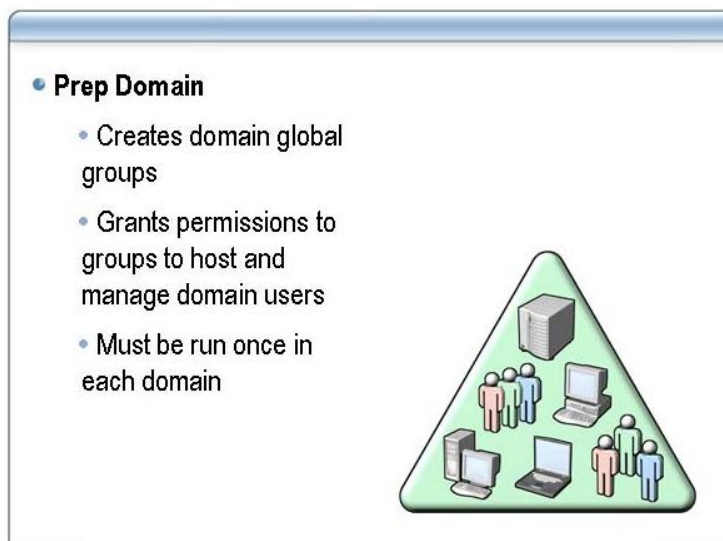
What Does Prep Forest Do?

Specifically, Prep Forest adds the following objects and attributes to the forest root domain:

- A new **Microsoft** container under **System** in the root of the forest, if the container does not already exist. The Microsoft containers are the new standard locations for all Microsoft settings.
- A new **RTC Service** object of type **msRTCSIP-Service** under the new **Microsoft** container.
- A **Pools** object of type **msRTCSIP-Pools** under the **RTC Service** object. This object holds a list of all the pools in your organization.
- A **Global Settings** object of type **msRTCSIP-GlobalContainer** under the **RTC Service** object. The Global Settings object holds all settings that apply through the LCS 2005 with SP1 deployment.
- A new **msRTCSIP-Domain** object class for the root domain in which you run Prep Forest. This object is stored under the **Global Settings** using the Globally Unique Identifier (GUID) of the forest root as its container name.

Prep Forest also adds several entries to the configuration container under the configuration naming context. For more information about these changes, see the LCS 2005 with SP1 Active Directory Preparation Guide in the **Additional Reading** materials provided with this course.

Preparing the Domain for Deployment



Introduction

Prep Domain creates domain global groups for LCS 2005 with SP1 servers and administrators. It also grants permissions to these groups to host and manage users within the domain. Prep Domain is required, and must be run once in each domain where you want to deploy LCS 2005 with SP1.

What Does Prep Domain Do?

Specifically, Prep Domain performs the following tasks:

- Creates six global security groups under the Users container in your domain.
 - **RTCDomainUserAdmins.** For administration of Live Communications Server users, including enabling users for Live Communications Server and moving users from one Live Communications Server to another.
 - **RTCDomainServerAdmins.** For administration of Live Communications Server servers, moving users from one Live Communications Server to another, and administering the Archiving service.
 - **RTCHSDomainServices.** Contains the service account that runs the Live Communications Server services on Standard Edition and Enterprise Edition. The default name for this service account is **LCService** which gets created or selected during the activation process. Accounts that belong to this group can access Active Directory global settings objects, pool settings, and the MSDE (Microsoft Desktop Engine) database used by the Standard Edition or the SQL Server back-end database used by an Enterprise pool.
 - **RTCArchivingDomainServices.** Contains service accounts that run the LCS 2005 with SP1 Archiving service.
 - **RTCProxyDomainServices.** Contains service accounts that run the services for LCS 2005 with SP1 Proxy server role.
 - **RTCABSDomainServices.** Contains service accounts used for Address Book Service integration. This group is new in SP1.

- Grants credentials to the global security groups on Live Communications Server objects using Access Control Entries (ACEs), including the following:
 - ACEs granted on generic Live Communications Server objects that exist in every domain.
 - When run in the forest root domain, Prep Domain also assigns additional ACEs on Live Communications Server objects that exist only in the forest root domain. For example, Prep Domain assigns global settings and global information on your Live Communications Server deployment.

For a complete list of the ACEs set by Live Communications Server, refer to the Live Communications Server 2005 Reference Guide at <http://office.microsoft.com/en-us/FX011450741033.aspx>.

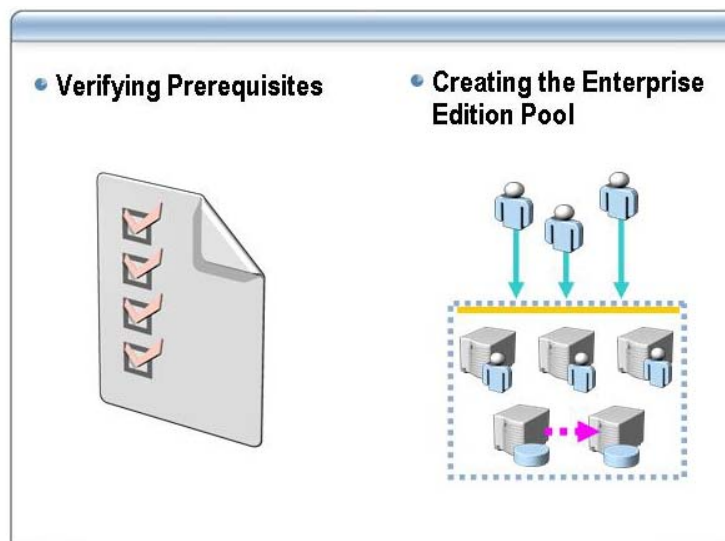
Caution The groups and ACEs created during Prep Domain are usually required for ongoing management, operations, and future deployments of LCS 2005 with SP1. Removing or directly modifying these groups and ACEs is not recommended. If unique cases require altering Live Communications Server ACEs, consider using Deny ACEs instead.

Child Domain Preparation

If you have child domains in your environment, you will need to run the Prep Domain procedure in every child domain where a Live Communications Server is being deployed, as well as the DomainAdd to the Forest Root task mentioned previously.

For more information about preparing and deploying child domains, see the lesson, “*Deploying LCS 2005 with SP1 Standard Edition in Child Domains*”, in Module 3, “Deploying Live Communications Server 2005 with SP1 Standard Edition”.

Lesson: Preparing the Enterprise Edition Pool



Introduction

An Enterprise Pool is a collection of LCS 2005 with SP1 Enterprise Edition servers that are connected to a central back-end database running on Microsoft SQL Server 2000. Clients register with an Enterprise pool and are directed to a specific server within the pool by a load balancer that distributes the load to these servers. The load balancer exposes a single virtual IP address that represents the pool of Enterprise servers, which is used by the clients to access the pool.

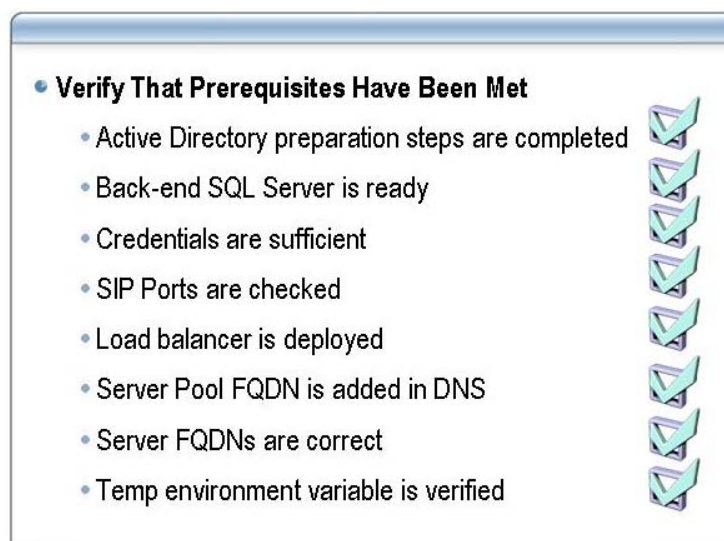
Each server running Enterprise Edition within the pool is responsible for connection processing, security and authentication, protocol processing, and server applications. Static data, such as contact lists and ACLs (access control lists) are stored as persistent data on the back-end database server. A client can register on one server in one instance and a different server at a different point in time. Alternatively, the client can have multiple devices, each logged on through a different server at a single point in time. Live Communications Servers within the pool are networked to the back-end server using a high-speed network connection.

Lesson objectives

After completing this lesson, you will be able to:

- Verify that the prerequisites have been met for creating an Enterprise Pool.
- Create an Enterprise Pool for LCS 2005 with SP1 Enterprise Edition.

Verifying Prerequisites



Introduction

This section explains how to verify that the various prerequisites have been met before you create an Enterprise Pool.

Ensure that the following prerequisites have been met before you run this procedure:

- Active Directory schema, forest, and domain preparation steps are complete. If you are running in a child domain, DomainAdd must also be performed.
- SQL Server 2000 SP3a is installed on the server where you want to install your LCS 2005 with SP1 back-end database, and the MS03-031 security patch is installed, as well as all other security patches for SQL. The SQL Server instance can be installed with either Windows or Mixed Mode Authentication, but Windows Authentication is recommended. LCS 2005 with SP1 supports either a default instance or a named instance.

Note For more information about the MS03-031 patch, read the security bulletin on the Microsoft Web site at <http://www.microsoft.com/technet/security/bulletin/MS03-031.msp>.

- The user that will run setup is a member of the RTCDomainServerAdmins group. If you are creating a pool in the forest root, you can also use Schema Admins or Domain Admins credentials. You must also have local administrator permissions on the back-end server used for the database.
- No applications are using ports 5060 and 5061. LCS 2005 with SP1 uses these ports for SIP communications.
- A supported load balancer has been deployed, which is required for an Enterprise pool. For more information about the supported topologies and load balancer configurations, see the Microsoft Office Live Communications Server 2005 Planning Guide at <http://office.microsoft.com/en-us/FX011450741033.aspx>.

- The Pool fully qualified domain name (FQDN) meets requirements. When you create an Enterprise pool, Setup creates Active Directory objects and settings for the pool, which include the pool FQDN, which is comprised of the pool name and the FQDN of the domain in which the pool is deployed. When you configure client connectivity, this FQDN is registered in DNS, and therefore must meet the following requirements:
 - Each pool's FQDN must be unique in the forest.
 - The pool FQDN and all Live Communications Server FQDNs cannot match any other server or pool FQDN in the forest.
 - The pool FQDN must be added as a DNS host entry (an A record) to enable SIP invite sessions and messages to work correctly. Clients need to be able to resolve the Pool FQDN with DNS.
- The FQDN of each server in the Enterprise pool is correct. Changing the FQDN of a Live Communications Server after deployment is not supported.
- Verify that the TEMP folder is not encrypted. If the folder specified by the TEMP environment variable is encrypted, LCS 2005 with SP1 Enterprise Edition Setup will fail. To successfully install Enterprise Edition Server, you must identify the Temp folder, determine whether it is encrypted, and if so, assign the TEMP variable to a folder that is not encrypted.

