Microsoft®

Module 3: Deploying Live Communications Server 2005 with SP1 Standard Edition

Contents

Overview

Introduction

In the previous module, you learned how to install Microsoft® Live Communications Server 2005 with Service Pack 1 (LCS 2005 with SP1) Enterprise Edition using the graphical Deployment Tool. In this module, you will learn how to install the Standard Edition of LCS 2005 with SP1, and you will learn how to do it using command-line tools instead of a graphical user interface (GUI).

This module explains the procedure for preparing your Active Directory® infrastructure to deploy LCS 2005 with SP1 Standard Edition using command-line tools. It also explains how to install and activate LCS 2005 with SP1 Standard Edition using command-line tools. Finally, it explains how to deploy LCS 2005 with SP1 Standard Edition in a child domain.

The pre-installation and post-setup configuration steps do not differ greatly between Enterprise Edition and Standard Edition, so this module only covers the preparation, installation, and activation stages of a Standard Edition deployment of LCS 2005 with SP1.

Objectives

After completing this module, you will be able to:

- Use command-line tools to prepare Active Directory for the deployment of Live Communications Server 2005 with SP1 Standard Edition.

- Use command-line tools to install and activate LCS 2005 with SP1 Standard Edition.

- Install LCS 2005 with SP1 Standard Edition in a child domain.

Lesson: Preparing Active Directory for Standard Edition Deployment Using the Command Line
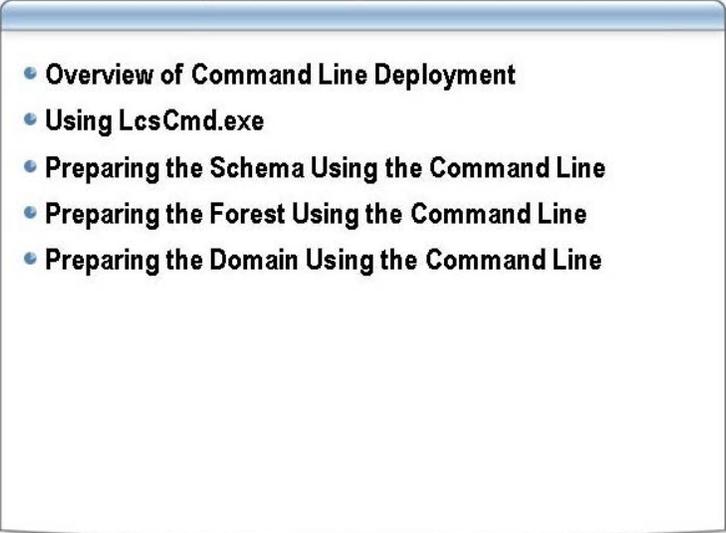
- **Overview of Command Line Deployment**
- **Using LcsCmd.exe**
- **Preparing the Schema Using the Command Line**
- **Preparing the Forest Using the Command Line**
- **Preparing the Domain Using the Command Line**

Introduction

In any new deployment of LCS 2005 with SP1 Standard Edition, you begin by preparing Active Directory before you deploy your first Standard Edition server. Preparing Active Directory for Live Communications Server 2005 with SP1 extends the schema and updates Active Directory objects in the forest and domain where you are installing your first server. In this lesson, you will learn how to use command-line tools to prepare Active Directory for a LCS 2005 with SP1 Standard Edition deployment.

Lesson objectives

After completing this lesson, you will be able to:

- Explain the command-line deployment method for LCS 2005 with SP1 Standard Edition.
- Use the LcsCmd.exe command-line deployment tool.
- Prepare an Active Directory schema for a LCS 2005 with SP1 Standard Edition deployment using command-line tools.
- Prepare a forest for a LCS 2005 with SP1 Standard Edition deployment using command-line tools.
- Prepare a domain for a LCS 2005 with SP1 Standard Edition deployment using command-line tools.