To Identify the Temp Folder

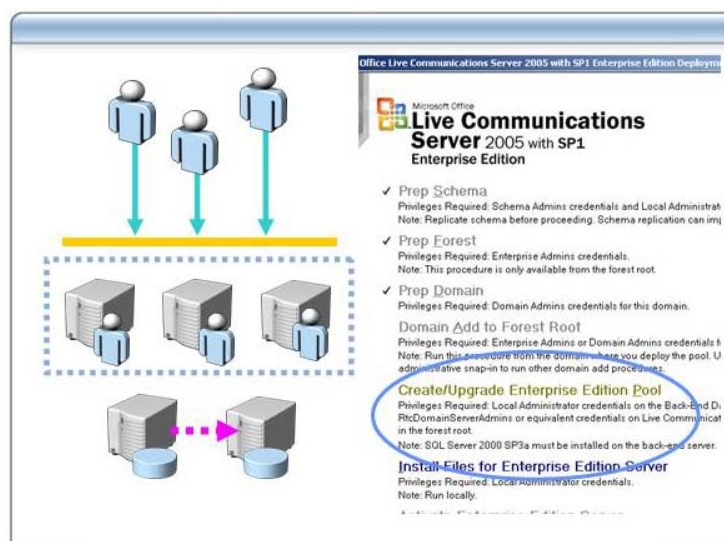
Open a command prompt and type **SET**. The output of this command shows the environment variables and their current values. The identification of the TEMP environment variable follows the format **TEMP=** entry in the console output. The default location for the TEMP folder is **C:\Documents and Settings\username\Local Settings**, where *username* is the name of the currently logged-on user.

Determine if Temp is Encrypted

To determine whether the TEMP folder is encrypted:

1. Double-click **My Computer**.
2. Navigate to **C:\Documents and Settings\username\Local Settings**.
3. Right-click the **Temp** folder.
4. Click **Properties**.
5. On the **General** tab, click **Advanced**.
6. If there is a check mark in the **Encrypt contents to secure data** check box, the folder is encrypted. If the check box is clear, the folder is not encrypted.

Creating the Enterprise Edition Pool



Introduction

This section provides step-by-step instructions for deploying an Enterprise pool by using Setup.exe, a GUI deployment tool that guides you through the required deployment procedures for different LCS 2005 with SP1 server roles.

Creating a Pool Using Setup

To create an Enterprise Pool:

1. Log on to a server in the forest with an account that is a member of the RTCDomainServerAdmins group and is a local administrator on the back-end server.
2. From the LCS 2005 with SP1 installation folder or product CD, run **Setup.exe** to start the Deployment Tool.
3. In the Deployment Tool, click **Enterprise Pool**. Check marks will appear next to the Prep Schema, Prep Forest and Prep Domain steps, because these steps should have already been completed.

Note This example assumes that the pool is being created in a single domain environment, so the Domain Add to Forest Root task is unavailable because this task is unnecessary.

4. Click **Create/Upgrade Enterprise Edition Pool**. This task is available even after you create your pool, because after you have completed your Active Directory preparation tasks, you can use it to create additional pools.
5. On the **Welcome to the Create Enterprise Pool** page, click **Next**.
6. On the **Create Enterprise Pool** page, under **Enter a pool name**, type a meaningful name for the pool.
7. Under **Enter the FQDN for the domain where the pool resides**, type the FQDN of the domain where you are installing the pool. All servers that you add to this pool must be in the pool's domain.

8. Under **Enter pool Back-End Database SQL server instance**, enter the name of the SQL server that will host LCS 2005 with SP1 back-end database.

Note Each pool must use a separate back-end database instance. Two pools cannot share the same LCS 2005 with SP1 back-end database instance.

9. Click **Next**.
10. On the **Option for Re-Using Existing Database** page, leave the checkbox cleared. Only click the option to replace any existing database if you want to overwrite an existing user database. By default, Setup will attempt to re-use any database files in the location you specify later in the wizard

Caution If you overwrite a database, all data in that database will be lost.

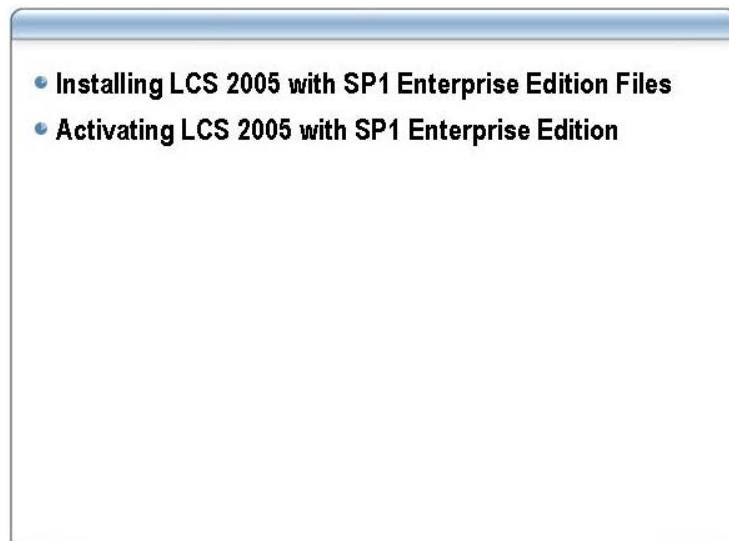
11. On the **Choose Destination Locations** page, select the locations where the SQL database and transaction logs will be stored.
12. Click **Next**.

Tip Placing your transaction logs and database files on separate physical hard disks is recommended. Ensure that the files are not placed on a page file or system disk. For more information about storing files on separate hard disks, see the Microsoft Office Live Communications Server 2005 Planning Guide at <http://office.microsoft.com/en-us/FX011450741033.aspx>.

13. On the **Ready to Create Enterprise Pool** page, review your selections and click **Next**.
14. On the **Create Enterprise Pool Wizard has completed** page, click **View Log** to see the XML log output which has a verbose list of the procedure actions. Look for Success status under the Execution Result column at the end of each task to verify that installation completed successfully. Close the Log window when you are finished.
15. Click **Finish** to close the wizard.

Tip Before activating the first server in the pool, wait for Active Directory replication among all domain controllers to complete, or force replication manually.

Lesson: Installing Live Communications Server 2005 with SP1 Enterprise Edition



Introduction

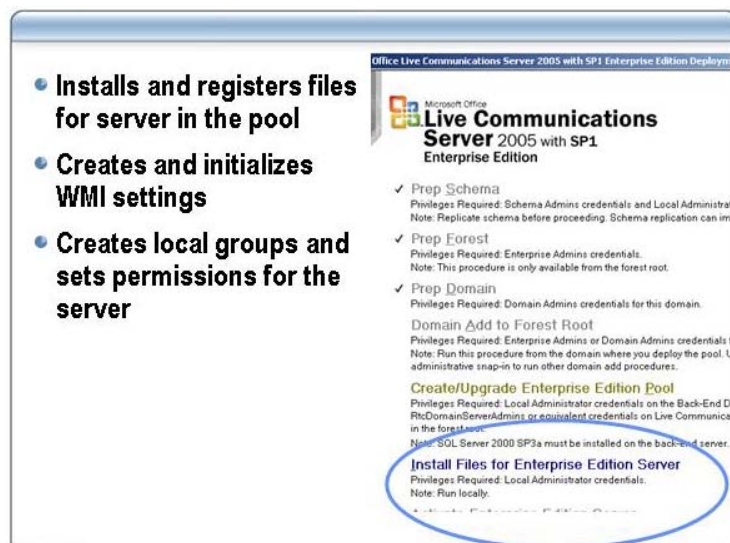
You install the LCS 2005 with SP1 Enterprise Edition files on each server within the pool by using the Deployment Tool Wizard. This procedure will install and register the files for each server within a pool, create and initialize the WMI settings, create local groups and configure their permissions. In this lesson you will learn how to install the LCS 2005 with SP1 Enterprise Edition files, and then you will learn how to activate the server to make it available to your clients.

Lesson objectives

After completing this lesson, you will be able to:

- Install LCS 2005 with SP1 Enterprise Edition files.
- Activate LCS 2005 with SP1 Enterprise Edition.

Installing LCS 2005 with SP1 Enterprise Edition Files



Introduction

You must run this procedure locally from the server where the LCS 2005 with SP1 Enterprise Edition files will be installed. This task requires that the user running setup has local Administrator credentials on the computer.

Caution Even though the lab exercises in this course specify installing the Enterprise Edition server files on the same server as the back-end database, this is purely to minimize the required number of virtual machines. This configuration is not recommended or supported in any way.

On each server within an Enterprise pool, you must install the Enterprise Edition files. The installation process performs the following tasks:

- Installs and registers the files for the server in the pool.
- Creates and initializes the WMI settings.
- Creates local groups and sets up permissions for this server.

Important For security reasons, installing an Enterprise Edition server or an Enterprise Pool back-end database on a domain controller is not recommended. This is because Setup adds the RTCDomainServerAdmins group to the computer's local Administrators group to enable permissions to manage the Live Communications Server infrastructure. On a domain controller, the local administrators group is actually the domain's administrative group, which would give RTCDomainServerAdmins group an escalation of privileges.

Installing LCS 2005 with SP1

To install LCS 2005 with SP1 Enterprise Edition files using the Deployment Tool:

1. Log on to the server where you want to install the files by using the local administrator or equivalent credentials.

Note If you want to activate the server immediately after installation, Domain Admins and RTCDomainServerAdmins credentials are also required. However, if you are activating within the forest root domain, only Domain Admins credentials are required.

1. In the LCS 2005 with SP1 install folder or CD, run **Setup.exe** to start the Deployment Tool.
2. Click **Enterprise Pool**.
3. Click **Install Files for Enterprise Edition Server**. The LCS 2005 Setup Wizard starts.
4. On the **Welcome to the Setup Wizard for Microsoft Office Live Communications Server 2005** page, click **Next**.
5. On the **License Agreement** page, read the license agreement, and if you agree, click **I accept the terms in the license agreement**, and then click **Next**.
6. On the **Customer Information** page, in **User name**, type a user name, in **Organization**, type the name of your organization and under **Product key**, type your LCS 2005 with SP1 product key.

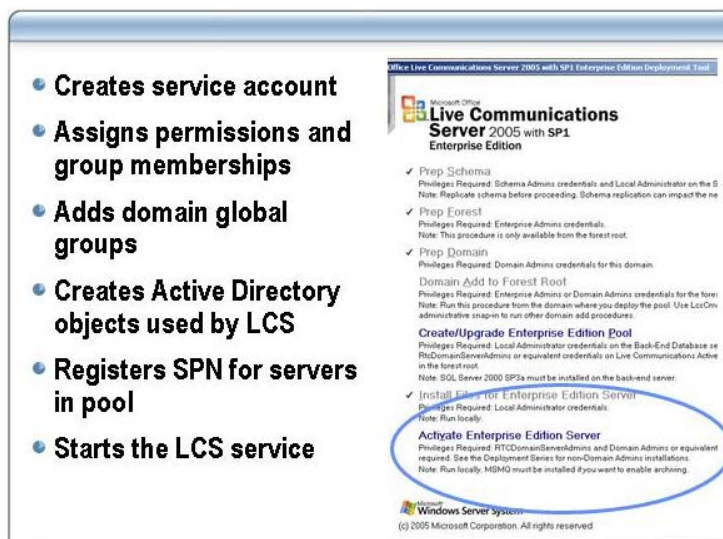
Note If you are using a volume license CD, the product key field is configured for you, so the product key field does not appear in the dialog box.

7. Click **Next**.
8. On the **Choose Destination Location** page, accept the default destination folder or specify another directory where you want to install the LCS 2005 files. By default the files are installed in the <drive letter>:\Program Files\Microsoft LC 2005\Server directory.
9. Click **Next**.
10. On the **Ready to Install the Program** page, confirm chosen settings, and then click **Install**.
11. On the **Setup Wizard Completed** page, click **Finish**.

The installation procedure copies the files to the local computer, but it does not run the actual setup and activation of an Enterprise Edition Server. After the installation process completes, the activation process performs additional configuration settings to allow the service to start.
12. In the **Server Activation** message box, do one of the following:
 - a. Click **Yes** if you want to activate the server now.
 - b. Click **No** if you want to activate the server later.

For these steps, we will assume that you will activate the server later.

Activating LCS 2005 with SP1 Enterprise Edition



Introduction

The **Install Files for Enterprise Edition Server** procedure is effectively only a file installation task, because when it completes, although the Live Communications Server service is installed on the computer, you still need to activate the server for the service to start and begin servicing clients.

The **Activate Enterprise Edition Server** procedure configures a server within a pool in Active Directory and on the server itself to enable each Live Communications Server service (RtcSrv.exe) to start.

Activation performs the following tasks:

- Creates or configures a service account.
- Assigns permissions and group memberships to the service account.
- Adds domain global groups to the local Enterprise Edition Server groups.
- Creates or modifies Active Directory objects used by LCS 2005 with SP1, including the Pool and Server objects.
- Registers the Service Principal Name (SPN), which is required for the servers within the pool to provide client and server authentication.
- Starts the Live Communications Server service.

To activate a server, you must use an account with Domain Admins or equivalent credentials in the domain where the pool is being deployed. In a domain outside of the forest root domain, the account must also have RTCDomainServerAdmins credentials.

Activating LCS 2005 with SP1

To activate LCS 2005 with SP1:

1. Log on to the computer where you want to deploy your Live Communications Server by using Domain Admins and RTCDomainServerAdmins or equivalent credentials.
2. From the Live Communications Server install folder or CD, run **Setup.exe** to start the Deployment Tool.
3. Click **Enterprise Pool**.
4. Click **Activate Enterprise Edition Server**. This task is unavailable if you have not already installed the files first.
5. On the **Welcome to the Activate Enterprise Edition Server Wizard** page, click **Next**.
6. On the **Select Enterprise Pool** page, select the pool to which you want to add this server, and then click **Next**.
7. On the **Select Service Account** page, type the name of a new or existing service account to use for this server, and type in the password. The default account is **LCService**. For a new account, ensure that you use a strong password that meets your organization's Active Directory password requirements.
8. Click **Next** to continue.

Warning LCS 2005 with SP1 does not support the "Smart card is required for interactive logon" user account option on any Live Communications Server service accounts. If the Live Communications Server service account is configured this way, the Live Communications Server service will not start, and clients will not be able to log on to their SIP server.

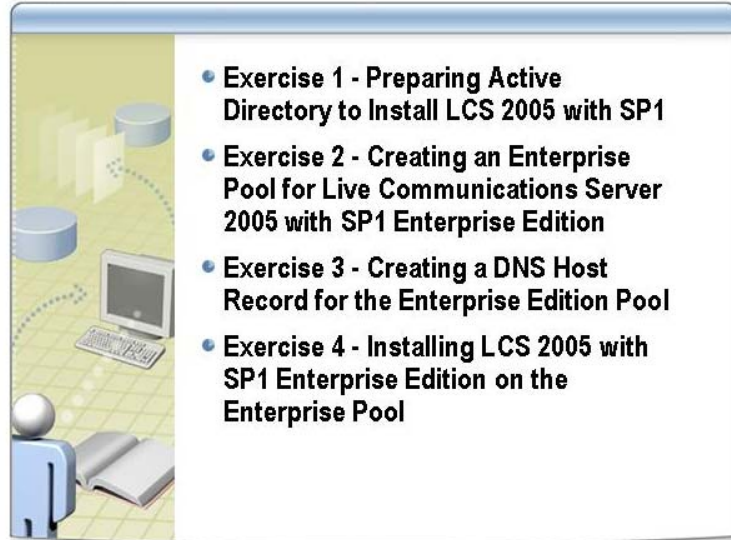
9. On the **Option to Enable IM Archiving** page, leave the check box cleared. Only click Enable Archiving Agent if you have already installed MSMQ on your server and an Archiving Server is set up for this pool. See the lesson, "*Deploying the Archiving Service*" in Module 12, "Archiving Messages with Live Communications Server 2005 with SP1" later in this course for more information.
10. Click **Next** to continue.
11. On the **Start Service Option** page, clear the **Start the service after activation** check box, so that the service does not start at the end of the activation procedure. It is best practice to clear this option so that certain settings on the server can be configured before you start the service or to wait for Active Directory settings created in the activation procedure to finish replicating among domain controllers.

Note If the service cannot start because required Active Directory settings have not replicated, activation will complete, but it will not start the service. After replication completes, you can manually start the service.

12. Click **Next**.
13. On the **Ready to Activate Enterprise Edition Server** page, review your selections, and then click **Next** to begin.

14. On the **Activate Enterprise Edition Server Wizard has completed** page, click **View Log**. Look for a Success status under the Execution Result column at the end of each task to verify that installation completed successfully. Close the log window when you have finished.
15. Click **Finish** to close the wizard.

Lab 2a: Installing LCS 2005 with SP1 Enterprise Edition



Objectives

After completing this lab, you will be able to:

- Prepare an Active Directory schema, a forest, and a domain, for a LCS 2005 with SP1 deployment.
- Create an Enterprise Edition pool for a LCS 2005 with SP1 deployment.
- Configure host records in DNS for the Enterprise pool.
- Install LCS 2005 with SP1 on an Enterprise pool.

Estimated time to complete this lab: **30 minutes**



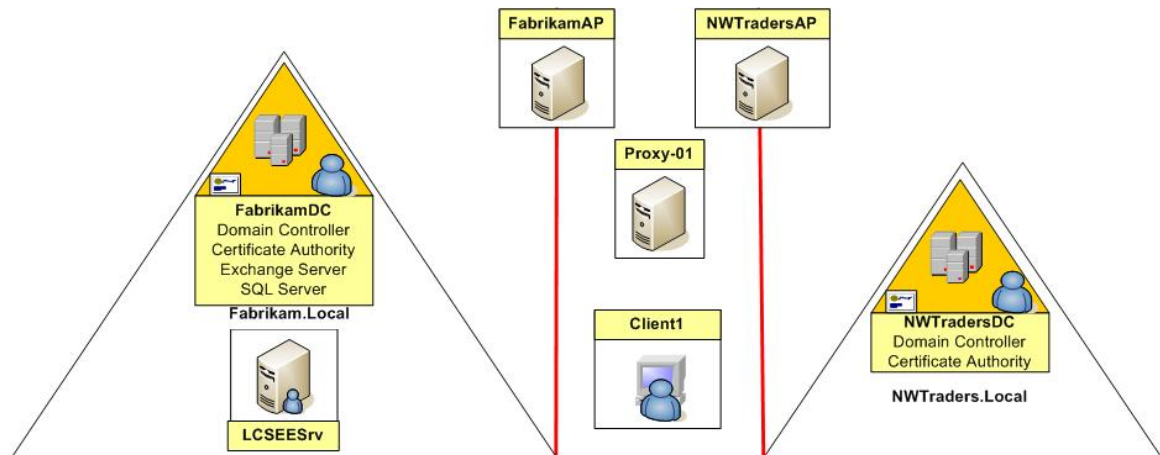
Important: At the end of this lab, leave the VPC images running.

Introduction

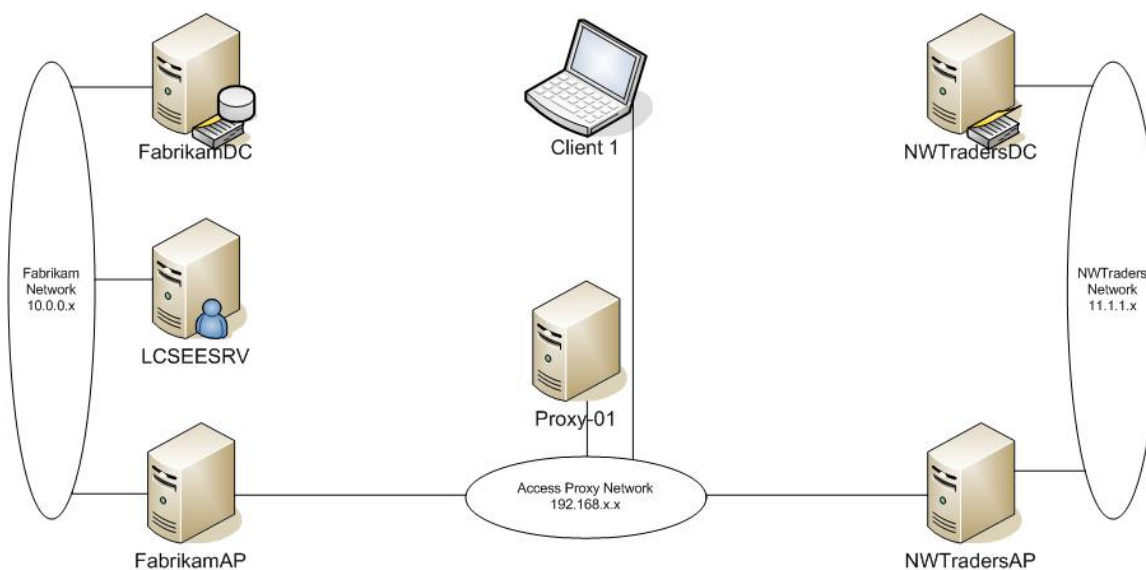
In this lab, you will take on the role of Matt Dawson, administrator for the Fabrikam network. You will prepare Active Directory for an installation of LCS 2005 with SP1 by running the preparation steps for the schema, the forest and the domain. You will then create an Enterprise pool and configure a host record for the pool in DNS. Lastly you will install and activate LCS 2005 with SP1 on two servers in the Enterprise pool.