Overview of Command-Line Deployment
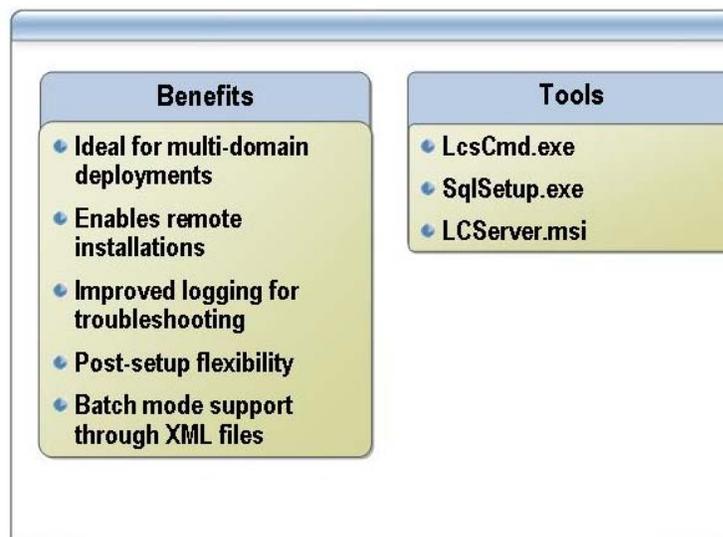
Introduction

As you learned in the previous module, you can deploy LCS (LCS) 2005 with SP1 by either of the following methods:

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

Command Line Deployment

The Deployment Tool can be ideal for installing a Live Communications Server in a simple single-domain topology. However, in a multi-domain environment, you may want to perform some of the installation steps remotely. In this case, it can be more efficient to use command-line tools to prepare the schema, forest, and domain, and to deploy the installation files to install LCS 2005 with SP1 Standard Edition.

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

Benefits of Using Command Line Tools for Installation

The command-line tools deployment method can provide several benefits over other deployment methods, including:

- **Better logging ability**. LCS 2005 command-line tasks provide verbose logging and error events that can be easily used for troubleshooting.
- **Post-setup flexibility**. An administrator can perform command-line tasks both during LCS setup and after the deployment is complete.
- **Batch Mode**. An administrator can perform multiple action tasks as defined in an XML file.
- **Full remote ability**. With the necessary permissions, an administrator can perform all command-line tasks remotely, with the exception of running MSI commands.

Command Line
Deployment Tools

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

- **LcsCmd.exe** can be used for almost all deployment procedures except for the installation of the files installed by LCServer.msi.

- **SqlSetup.exe** is required to install the instance of Microsoft Data Engine (MSDE) for LCS 2005 with SP1 Standard Edition.

- **LCServer.msi** is used to install the files used by LCS 2005 with SP1 Standard Edition. You should run the LCServer.msi file locally from the computer where you want to install LCS 2005 with SP1 Standard Edition.

Note   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.

Using LcsCmd.exe
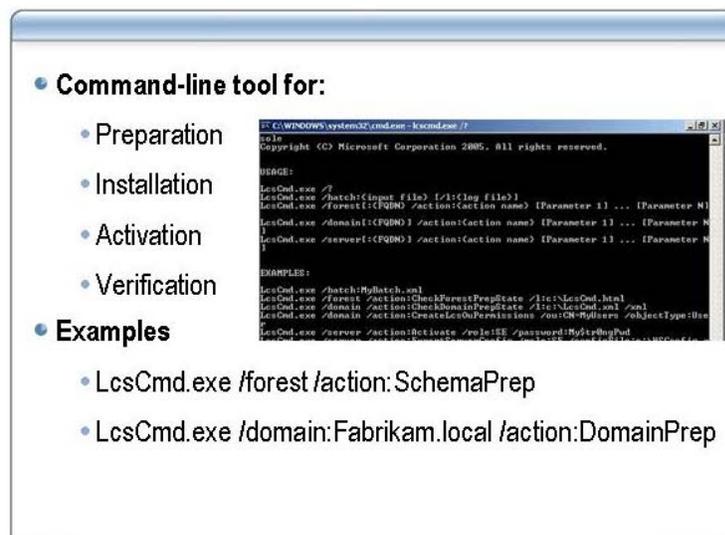
Introduction

The LcsCmd.exe command is the primary command-line tool for performing Live Communications Server tasks. The general syntax for running LcsCmd.exe is as follows:

- **Forest-level actions**. are used for deployment actions.

  ```
  >LcsCmd.exe /forest[:{forest FQDN}] /action:{action name}
  [Parameter 1]…[Parameter N]
  ```

- **Domain-level actions**.help manage the domain where you are running LCS 2005 with SP1.

  ```
  >LcsCmd.exe /domain[:{domain FQDN}] /action:{action name}
  [Parameter 1]…[Parameter N]
  ```

- **Server-level actions**.help manage the servers in your LCS 2005 with SP1 environment.

  ```
  >LcsCmd.exe /server[:{server FQDN}] /action:{action name}
  [Parameter 1]…[Parameter N]
  ```

- **Batch-mode actions**.enable you to perform multiple LcsCmd.exe actions at once by running the command in batch mode. Batch actions are run from a batch input XML file that you create before you run the command.

  ```
  >LcsCmd.exe /batch:{input file} [/l:{log file}] [/xml]
  ```

- **Help**.provides information about the command-line options.

  ```
  >LcsCmd.exe /?
  ```

Running LcsCmd.exe

You can run LcsCmd.exe from either a CD, a shared installation folder, or locally from any existing deployment of LCS 2005 with SP1. LcsCmd.exe is copied to <local drive>:Program Files\Common Files\Microsoft LC 2005 during installation.

Each of the actions listed previously (except Batch and Help) have a similar syntax, which includes the context, the action, and the parameters for the action (some are required, others are optional).

Context Parameters

Actions can use one of the following contexts:

- Forest
- Domain
- Server

These contexts are specified as the first parameter of each command as follows:

/forest[:FQDN]

The /forest switch is used as the context for actions executed against the Active Directory forest, such as **SchemaPrep**, **ForestPrep**, and **CheckAllDomainPrepStates**. The /forest parameter defaults to the local forest unless you specify the fully qualified domain name (FQDN) of a specific forest. If you specify /forest:<forest FQDN>, then the action is performed on the remote forest.

Note   Cross-forest actions may be limited by permissions and authorization constraints.

/domain[:FQDN]

The /domain switch is used for actions run on a specific domain, such as DomainPrep or DomainAdd. If no FQDN is specified, the current domain is used. If you specify /domain:<domain FQDN>, then the action is performed on the remote domain indicated.

/server[:FQDN]

The /server switch executes the action for the specified server. If no server FQDN is specified, the action is run on the local computer. If you specify /server:<server FQDN>, the action is then performed on the remote server indicated.

Brackets **[ ]** in the syntax denote that certain parameters or parameter values are optional. For any of the actions, you can specify a format for the log file. By default LcsCmd saves its action log in HTML format. To override this setting, specify **/xml**, which saves the action log in XML format.

Actions

The **/action** parameter specifies which action to run. It is a mandatory parameter for all contexts except batch operations. The set of actions that can be run in different contexts varies.

/action:{action name}

```
LcsCmd.exe /forest /action:SchemaPrep
```

Note   For more detailed syntax information and examples for LcsCmd.exe, see the *Live Communications Server 2005 with SP1 Command-Line Reference* guide in the **Additional Reading** materials included with this course.

Preparing the Schema Using the Command Line
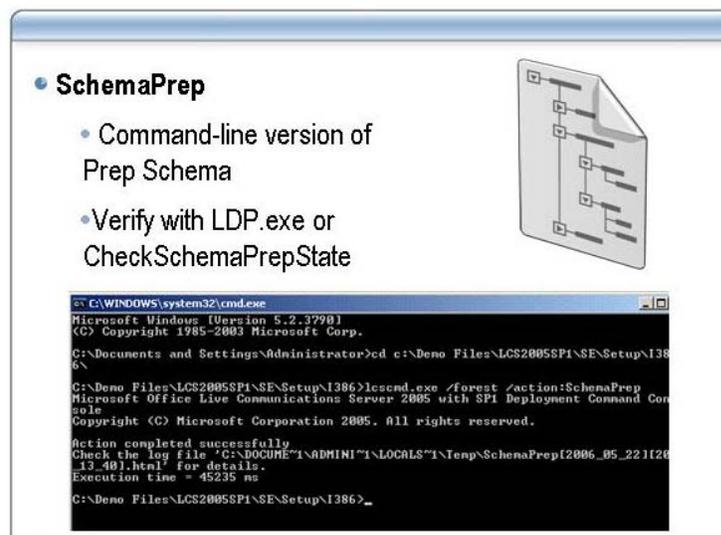
Introduction

SchemaPrep is the command-line version of Prep Schema and it extends the Active Directory schema so that the new classes and attributes that are 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.

SchemaPrep

Use the SchemaPrep action to prepare the Active Directory schema for LCS 2005 with SP1. Before you perform this task, log on to a computer in the Active Directory domain with an account that is a member of the Schema Admins group and a local administrator on the Schema Master.

The syntax for the SchemaPrep action is:

```
LcsCmd /forest[:<ForestFQDN>] /action:SchemaPrep [/ldf:<path
for folder containing LCS *.ldf file>]
```

Parameters

The following table lists the parameters for the SchemaPrep action.

Parameters	Required?	Usage
/ldf: {LDF folder}	Optional	This action retrieves the .ldf file (listing the actual schema extensions) from the same directory where LcsCmd is being run. If the .ldf is in another directory, specify /ldf:<directory>.

Example

LcsCmd.exe /forest /action:SchemaPrep

> **Note**   You must allow time for replication to occur after you run this action and before you run any subsequent procedures. You can either wait for the replication time to elapse or you can force replication.

Verify SchemaPrep

You can verify that the SchemaPrep action was successful by running the CheckSchemaPrepState action after it.

The syntax for the CheckSchemaPrepState action is:

```
LcsCmd /forest[:<ForestFQDN>] /action:CheckSchemaPrepState
```

There are no parameters for this action.

Example

LcsCmd.exe /forest /action:CheckSchemaPrepState

Verify with LDP

You can also use LDP.exe to verify that SchemaPrep was run successfully by verifying the existence of a new string called CN=ms-RTC-SIP-SchemaVersion under the Schema container for the forest.

Example

CN=ms-RTC-SIP-SchemaVersion, CN=Schema, CN=Configuration, DC=NWTraders,DC=Local

Preparing the Forest using the Command Line
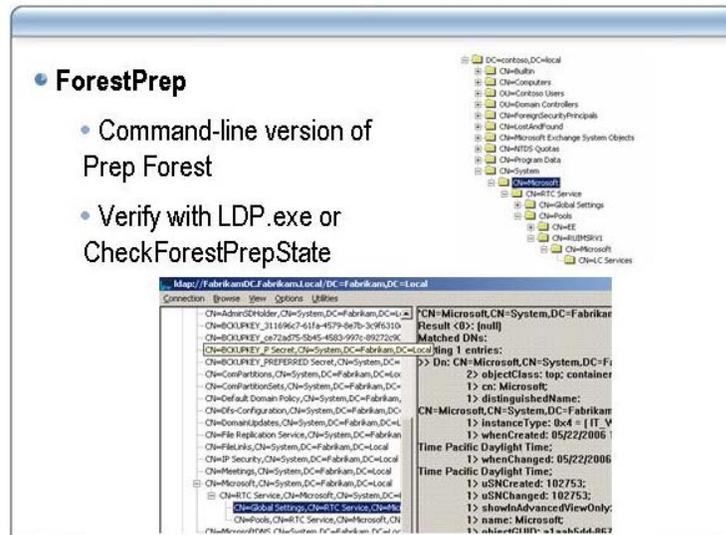
Introduction	ForestPrep is the command-line version of Prep Forest. It creates LCS objects and attributes under the Systems container in the forest root domain systems container that contains global settings and information about your LCS deployment. Prep Forest also creates LCS objects in the configuration container that contain property sets and display specifiers used by LCS. These objects and attributes are required for LCS 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.
	Prep Forest also adds several entries to the configuration container under the configuration naming context. For more information about these changes, see the *Live Communications Server 2005 with SP1 Active Directory Preparation Guide* in the **Additional Reading** materials provided with this course.
ForestPrep	Use the ForestPrep action to prepare the Active Directory forest to host Live Communications Server. This action creates various Active Directory containers, such as objects for the global settings, display specifiers, and extended property sets. Before performing this task, log on to a computer in the Active Directory domain with an account that is a member of the Enterprise Admins group.
	The syntax for the ForestPrep action is:

```
LcsCmd /forest[:<ForestFQDN>] /action:ForestPrep
```

	There are no parameters for this action.
Example	LcsCmd.exe /forest:NWTraders.local /action:ForestPrep
Verify ForestPrep	You can verify that the ForestPrep action was successful by running the CheckForestPrepState action after it.
	The syntax for the CheckForestPrepState action is:

```
LcsCmd /forest[:<ForestFQDN>] /action:CheckForestPrepState
```

There are no parameters for this action.