Network Topology

The labs in this course use virtual machines. In order to configure the virtual machines to be usable in a lab environment, the network topology has been substantially modified from a typical network configuration. The lab configuration combines many server roles in non-standard ways that are not recommended and are generally not viable in a production network. The network topology used in these labs is shown in the following figure.



Physical Network Topology



Virtual PC Image to Computer NetBIOS Name Mappings

The following table shows the mapping between the VPC images and the computer NetBIOS names for this lab. Please ensure you use the correct VPC image from the VPC console to start the lab.

VPC Configuration Name	Computer NetBIOS Name
7034A-FabrikamDC-A	FabrikamDC
7034A-LCSEESRV-A	LCSEESRV



Important: You should start all these virtual PC images prior to commencing the labs in this module.

On 7034A-FabrikamDC-D, a Service Control Manager message box may appear, with the following message: At least one service or driver failed during system startup. Use Event Viewer to examine the event log for details. If this message appears, click OK, and continue. The message refers to the Kerberos Key Distribution Center service. However, the service appears to start properly.

Do NOT close down the VPC images at the end of this lab.

Exercise 1

Preparing Active Directory to Install LCS 2005 with SP1

Scenario




LCS 2005 with SP1 requires a healthy network that includes an Active Directory domain in order to function. To deploy LCS 2005 with SP1, Matt Dawson, the Fabrikam network administrator, must first properly prepare the network.







Description

In this exercise, you will prepare the Active Directory schema, prepare the forest, and prepare the domain. The Prep Schema step extends the schema in Active Directory to include classes and attributes specific to LCS 2005 with SP1. This is the first procedure you need to run to prepare your environment for a deployment of LCS 2005 with SP1. This procedure is required and run only once in the Active Directory forest. LCS 2005 with SP1 adds new classes, attributes, and objects to the Active Directory schema.

The Prep Forest step creates Live Communications Server objects in the forest root domain Systems container that contain global settings and information about your Live Communications Server deployment. Prep Forest also creates Live Communications Server objects in the Configuration container that contain property sets and display specifiers used by Live Communications Server. This task is run once in each forest.

The Prep Domain step creates domain global groups for Live Communications Servers and administrators, and gives these groups permissions to host and manage users within the domain. Prep Domain is required in all domains where you want to deploy Live Communications Servers. The task is run once in each domain.

Tasks	Detailed Steps
 Important: Perform this exercise on the 7034A-FabrikamDC-A virtual machine.	
1. Prepare the Active Directory Schema for LCS 2005 with SP1.	<ol style="list-style-type: none"> a. Log on to 7034A-FabrikamDC-A as Administrator with a password of pass@word1. b. Click Start, and then click My Computer. c. Navigate to E:\Demo Files\LCS2005SP1\EE\SETUP\I386, and then double-click Setup.exe. d. Click Enterprise Pool. e. Click Prep Schema. <div style="margin-top: 10px;">  <i>Notice the privileges required to perform this action. You must be a local Administrator on the Schema Master and be a member of the Schema Admins group.</i> </div> f. On the Welcome page, click Next. g. On the Specify Directory Location of Schema Files page, click Next. h. On the Ready to Prepare Active Directory Schema page, click Next. <div style="margin-top: 10px;">  <i>The wizard will take a few minutes to upload the schema. The time it takes will vary depending on your hardware specification.</i> </div>

	<ul style="list-style-type: none"> i. Click View Log. j. In the Information Bar message box, click Do not show this message again, and then click OK. k. Click the information bar at the top of the page and select Allow Blocked Content. In the Security Warning dialog box, click Yes. l. Click Execute Action to expand it. m. Click Schema Prep to expand it. <p> <i>Notice the detailed schema information in the Action Information column, and the Success status in the Execution Result column.</i></p> <ul style="list-style-type: none"> n. Close the Internet Explorer window. o. Click Finish.
<p>2. Prepare the Active Directory forest for LCS 2005 with SP1.</p>	<ul style="list-style-type: none"> a. Click Prep Forest. <p> <i>Notice the privileges required to perform this action. You must be a member of the Enterprise Admins group. Note also that you can only perform this task on the forest root.</i></p> <ul style="list-style-type: none"> b. On the Welcome page, click Next. c. On the Ready to Run Forest Preparation page, click Next. d. When the wizard has completed, click View Log. e. Click the information bar at the top of the page and select Allow Blocked Content. In the Security Warning dialog box, click Yes. f. Click Execute Action to expand it. g. Click Forest Prep to expand it. <p> <i>Notice all the different actions that have been performed in the Action column and the Success status in the Execution Result column.</i></p> <ul style="list-style-type: none"> h. Close the Internet Explorer window. i. Click Finish.
<p>3. Prepare the Active Directory domain for LCS 2005 with SP1.</p>	<ul style="list-style-type: none"> a. Click Prep Domain. <p> <i>Notice the privileges required to perform this action. You must be a member of the Domain Admins group..</i></p> <ul style="list-style-type: none"> b. On the Welcome page, click Next. c. On the Ready to Run Domain Preparation page, click Next. <p> <i>The wizard will take a few minutes to create the domain global groups required for LCS, and to assign them the necessary permissions on Active Directory objects.</i></p> <ul style="list-style-type: none"> d. Click View Log. e. Click the information bar at the top of the page and select Allow Blocked Content. In the Security Warning dialog box, click Yes. f. Click Execute Action to expand it. g. Click Domain Prep to expand it. <p> <i>Notice the different actions in the Action column, and the Success status in the Execution Result column.</i></p> <ul style="list-style-type: none"> h. Close the Internet Explorer window. i. Click Finish.

Exercise 2



Creating an Enterprise Pool for Live Communications Server 2005 with SP1 Enterprise Edition





Scenario

The Fabrikam LCS design calls for increased reliability and fault tolerance, so makes use of the new concept of a server pool in LCS 2005 with SP1, Enterprise Edition. A server pool consists of a group of Enterprise Edition front-end servers connected to a separate, back-end shared SQL Server database. This two-tier architecture enables Enterprise Edition to deliver substantial improvements in availability, scalability, performance and data recovery.

Description

In this exercise, you will create an Enterprise Edition server pool in the Fabrikam domain.

Tasks	Detailed Steps
 Important: Perform this exercise on the 7034A-FabrikamDC-A virtual machine.	
1. Create an Enterprise Edition Pool.	<p>a. Click Create/Upgrade Enterprise Edition Pool.</p> <p> <i>Note the privileges required to perform this action. Because this step creates the pool's back-end database, and the required Active Directory objects, you must have local Administrator credentials on the SQL Server, and at least RTCDomainServerAdmins credentials on the domain. The RTCDomainServerAdmins security group provides the ability to manage all of the LCS servers within a given domain.</i></p> <p>b. On the Welcome page, click Next.</p> <p>c. On the Create Enterprise Pool page, in the Enter a pool name box, type EEPool1 (NOTE: The last character is the number 1).</p> <p>d. In the Enter the FQDN for the domain where the pool resides box, type Fabrikam.local.</p> <p>e. In the Enter pool Back-End Database SQL server instance box, type FabrikamDC.</p> <p>f. Click Next.</p> <p>g. On the Option for Re-Using Existing Database page, leave the Replace any existing database check box cleared, and click Next.</p> <p>h. On the Choose Destination Locations page, leave the default locations for database and log files, and click Next.</p> <p>i. On the Ready to Create Enterprise Pool page, review and verify the summary information in the Current Settings window, and then click Next.</p> <p>j. Click View Log.</p>

	<p>k. Click in the information bar at the top of the page and select Allow Blocked Content. In the Security Warning dialog box, click Yes.</p> <p>l. Click Execute Action to expand it.</p> <p>m. Click Create Pool to expand it.</p> <p> <i>Notice the different actions in the Action column, the detail in the Action Information column, and the Success status in the Execution Result column.</i></p> <p>n. Scroll down the log window to Validate Pool FQDN DNS registration at the bottom.</p> <p> <i>Note the warning in the Execution Result column. This is expected because we do not have a host record registered for the pool in DNS yet. We will create this record in the next exercise.</i></p> <p>o. Close the Internet Explorer window.</p> <p>p. Click Finish.</p> <p> <i>Notice that the option to Create/Upgrade Enterprise Edition Pool is still available. This is because there can be any number of pools in a forest.</i></p> <p>q. Click Close.</p> <p> <i>Note: Because of screen resolution issues with Virtual PC, you may find that you cannot see the Close button. If this is the case, you can enter Full Screen mode by pressing Right-Alt+ENTER.</i></p> <p>r. Click Exit.</p>
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Exercise 3


Creating a DNS Host Record for the Enterprise Edition Pool

Scenario

Now that the network administrator has created an Enterprise Edition pool, he needs to ensure that the name of the pool is resolvable by clients. This requires him to create a host record for the enterprise pool in DNS.

Description

In this exercise, you will create a host record for the Enterprise Edition pool in DNS on FabrikamDC, and then verify that the name of the pool can be resolved.

Tasks	Detailed Steps
 Important: Perform this exercise on the 7034A-FabrikamDC-A virtual machine.	
1. Create a host record in DNS for the Enterprise Pool.	<ol style="list-style-type: none"> You should still be logged on to 7034A-FabrikamDC-A as Administrator of Fabrikam. Click Start, point to All Programs, Administrative Tools, and then click DNS. In the console tree, expand FABRIKAMDC. Expand Forward Lookup Zones. Right-click Fabrikam.local. Click New Host (A). In the Name box, type EEPool1 (NOTE: The last character is the number 1). In the IP Address box, type 10.0.0.10. Click Add Host. Click OK. Click Done. Close the DNS Management console.
2. Verify that the DNS record has been created successfully.	<ol style="list-style-type: none"> Click Start, and then click Run. Type cmd, and then click OK. The Command Prompt window opens. At the command prompt, type ipconfig /flushdns, and then press ENTER to refresh the DNS cache. At the command prompt, type ping EEPool1.Fabrikam.local, and then press ENTER. You should see a reply returned from IP address 10.0.0.10. At the command prompt, type exit, and then press ENTER to close the command prompt window.

Exercise 4





Installing LCS 2005 with SP1 Enterprise Edition on the Enterprise Pool

Scenario

Now that the network administrator has prepared Active Directory and created an Enterprise Edition pool for LCS, he can install LCS 2005 with SP1 on the two servers that will make up the Enterprise pool.

Description

In this exercise, you will install and activate LCS 2005 with SP1 on the two servers in the Fabrikam domain that will host the Enterprise pool.