Example   LcsCmd.exe /forest:NWTraders.local /action:CheckForestPrepState

Verify with LDP   You can also use LDP.exe to verify that ForestPrep was run successfully by
                             verifying the existence of a new string called CN=Global Settings under the
                             RTC Service container for the forest.

Example   CN=Global Settings, CN=RTC Service, CN=Microsoft, CN=System,
                             DC=NWTraders,DC=Local

Preparing the Domain using the Command Line
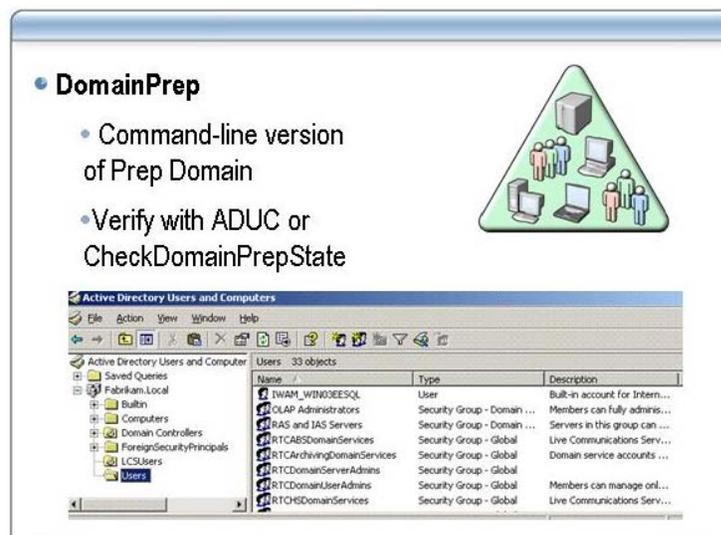
Introduction	DomainPrep is the command-line version of Prep Domain. It creates domain global groups for LCS 2005 with SP1 servers and administrators. It also grants permissions to these groups to host and manage users within the domain. Prep Domain is required and must be run once in each domain where you want to deploy LCS 2005 with SP1.
DomainPrep	Use the DomainPrep action to prepare the domain to host LCS 2005 with SP1. This action creates all the Active Directory groups and permissions that enable a deployment of LCS 2005 with SP1.
	Before performing this task, ensure that the ForestPrep task has already been successfully completed and log on to a computer in the Active Directory domain with an account that is a member of the Domain Admins group in the domain where you want to deploy LCS 2005 with SP1.
	The syntax for the DomainPrep action is:

```
LcsCmd /domain[:<FQDN>] /action:DomainPrep
```

There are no parameters for this action.

Example	LcsCmd.exe /domain:Sales.NWTraders.local /action:DomainPrep
Verify DomainPrep	You can verify that the DomainPrep action was successful by running the CheckDomainPrepState action after it.
	The syntax for the CheckDomainPrepState action is:

```
LcsCmd /domain[:<FQDN>] /action:CheckDomainPrepState
```

There are no parameters for this action.

Example	LcsCmd.exe /domain:Sales.NWTraders.local /action:CheckDomainPrepState

Verify New Groups in ADUC

You can also use Active Directory Users and Computers to verify that DomainPrep was run successfully by verifying the existence of the following new global security groups in the Users container:

- RTCDomainServerAdmins
- RTCDomainUserAdmins
- RTCHSDomainServices.

Lesson: Installing LCS 2005 with SP1 Standard Edition Using the Command Line
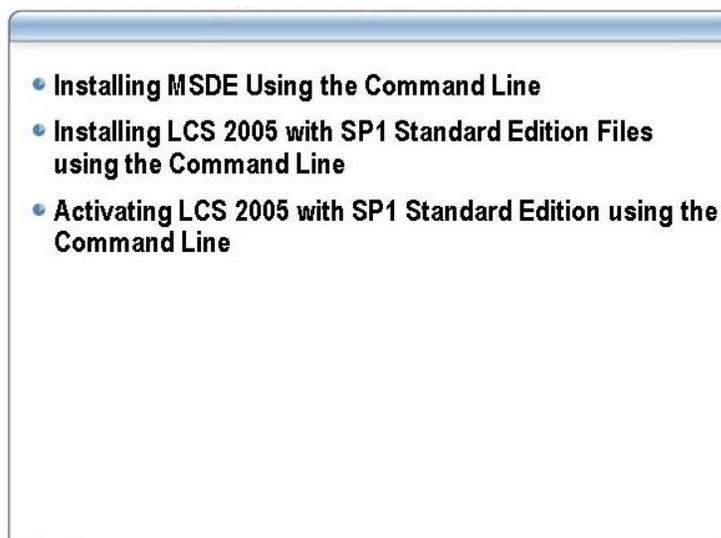
Introduction

You install the LCS 2005 with SP1 Standard Edition files on each server that you want to host the Standard Edition server role. Installation and activation of LCS 2005 with SP1 using the command line involves the following main tasks:

- **Creation of the Microsoft SQL Server™ Desktop Engine (MSDE) instance**. Creates the MSDE instance database used for local storage by the Standard Edition server.

- **Installation**. Installs and registers the files for LCS 2005 with SP1 Standard Edition. Creates and initializes the WMI settings, creates the necessary local groups. and configures their permissions.

- **Activation**. Creates or configures a service account, assigns permissions and group memberships to the service account, adds domain global groups to the local LCS 2005 with SP1 Standard Edition server, creates or modifies LCS Active Directory objects and attributes including the server object, registers the Security Principal Name (SPN) that is required for the server to provide client/server authentication, and attempts to start the service.

In this lesson, you will learn how to install the MSDE instance and the LCS 2005 with SP1 Standard Edition files using the command line, and then you will learn how to activate the server using the command line.

Lesson objectives

After completing this lesson, you will be able to:

- Install MSDE using the command line.

- Install LCS 2005 with SP1 Standard Edition files using the command line.

- Activate LCS 2005 with SP1 Standard Edition using the command line.

Installing MSDE Using the Command Line
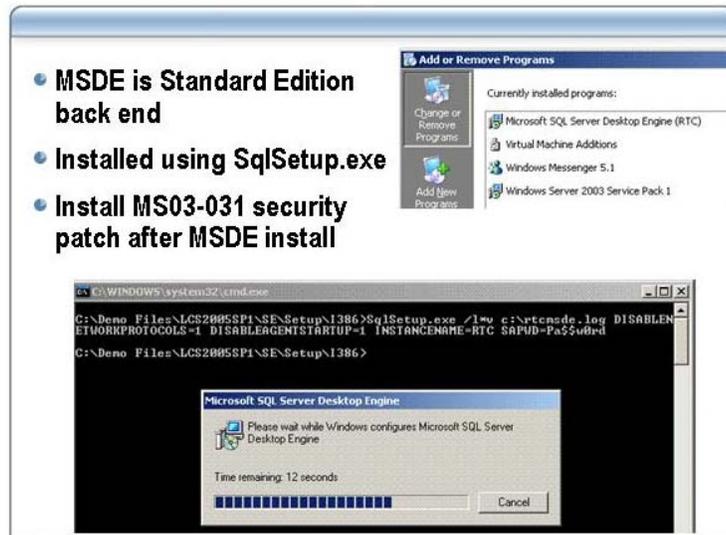
Introduction	LCS 2005 with SP1 Standard Edition uses a local MSDE instance as its back-end database. Therefore, you need to install MSDE before you can install the LCS 2005 with SP1 Standard Edition files.
Using SqlSetup.exe	You can install MSDE through the command line by running SqlSetup.exe.