Tasks	Detailed Steps
 Important: Only perform this exercise on the first server in the pool, which is 7034A-FabrikamDC-A.	
1. Install LCS 2005 with SP1 on the FabrikamDC server.	<ol style="list-style-type: none"> On 7034A-FabrikamDC-A, click Start, and then click My Computer. Navigate to E:\Demo Files\LCS2005SP1\EE\Setup\I386, and then double-click Setup.exe. Click Enterprise Pool. Click Install Files for Enterprise Edition Server. <div>  <i>Notice that the only privileges required to perform this action are to be a local Administrator on the server. It will take a few minutes for the wizard to start.</i> </div> On the Welcome page, click Next. On the License Agreement page, select I accept the terms in the license agreement, and then click Next. On the Customer Information page, accept the defaults and click Next. On the Choose Destination Location page, click Next. On the Ready to Install the Program page, review and verify the current settings, and then click Install. <div>  <i>It will take several minutes for the product files to be installed, although the time it takes will vary depending on your hardware specification.</i> </div> On the Setup Wizard Completed page, click Finish. <div>  <i>Setup will now offer to activate your server. This can be done now or at a later stage.</i> </div> In the Server Activation dialog box, click No.

2. Activate LCS on FabrikamDC.

a. Click **Activate Enterprise Edition Server**.

Notice the privileges required to perform this action. You must have RTCDomainServerAdmins and Domain Admins credentials or equivalent.

b. On the **Welcome** page click **Next**.

Notice that this step assigns the server to a pool, creates objects in Active Directory and activates a service account for LCS.

c. On the **Select Enterprise Pool** page, select the **EETool1.Fabrikam.local** pool from the list, and click **Next**.d. On the **Select Service Account** page, leave **LCService** as the default account name, and then type **pass@word1** in the **Password** and **Confirm Password** boxes.e. Click **Next**.f. On the **Option to Enable IM Archiving** page, leave the **Enable Archiving Agent** check box cleared.g. Click **Next**.h. On the **Start Service Option** page, clear the **Start the service after activation** check box.i. Click **Next**.j. On the **Ready to Activate Enterprise Edition Server** page, review and verify the current settings, and then click **Next**.k. When the wizard has completed, click **View Log**.l. Click the information bar at the top of the page and select **Allow Blocked Content**. In the **Security Warning** dialog box, click **Yes**.m. Click **Execute Action** to expand it.n. Scroll down and click **Activate** to expand it.o. Click **Activate Enterprise Edition Server** to expand it.

Review the information about the pool, such as the Pool Name, Pool Backend, and Pool FQDN in the Action Information column.

p. Click **Check Pool State** to expand it.



Notice that Validate Pool FQDN DNS registration in the Action column has a DNS Record Count of 0x00000001 in the Action Information column.

q. Click **Activate Service** to expand it.

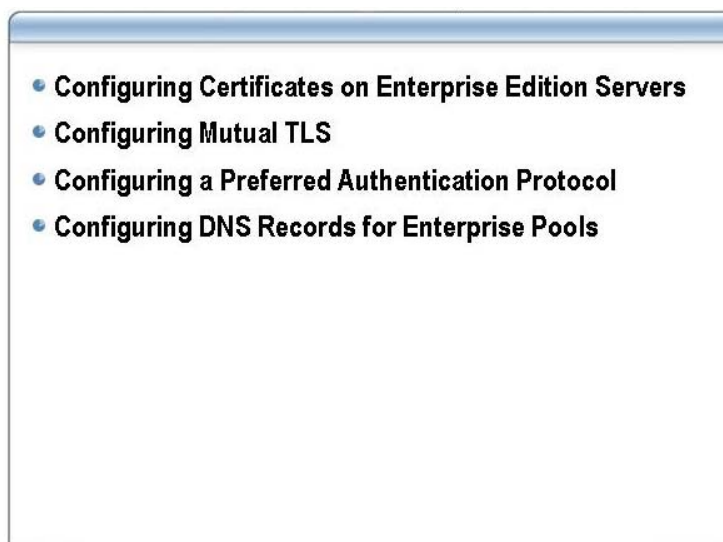
Notice that Grant Logon As Service Right in the Action column has FABRIKAM\LCService listed in the Action Information column.

r. Close the Internet Explorer window.

s. Click **Finish**.t. Click **Close**.u. Click **Exit**.

Tasks	Detailed Steps
 Important: Only perform this exercise on the second server in the pool, which is 7034A-LCSEESRV-A.	
<p>3. Install and activate LCS 2005 with SP1 on the LCSEESRV server.</p>	<ol style="list-style-type: none"> a. Log on to 7034A-LCSEESRV-A as Administrator with a password of pass@word1. b. Click Start, and then click My Computer. c. Navigate to E:\Demo Files\LCS2005SP1\EE\Setup\I386, and then double-click Setup.exe. d. Click Enterprise Pool. e. Click Install Files for Enterprise Edition Server. f. On the Welcome page, click Next. g. On the License Agreement page, select I accept the terms in the license agreement, and then click Next. h. On the Customer Information page, accept the defaults and then click Next. i. On the Choose Destination Location page, click Next. j. On the Ready to Install the Program page, review and verify the current settings, and then click Install. <p> <i>It will take several minutes for the product files to be installed, although the time it takes will vary depending on your hardware specification.</i></p> k. On the Setup Wizard Completed page, click Finish. l. In the Server Activation dialog box, click Yes. m. On the Welcome page, click Next. n. On the Select Enterprise Pool page, select the EEPool1.Fabrikam.local pool from the list, and then click Next. o. On the Select Service Account page, leave LCService as the existing account to use, and then type pass@word1 in the Password box. p. Click Next. q. On the Option to Enable IM Archiving page, leave the Enable Archiving Agent check box cleared. r. Click Next. s. On the Start Service Option page, clear the Start the service after activation check box. t. Click Next. u. On the Ready to Activate Enterprise Edition Server page, review and verify the current settings, and then click Next. v. When the wizard has completed, click Finish. w. Click Close. x. Click Exit. y. Leave the virtual computers running for Lab 2b.

Lesson: Configuring Live Communications Server 2005 with SP1 Enterprise Edition



Introduction

After initial setup of the pools and installation of the files, you need to run several post-setup initial configuration tasks.

To increase security you should configure TLS and certificates on your Live Communications Servers and clients. To implement TLS and certificates on your servers you must configure LCS 2005 with SP1 servers to use MTLS to communicate with other LCS 2005 with SP1 servers. This is required for IM communications between users to function correctly.

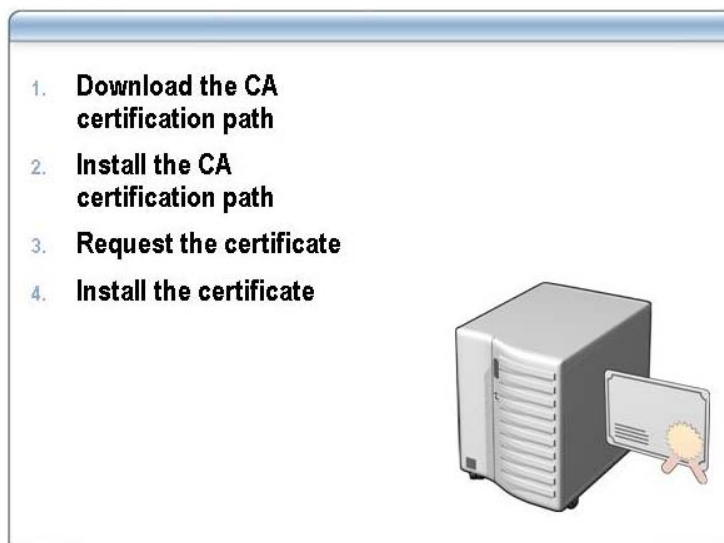
This lesson covers server certificate configuration, configuring MTLS connections, configuring a preferred authentication protocol, and configuring necessary DNS records. This lesson assumes that the organization already has a PKI and CA deployed.

Lesson objectives

After completing this lesson, you will be able to:

- Configure certificates for your Enterprise Edition servers.
- Configure Mutual TLS connections between servers in Enterprise pools.
- Configure a preferred authentication protocol.
- Configure DNS records for your Enterprise pool.

Configuring Certificates on Enterprise Edition Servers



Introduction

This topic explains how to configure certificates on your Enterprise Edition Servers using a Windows Server 2003 Enterprise CA. It assumes that you have deployed a PKI and an Enterprise CA on Windows Server 2003.

Note Before you install your certificates, refer to the *Microsoft Office Live Communications Server 2005 Certificate Configuration* guide in the **Additional Reading** materials provided with this course. This guide provides much more detail about the certificate requirements, other certificate configurations, certificate implementation best practices, and a broader explanation of how LCS 2005 with SP1 uses certificates.

Download the CA Certification Path

Use the following steps to download the CA certificate path:

1. On your Live Communications Server, click **Start**, click **Run**, type **http://<YourSubordinateCA>/certsrv**, and then click **OK**.
2. Under **Select a task**, click **Download a CA certificate, certificate chain, or CRL**.
3. Under **Download a CA Certificate, Certificate Chain, or CRL**, click **Download CA certificate chain**.
4. In the **File Download** dialog box, click **Save**.
5. Save the .p7b file on a drive on your server. This .p7b file contains the root CA and the subordinate CA certificates.

Install the CA Certification Path

Use the following steps to install the CA certificate path in the trusted root certifications authorities on each Enterprise Edition server:

1. Click **Start**, click **Run**, type **mmc**, and then click **OK**.
2. On the **File** menu, click **Add/Remove Snap-in**.
3. In the **Add/Remove Snap-in** dialog box, click **Add**.
4. Click **Certificates**, and then click **Add**.

5. Click **Computer account**, and then click **Next**.
6. In the **Select Computer** dialog box, ensure that **Local computer: (the computer this console is running on)** is selected, and then click **Finish**.
7. Click **Close** and then click **OK**.
8. In the navigation pane of the Certificates console, expand **Certificates (Local Computer)**.
9. Expand **Trusted Root Certification Authorities**.
10. Right-click **Certificates**, point to **All Tasks**, and then click **Import**.
11. On the Welcome page, click **Next**.
12. Click **Browse** and navigate to your saved CA certificate chain file.
13. In the **Files of type** drop-down list, select **PKCS #7 Certificates (*.spc;*.p7b)**, then select your CA certificate chain file and click **Open**.
14. Click **Next**.
15. Click **Next** to accept the default certificate store location, which is Trusted Root Certification Authorities.
16. Click **Finish**.
17. Click **OK**.

Request the Certificate

Use the following steps to request a certificate used for authentication on each server:

1. Open a Web browser, type **http://<YourSubordinateCA>/certsrv** and press ENTER.
2. Click **Request a certificate**.
3. Click **advanced certificate request**.
4. Click **Create and submit a request to this CA**.
5. Under **Certificate Template**, select the **Web Server** template.
6. Under **Identifying Information for Offline Template**, in the **Name** box, type the FQDN of your pool (for example; LCSPool.MyDomain.com).