The syntax for SqlSetup.exe is:

```
sqlsetup.exe [/l*v c:\<log_filename.log>]
DISABLENETWORKPROTOCOLS=1 DISABLEAGENTSTARTUP=1
INSTANCENAME=RTC SAPWD=My$tr0ngPaSSw0rd
```

Parameters	For the SqlSetup.exe parameters, see the MSDE documentation at http://msdn.microsoft.com/library/default.asp?url=/library/en-us/architec/8_ar_ts_2x5u.asp.
Example	sqlsetup.exe /L*v c:\rtcmsde_logs\lcsmsde.log DISABLENETWORKPROTOCOLS=1 DISABLEAGENTSTARTUP=1 INSTANCENAME=RTC SAPWD= STRONGpA$$W0RDfORsa

Warning   Do not change the value of INSTANCE NAME. LCS 2005 with SP1 Standard Edition requires RTC as the instance name.

Verify MSDE Installation   You can verify the success of the MSDE installation by using Add or Remove Programs in Control Panel, or the Services console.

To verify the MSDE installation:

1. Click **Start**, point to **Settings**, and then click **Control Panel**.
2. Double-click **Add or Remove Programs**.
3. Verify that Microsoft SQL Server Desktop Engine (*instance name)* exists.

4. Alternatively, click **Start**, point to **Programs**, point to **Administrative Tools**, and then click **Services**.

5. Confirm that MSSQL$RTC is in the list of services.

Install Security Patch MS03-031

After MSDE is installed, you need to download and install the MS03-031 security patch which is a cumulative patch for Microsoft SQL Server and is discussed in more detail in the TechNet Knowledge Base article 815495. For more information about this patch, read the security bulletin on the Microsoft Web site at: http://www.microsoft.com/technet/security/bulletin/MS03-031.mspx.

Installing LCS 2005 with SP1 Standard Edition Files Using the Command Line
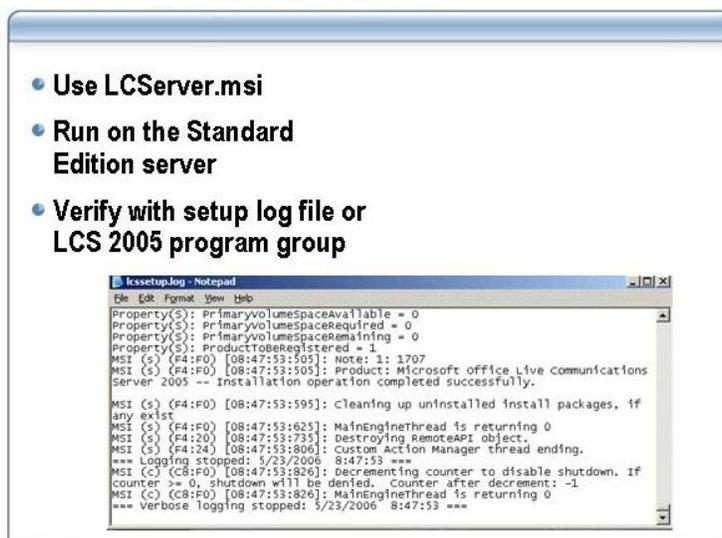
Introduction

You must run this procedure locally from the Standard Edition server on which the LCS 2005 with SP1 Standard Edition files are to be installed. Also, to run this procedure you must have local Administrator credentials on that server.

To install files for LCS 2005 with SP1 Standard Edition using the command line, you need to use the Windows® Installer package, LCServer.msi, provided in the Setup folder. This procedure will install and register the files for LCS 2005 with SP1 Standard Edition, create and initialize the WMI settings, create local groups, and set up their required permissions.

Note   When performing this procedure using LCServer.msi, the database must already exist. See the preceding topic "Installing MSDE Using the Command Line" for more information.

Using LCServer.msi

You can use LCServer.msi to install and uninstall LCS 2005 with SP1 server roles such as the Standard Edition server, the Enterprise Edition server, the Access Proxy server, and the Proxy server.

The installation syntax for LCServer.msi is:

```
LCServer.msi SERVER=[EE|SE|AP|Proxy] [SKU=SE|EE] [PKFILE=<Name
of file containing product key>] [/l*v c:\install.log]
[/q[n|b|r1][+]]
```

Parameters

The following table lists the install parameters for LCServer.msi.