Important For MTLS, you must ensure that the name in the Name box, which is the Subject field in the certificate, matches the FQDN of the Live Communications Server pool that will use the certificate.

7. Under **Key Options**, click the **Store certificate in the local computer certificate store** check box.
8. Click **Submit**.
9. In the **Potential Scripting Violation** dialog box, click **Yes**.

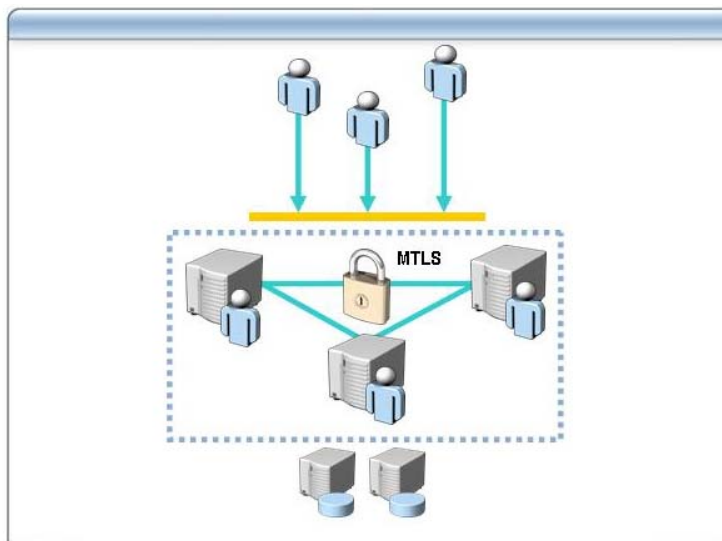
Install the Certificate

Use the following procedure to install the certificate:

1. Under **Certificate Issued**, click **Install this certificate**.
2. In the **Potential Scripting Violation** dialog box, click **Yes**.

Note If your CA requires CA administrator approval to issue a certificate, the administrator must manually approve or deny the certificate issuance request on the issuing CA.

Configuring Mutual TLS



Introduction

All server-to-server communications in Live Communications Server require MTLS. If you have multiple computers running Live Communications Server in your forest, you need to either deploy a Certification Authority (CA) or get certificates from a third-party CA such as VeriSign to enable MTLS.

You need to configure MTLS so that servers within the pool can route to other servers in the pool. Additionally, if you have multiple Enterprise pools in your LCS 2005 deployment, you will need to configure MTLS between the pools so that they can securely connect to each other.

Note A similar approach is required to configure TLS for client connections to your pool. For client connections, TLS is recommended to help increase security.

Configure an MTLS Connection

To configure an MTLS connection:

1. Click **Start**, point to **Programs**, point to **Administrative Tools**, and then click **Live Communications Server 2005**.
2. In the console tree, expand the **Forest - *YourForestName*** node.
3. Expand the **Domains** node.
4. Expand the ***YourDomainName*** node where the pool resides.
5. Expand the **Live Communications servers and pools** node.
6. Expand the ***YourPoolName*** node.
7. Right-click the FQDN of the server in the pool, and then click **Properties**.
8. On the **General** tab, click **Add**.
9. On the **Add Connection** page, under **Listen to**, select whether you want this connection to listen on all available IP addresses (default) or enter a specific IP address.
10. In the **Transport type** drop-down list, select **TLS**. This automatically selects the **Authenticate remote server (Mutual TLS)** check box and defaults the **Listen on this port** value to port **5061**.

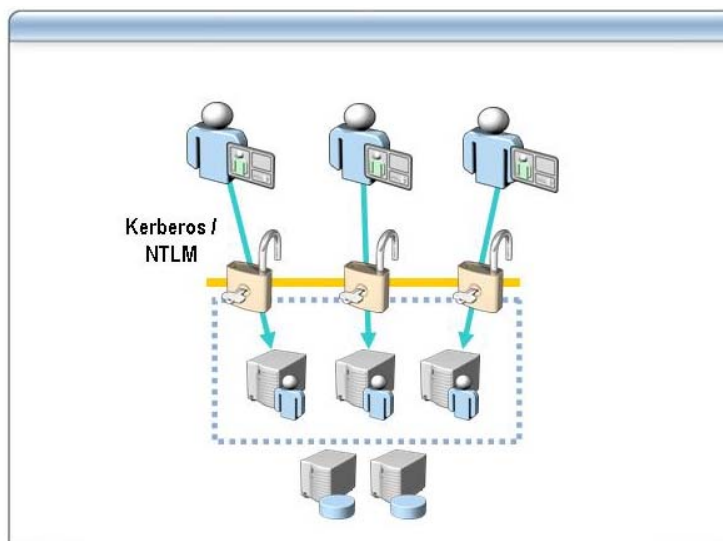
Caution The default port number 5061, for Authenticate remote server (Mutual TLS) must not be changed as servers expect to communicate with other servers over this port.

11. Click **Select Certificate**.
12. Select the computer certificate that you created with the FQDN of your pool (for example; LCSPool.MyDomain.com), and then click **OK**.
13. On the **Add Connection** page, click **OK**.
14. On the server's properties page, click **OK**.

You should now repeat this procedure for each of the servers in your Enterprise pool so that all servers are communicating with each other over MTLS.

Note Each server in the Enterprise pool needs to request their own certificate for the pool. You cannot copy one server certificate to another server by exporting and importing the certificate.

Configuring a Preferred Authentication Protocol



Introduction

LCS 2005 with SP1 supports both Kerberos and NT LAN Manager (NTLM) client authentication. Kerberos is the default authentication mechanism used and is the recommended method for authentication in a Live Communications Server 2005 with SP1 environment.

NTLM

You should use NTLM in any of the following situations:

- If you support remote user access from the outside through an Access Proxy server
- When you plan to deploy Windows Messenger 5.0 in a mixed domain environment
- If client computers are not part of the Active Directory domain
- If you are using a third-party client application that does not support Kerberos

Note NTLM versions 1 and 2 are supported and based upon domain controller configuration.

Kerberos and NTLM

You can also use NTLM and Kerberos together. In this scenario, a Kerberos client will choose Kerberos over NTLM. However, if Kerberos authentication fails, the client will not fall back to use NTLM instead, and the session will not be established. When logging in through an Access Proxy, only NTLM will be offered to the client.

The following procedure to configure your preferred client authentication protocol is only required if you are supporting (NTLM) authentication for some of your users, if you are supporting older client operating systems, for example.

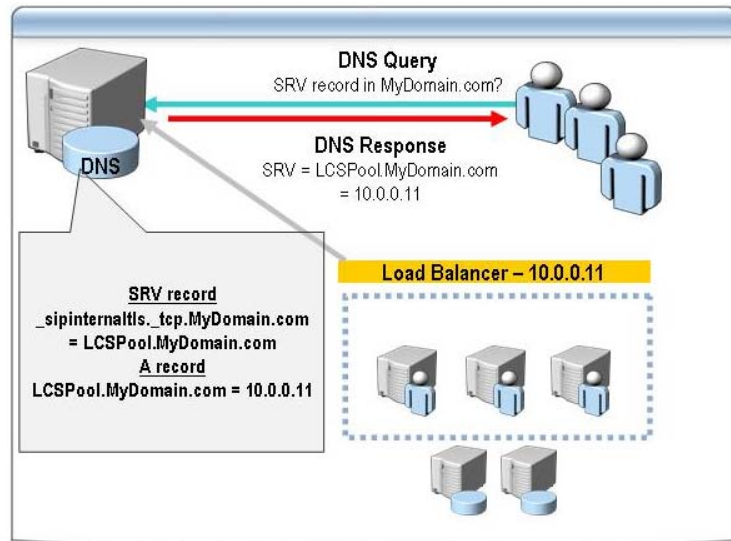
Configure the Preferred Authentication Protocol

To configure a preferred authentication protocol:

1. Click **Start**, point to **Programs**, point to **Administrative Tools**, and then click **Live Communications Server 2005**.
2. In the console tree, expand the **Forest - *YourForestName*** node.
3. Expand the **Domains** node.
4. Expand the ***YourDomainName*** node where the pool resides.
5. Expand the **Live Communications servers and pools** node.
6. Right-click the ***YourPoolName*** pool, and then click **Properties**.
7. Click the **Authentication** tab.
8. In the **Authentication protocol** drop-down list, select the authentication scheme that you want to be supported. You can choose from **Kerberos**, **NTLM**, or **Both NTLM and Kerberos**, which is the default value.

Important When the **Both NTLM and Kerberos** option is selected, authentication with Kerberos is always used when the client attempts to authenticate. If Kerberos authentication fails, the client does not fall back and attempt to use NTLM.

Configuring DNS Records for Enterprise Pools



Introduction

To use LCS 2005 with SP1, your clients must be able to resolve the FQDN of the Enterprise pool. There are two methodologies for provisioning the client to connect to the LCS 2005 with SP1 Enterprise pool.

- **Automatic Configuration.** The client will automatically query for a DNS SRV resource record and will either directly connect to, or be redirected to the correct Live Communications Server. This requires creating a DNS SRV resource record for your Enterprise pool, and the enabling of automatic configuration on the client. The pool FQDN must be resolvable by clients to enable SIP invite sessions and messages to work correctly.
- **Manual Configuration.** Client is preconfigured to connect to the FQDN or IP address of a specific server in the pool. Alternatively, this can be performed by manually providing the FQDN or virtual IP address of the pool. This can be achieved either by modifying each client's Hosts file, or a more efficient method is to configure the setting in the relevant registry key by using a Group Policy object.

Automatic Configuration

Automatic configuration of your clients is the recommended methodology for this, and it involves three steps:

- Creating a DNS Host (A) record for the pool that points to the virtual IP (VIP) address of the pool's load balancer
- Creating a DNS Resource (SRV) record for the FQDN of the Enterprise pool
- Enabling automatic configuration on your clients

Creating a DNS A Record for Your Enterprise Pool

For your clients to connect to your Enterprise pool, an A record must exist for the pool that points to the VIP of the load balancer connected to your pool. When a client connects to the Live Communications Server, DNS returns the first A record it finds for the host name.

To create the Live Communications Server A (host) record for your pool:

1. Click **Start**, point to **Programs**, point to **Administrative Tools**, and then click **DNS**.
2. In the console tree for your domain, expand **Forward Lookup Zones**.
3. Right-click the domain name, and click **New Host (A)**.
4. In the **Name** box, type the name of the Enterprise pool running LCS 2005 with SP1.
5. In **IP Address**, enter the virtual IP address of the load balancer to which the pool is connected. All client connections are routed through this load balancer to servers in the pool.
6. Click **Add Host**, click **OK**, and then click **Done**.

Creating a DNS SRV Record

To perform this procedure, you must be a member of the administrators group on the DNS server. This procedure assumes that you are using TLS and have only Communicator clients. To create a DNS SRV record:

1. Click **Start**, point to **Programs**, point to **Administrative Tools**, and then click **DNS**.
2. In the console tree for your domain, expand **Forward Lookup Zones**.
3. Click the name of your domain.
4. Right-click the domain name, and then click **Other New Records**.
5. In the **Resource Record Type** dialog box, scroll down and select **Service Location (SRV)**.
6. Click **Create Record**.
7. In the **New Resource Record** dialog box, in the **Service** field, type **_sipinternaltls** (this is not available in the drop-down list).
8. Verify that the **Protocol** field is set to **_tcp**.
9. In the **Port number** field, type **5061**.
10. In the **Host offering this service** field, type the FQDN of the pool (for example; LCSPool.MyDomain.com).
11. Click **OK**.
12. Click **Done**.

You should then use the PING command from a command prompt to verify that the FQDN of the pool can be resolved by DNS.

Enabling Automatic Client Configuration

After configuring the DNS SRV resource record, you can choose to automatically configure the connection settings in either Microsoft Office Communicator 2005 or Windows Messenger.

To enable automatic configuration for Office Communicator 2005 clients:

1. In Office Communicator 2005, click **Actions** on the main menu, and then click **Options**.
2. Click the **Accounts** tab.
3. Click **Advanced**.
4. On the **Advanced Connection Settings** page, click **Automatic configuration**, and then click **OK**.
5. On the **Options** page, click **OK**.

Lab 2b: Configuring LCS 2005 with SP1 Enterprise Edition



Objectives

After completing this lab, you will be able to:

- Create a certificate template that can be used with LCS.
- Install a certificate chain on the enterprise pool servers.
- Request and install a certificate from the organization's CA.
- Configure MTLS encryption between the enterprise pool servers and start the LCS service.
- Test IM functionality.

Estimated time to complete this lab: **45 minutes**



Important: At the end of this lab, shut down the virtual PC images and do not save changes.

Introduction

In the previous lab, you installed LCS 2005 with SP1, Enterprise Edition. In this lab, you configure the LCS servers to trust a certificate chain, then request a certificate for the enterprise pool and install that certificate on the servers. You then configure the servers for MTLS encryption, and finish by checking that Office Communicator 2005 can connect to the LCS 2005 with SP1 service.

Exercise 1


Create a Certificate Template for Use with LCS

Scenario

Fabrikam wants to implement the encryption facilities in LCS 2005 with SP1. Before the LCS administrator (Matt Dawson) can do this, he must create a certificate template. The LCS servers will then use a certificate based on this template for mutual encryption.

Description

In this exercise, you will duplicate a certificate template on the CA running on FabrikamDC. You then configure the CA so that it can issue certificates based on this template.

Tasks	Detailed Steps
 Important: Perform this exercise on the 7034A-FabrikamDC-A virtual machine.	
1. Create the custom management console.	<ol style="list-style-type: none"> Log on to 7034A-FabrikamDC-A as Administrator of Fabrikam. On the taskbar, click Start, and then click Run. Type mmc, and then click OK. Microsoft Management Console opens. On the File menu, click Add/Remove Snap-in. In the Add/Remove Snap-in dialog box, click Add. Select Certificate Templates, and then click Add. Select Certification Authority, and then click Add. Leave the computer selected at Local Computer: (the computer this console is running on). Click Finish. Click Close. Click OK.
2. Duplicate the Certificate Template	<ol style="list-style-type: none"> In the left pane, click Certificate Templates. If prompted, click OK to install Certificates. Right-click Computer, and then click Duplicate Template. On the General tab, type the template name LCS2005EE. On the Subject Name tab, choose the Supply in the request option button. On the Request Handling tab, select the Allow private key to be exported check box. Click OK.

<p>3. Configure the certificate template so that certificates can be issued based on this template.</p>	<ul style="list-style-type: none">a. Expand Certification Authority (Local).b. Expand EECA.c. Right-click Certificate Templates, point to New, and then click Certificate Template to Issue.d. Select the LCS2005EE template.e. Click OK.f. In the left pane, right-click EECA, point to All Tasks, and then click Stop Service.g. In the left pane, right-click EECA, point to All Tasks, and then click Start Service.h. Close Microsoft Management Console without saving changes.
<p>4. Force an update of Group Policy</p>	<ul style="list-style-type: none">a. On the taskbar, click Start, and then click Run.b. In the Run box, type cmd, and then click OK.c. Type gpupdate /force, and then press ENTER.d. Close the command prompt window.

Exercise 2


Install the Certificate Chain on the Enterprise Edition Servers

Scenario

Both LCS servers in the Fabrikam enterprise pool must be configured to trust the Fabrikam CA. This trust configuration also ensures that the servers will trust any certificates issued by that CA.

Description

In this exercise, you download the certificate chain from the Fabrikam CA onto FabrikamDC. You add that certificate chain to the Trusted Root Certification store on FabrikamDC. You then repeat this process for LCSEESRV.

Tasks	Detailed Steps
 Important: Perform parts 1 and 2 of this exercise on the 7034A-FabrikamDC-A virtual machine, and parts 3 and 4 on 7034A-LCSEESRV-A.	
1. Export the Certificate Chain as a File on FabrikamDC	<ol style="list-style-type: none"> You should still be logged on to 7034A-FabrikamDC-A as Administrator of Fabrikam. On the taskbar, click Start, and then click Run. Type http://FabrikamDC/certsrv, and then press the ENTER key. The Internet Explorer window will appear. If prompted, provide the Fabrikam Administrator credentials (FABRIKAM\administrator, pass@word1). In Select a task, click Download a CA certificate, certificate chain, or CRL. Click Download CA certificate chain. In the File Download dialog box, click Save. Save the file as C:\EE_Chain.p7b. Close the Download complete dialog box. Close the Internet Explorer window.
2. Install the Certificate Chain into the Trusted Root Certificate Store on FabrikamDC	<ol style="list-style-type: none"> On the taskbar, click Start, and then click Run. Type mmc, and then click OK. Microsoft Management Console opens. On the File menu, click Add/Remove Snap-in. In the Add/Remove Snap-in dialog box, click Add. In the Available Standalone Snap-ins list box, select Certificates, and then click Add. Select Computer account, and then click Next.

	<ul style="list-style-type: none"> g. In the Select Computer dialog box, make sure Local computer: (the computer this console is running on) is selected. h. Click Finish. i. Click Close. j. Click OK. k. In the left pane of the Certificates console, expand Certificates (Local Computer). l. Expand Trusted Root Certification Authorities. m. Right-click Certificates, point to All Tasks, and then click Import. n. In the Certificate Import Wizard, click Next. o. Click Browse, select the file where you saved the certificate, C:\EE_Chain.p7b, and then click Open. (Note: You may need to select “*.p7b” from the Files of type combo box.) p. Click Next. q. Leave the default value Place all certificates in the following store and ensure that Trusted Root Certification Authorities is displayed under Certificate store. r. Click Next. s. Click Finish. t. Click OK. u. Close the Microsoft Management Console without saving the changes.
3. Export the Certificate Chain as a File on LCSEESRV.	<ul style="list-style-type: none"> a. Log on to 7034A-LCSEESRV-A as Administrator of Fabrikam. b. On the taskbar, click Start, and then click Run. c. Type http://FabrikamDC/certsrv, and then click OK. d. Provide the Fabrikam Administrator credentials (FABRIKAM\administrator, pass@word1), if prompted. e. In Select a task, click Download a CA certificate, certificate chain, or CRL. f. Click Download CA certificate chain. g. In the File Download dialog box, click Save. h. Save the file as C:\EE_Chain.p7b. i. Close the Download complete dialog box. j. Close the Internet Explorer window.
4. Install the Certificate Chain into the Trusted Root Certificate Store on LCSEESRV	<ul style="list-style-type: none"> a. On 7034A-LCSEESRV-A, click Start, and then click Run. b. Type mmc, and then click OK. Microsoft Management Console opens. c. On the File menu, click Add/Remove Snap-in. d. In the Add/Remove Snap-in dialog box, click Add. e. In the Available Standalone Snap-ins list box, select Certificates,

	<p>and then click Add.</p> <ul style="list-style-type: none">f. Select Computer account, and then click Next.g. In the Select Computer dialog box, make sure Local computer: (the computer this console is running on) is selected.h. Click Finish.i. Click Close.j. Click OK.k. In the left pane of the Certificates console, expand Certificates (Local Computer).l. Expand Trusted Root Certification Authorities.m. Right-click Certificates, point to All Tasks, and then click Import.n. In the Certificate Import Wizard, click Next.o. Click Browse, select the file where you saved the certificate, C:\EE_Chain.p7b, and then click Open. (Note: In order to see the certificate you may need to choose “*.p7b” in the Files of type combo box.)p. Click Next.q. Leave the default value Place all certificates in the following store and ensure that Trusted Root Certification Authorities is displayed Certificate store.r. Click Next.s. Click Finish.t. Click OK.u. Close Microsoft Management Console without saving the changes.
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Exercise 3


Request and Install the Certificate on the Enterprise Edition Servers

Scenario

Although the Fabrikam network administrator has configured both enterprise pool servers to trust certificates issued by the Fabrikam CA, he must now request a certificate for both servers. It is essential that the common name for this certificate matches the FQDN of the enterprise pool.

Description

In this exercise, you use a browser to request a certificate from the Fabrikam CA for FabrikamDC. When you request the certificate, you select the certificate template that you created earlier in Exercise 1. After you have requested the certificate, you install the certificate on the server. You then repeat the process for LCSEESRV.

Tasks	Detailed Steps
 Important: Perform part 1 of this exercise on the 7034A-FabrikamDC-A virtual machine, and part 2 on 7034A-LCSEESRV-A.	
1. Request and install the certificate on FabrikamDC.	<ol style="list-style-type: none"> a. Switch back to 7034A-FabrikamDC-A. You should still be logged on to 7034A-FabrikamDC-A as FABRIKAM\Administrator. b. On the taskbar, click Start, and then click Run. c. Type http://FabrikamDC/certsrv, and then click OK. d. Provide the Fabrikam Administrator (FABRIKAM\Administrator, pass@word1) credentials if prompted. e. In Select a task, click Request a certificate. f. In Request a Certificate, click advanced certificate request. g. In Advanced Certificate Request, click Create and submit a request to this CA. h. If you get an error at this time, stop and start the Certification Authority service. i. In Certificate Template, select the LCS2005EE template. j. In the Name field, type EEPool1.Fabrikam.local. k. In Key Options, select the Store certificate in the local computer certificate store check box, and then click Submit. l. In the Potential Scripting Violation dialog box, click Yes. m. Click Install this certificate. n. In the Potential Scripting Violation dialog box, click Yes. o. Close Internet Explorer.

<p>2. Request and install the certificate on LCSEESRV</p>	<ul style="list-style-type: none">a. Switch to the 7034A-LCSEESRV-A machine.b. On the taskbar, click Start, and then click Run.c. Type http://FabrikamDC/certsrv, and then click OK.d. Provide the Fabrikam\Administrator credentials if prompted.e. In Select a task, click Request a certificate.f. In Request a Certificate, click advanced certificate request.g. In Advanced Certificate Request, click Create and submit a request to this CA.h. In Certificate Template, select the LCS2005EE template.i. In the Name field, type EEPool1.Fabrikam.local.j. In Key Options, select the Store certificate in the local computer certificate store check box, and then click Submit.k. In the Potential Scripting Violation dialog box, click Yes.l. Click Install this certificate.m. In the Potential Scripting Violation dialog box, click Yes.n. Close Internet Explorer.
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Exercise 4


Add a Mutual TLS Connection on the Enterprise Edition Servers

Scenario

Both enterprise pool servers now have suitable certificates installed, so the Fabrikam network administrator can configure the servers to use MTLS. After MTLS has been configured, the administrator can start the LCS service on both servers.

Description

In this exercise, you will use the Live Communications Server console to configure MTLS communications on port 5061. For each enterprise pool server, you select the certificate that you were issued in Exercise 3. Finally, you confirm that the LCS service is running on both servers.

Tasks	Detailed Steps
 Important: Perform this exercise on the 7034A-FabrikamDC-A virtual machine.	
1. Configure MTLS on FabrikamDC	<ol style="list-style-type: none"> Switch to the 7034A-FabrikamDC-A machine On the taskbar, click Start, point to Administrative Tools, and then click Live Communications Server 2005. In the console tree, expand the Forest node. Expand the Domains node. Expand the Fabrikam.local node. Expand the Live Communications servers and pools node. Expand the eepool1 node. Right-click fabrikamdc.fabrikam.local, and then click Properties. On the General tab, click Add. On the Add Connection page, select TLS as the Transport type. This automatically selects the Authenticate remote server (Mutual TLS) check box and defaults the Listen on this port value to port 5061. Click Select Certificate. In the Select Certificate dialog box, select the computer certificate that you created. It will appear as Issued to EEPool1.Fabrikam.local. If a warning appears, click Yes. Click OK to close the Select Certificate dialog box. Click OK to close the Add Connection dialog box. Click OK to close the fabrikamdc.fabrikam.local Properties dialog box.

<p>2. Configure MTLs on LCSEESRV.</p>	<ul style="list-style-type: none">a. In the Microsoft Office Communications Server 2005 management console, right-click lcseesrv.fabrikam.local, and then click Properties.b. On the General tab, click Add.c. On the Add Connection page, select TLS as the Transport type. This automatically selects the Authenticate remote server (Mutual TLS) check box and defaults the Listen on this port value to port 5061.d. Click Select Certificate.e. Select the computer certificate that you created.f. Click OK to close the Select Certificate dialog box.g. Click OK to close the Add Connection dialog box.h. Click OK to close the lcseesrv.fabrikam.local Properties dialog box.
<p>3. Verify that the Live Communications Service is started on both servers.</p>	<ul style="list-style-type: none">a. In the Microsoft Office Communications Server 2005 management console, right-click fabrikamdc.fabrikam.local. If the Start option is available, click Start. Check that the server starts correctly.b. Right-click lcseesrv.fabrikam.local. If the Start option is available, click Start. Check that the server starts correctly.c. Close the Microsoft Office Communications Server 2005 management console.

Exercise 5


Verify Functionality

Scenario

Matt now wants to check that he has IM connectivity. To do this, he must enable his users (and himself) in Active Directory, and then see if he can log on to Windows Messenger. Finally, he'll add one of his co-workers from the pilot project and see if he can chat to that co-worker on IM.

Description

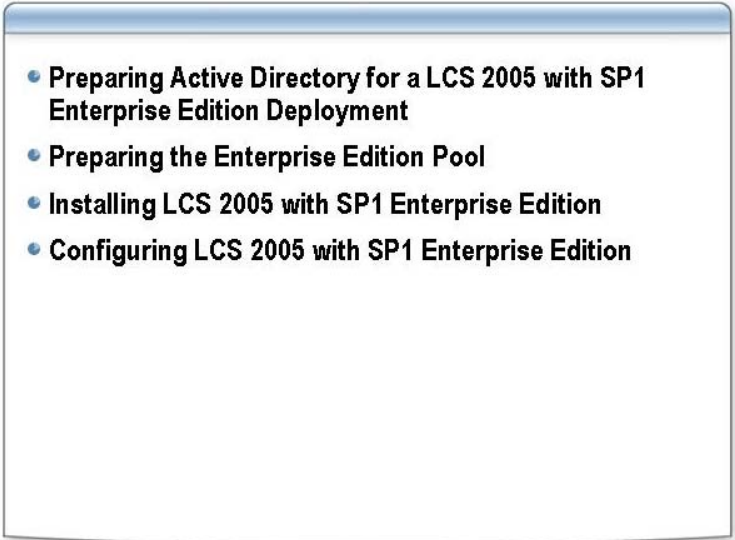
In this exercise, you use Active Directory Users and Computers to enable five users for Live Communications Server. You then log on to Windows Messenger as Matt Dawson on FabrikamDC, before switching to LCSEESRV and logging on to Office Communicator 2005 as Jim Kim. You add Matt as a contact for Jim, and then initiate an IM conversation between Matt and Jim. You can explore some of the other features of Office Communicator 2005 and Windows Messenger if you have time.

Tasks	Detailed Steps
 Important: Perform this exercise on the 7034A-FabrikamDC-A virtual machine.	
1. Configure User Accounts for Live Communications Server	<ol style="list-style-type: none"> a. Log on to 7034A-FabrikamDC-A as Administrator of Fabrikam. b. Click Start, point to click Administrative Tools, and then click Active Directory Users and Computers. c. In the console tree, expand your domain, Fabrikam.local. d. Select the LCSUsers organizational unit. e. Select the five users in this organizational unit, then right-click the selection and click Enable users for Live Communications. f. On the Welcome page, click Next. g. On the Select a Pool page, the only option showing should be EEPool1.fabrikam.local. Click Next. h. In the Enable Operation Status page, wait until the five operations all succeed, and then click Finish. i. Select the five users, right-click the selection, and then click Configure Live Communications Users. j. On the Welcome page, click Next. k. Check the Configure Federation and Configure Remote Access check boxes. l. Ensure that the Allow Users option is selected in both cases, and then click Next. m. In the Enable Operation Status page, wait until the five

	operations all succeed, and then click Finish .
2. Sign on to FabrikamDC as Matt Dawson	<ol style="list-style-type: none"> a. Switch to the 7034A-FabrikamDC-A machine b. On the taskbar, click Start, point to All Programs, and then click Windows Messenger. c. On the Tools menu, click Options. d. On the Accounts tab, select the My contacts include users of a SIP Communications Service check box. e. In the Sign-in name field, type matt@fabrikam.local. f. Click Advanced. g. Choose the Configure settings options button. h. In the Server name or IP address field, type eepool1.fabrikam.local. i. Choose TLS for connection type j. Click OK twice. k. Click Click here to sign in. <p style="margin-left: 40px;">Note: If you receive a warning that the SIP service is unavailable, restart the Live Communications Server service in the Services snap-in from Administrative Tools.</p> l. In the Sign-in name field and the User name field, type matt@fabrikam.local. m. In the Password box, type pass@word1 n. Click OK. o. In the Windows Messenger window, Matt Dawson should show as Online.
3. Configure Office Communicator 2005 on LCSEESRV.	<ol style="list-style-type: none"> a. Switch to the 7034A-LCSEESRV-A virtual machine. b. Click Start, point to All Programs, and click Microsoft Office Communicator 2005. c. If a The page cannot be displayed Internet Explorer Web page appears, close the window. d. In the Microsoft Office Communicator window, click the Actions menu, and then click Options. e. In the Options dialog box, click the Accounts tab. f. Click the Advanced button. g. In the Advanced Connection Settings dialog box, click Configure settings. h. In the Server name or IP address box, type eepool1.fabrikam.local. i. On the Connect using option, select TLS. j. Click OK to close the Advanced Configuration Settings dialog box.

	<ul style="list-style-type: none"> k. In the Sign-in name box, type jim@fabrikam.local, and click OK to close the Options dialog box. l. In the Microsoft Office Communicator window, click Sign In. m. In the Sign-In Account dialog box, in the User name box, type jim@fabrikam.local, in the Password box, type pass@word1, and then click OK. n. Office Communicator now shows Jim Kim as online.
4. Add a Contact for Matt Dawson	<ul style="list-style-type: none"> a. In the Microsoft Office Communicator window, click the Contacts menu, and click Add a Contact. b. In the Add a Contact page, select Search for a contact, and then click Next. c. On the next Add a Contact page, type Matt in the First Name box, and click Next. d. On the Search results page, click Matt Dawson, and then click Next. e. On the Success page, click Finish. f. Matt Dawson should now appear in the All Contacts list.
5. Check that instant messages can be exchanged	<ul style="list-style-type: none"> a. Switch back to 7034A-FabrikamDC-A. b. A Windows Messenger dialog box should appear, informing you that jim@fabrikam.local (jim@fabrikam.local) has added you to his/her contact list. c. Ensure that the Allow option is selected and that the option for Add this person to my contact list is checked, and then click OK. d. Double-click Jim Kim. e. In the Jim Kim Conversation window, type some text at the bottom of the window and click Send. f. Switch back to 7034A-LCSEESRV-A and click the flashing window in the task bar. g. Type a reply to the IM from Matt and click Send. h. Ensure that Kim and Matt can exchange messages.
6. Close all virtual machines and do not save changes	<ul style="list-style-type: none"> a. On the 7034A-LCSEESRV-A virtual computer window, click the Action menu, and click Close. b. In the Close dialog, select Turn off and delete changes. c. Click OK. d. Repeat for all remaining virtual computers.

Review

- 
- **Preparing Active Directory for a LCS 2005 with SP1 Enterprise Edition Deployment**
 - **Preparing the Enterprise Edition Pool**
 - **Installing LCS 2005 with SP1 Enterprise Edition**
 - **Configuring LCS 2005 with SP1 Enterprise Edition**

Planning and installing LCS 2005 with SP1 is central to a successful rollout, particularly because it requires you to install certificates to enable MTLS encryption. In this module, you saw how to:

- Prepare Active Directory for the deployment of LCS 2005 with SP1 Enterprise Edition.
- Prepare the Enterprise Edition pool for a LCS 2005 with SP1 Enterprise Edition deployment.
- Install LCS 2005 with SP1 Enterprise Edition.
- Configure LCS 2005 with SP1 Enterprise Edition for client access.

In the next module, you will carry out the equivalent installation process for a Standard Edition server, but from the command line.