Install Parameters	Usage
SERVER=[EE|SE|AP|Proxy]	The server role to be installed.
SKU=[EE|SE|AP|Proxy]	The type of product key used for

	installation.
PKFILE=<file name>	The name of the file containing the Product Key. The file is expected to be in the same directory as the LCServer.msi file.
/q[n|b|r][+]	This sets the user interface level, and is an optional parameter: n = none, b = basic, r = reduced, + = display completion notice only

Install Standard Edition Files Using the Command Line

To install LCS 2005 with SP1 Standard Edition files using command-line tools:

1. Log on to the server where you want to install the Standard Edition files with local Administrator credentials. This must be the server that you will deploy LCS 2005 with SP1 Standard Edition on.

2. Open a command prompt window.

3. At the command prompt, navigate to the CD drive, or the local or shared folder where your installation files are stored.

4. To run this procedure silently, type the following at the command prompt:

```
Folder_path\Setup\I386\Setup\LCServer.msi /qn SERVER=SE
[DBDATADIR=<database file folder>] [DBLOGDIR=<database log
file folder>] [INSTALLDIR=<install location>] /l*v
drive_letter:\log_filename.log
```

Example

LCSServer-01\Installs\LCS_2005SP1\Setup\I386\Setup\LCServer.msi /qn SERVER=SE DBDATADIR="c:\LC Data" DBLOGDIR="c:\LC Log" INSTALLDIR="C:\Program Files\Microsoft LC 2005\Server" /l*v c:\lcsetup.log

If you do not want a silent install process, then type the following:

```
Folder_path\Setup\I386\Setup\LCServer.msi SERVER=SE [/l*v
drive_letter:\<log_filename.log>] and press ENTER
```

For example:

LCSServer-01\Installs\LCS_2005SP1\Setup\I386\Setup\LCServer.msi SERVER=SE /l*v c:\lcsetup.log

Note   Using this method would require you to complete the setup wizard steps to finish the installation of the files.

Verify LCS Files Installation

You can verify that the LCS 2005 with SP1 Standard Edition files have been successfully installed by opening the log file you specified earlier and looking for a confirmation near the end of the file of a successful installation operation.

You can also verify successful installation by looking for a Live Communications Server 2005 entry in the Programs, Administrative Tools folder.

Activating LCS 2005 with SP1 Standard Edition Using the Command Line
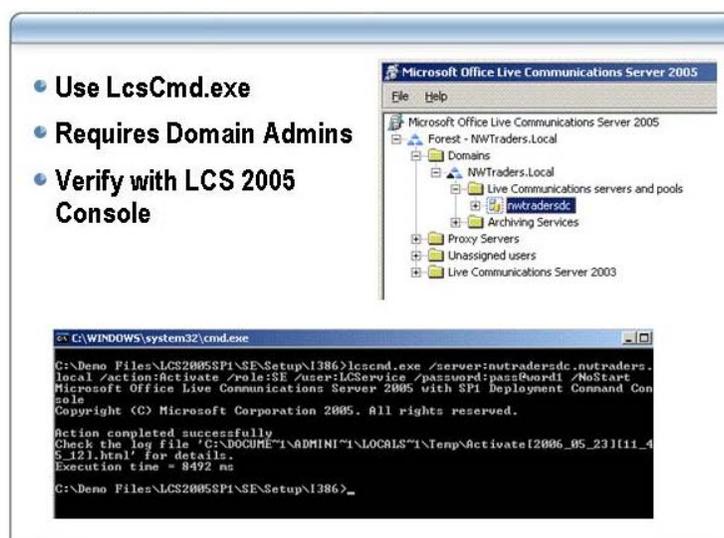
Introduction

You use the activation procedure to prepare a server after you have installed the files. This action is usually the last setup procedure for your Standard Edition server.

Activation creates or configures a service account, assigns permissions and memberships to the account, adds domain global groups to the required local server groups, and creates or modifies Active Directory objects that will be used by LCS 2005 with SP1. Activation also registers the Security Principal Name (SPN) that is required for the server to provide client/server authentication, and starts the Live Communications Server service.

Credentials

This procedure requires that the user running it has Domain Admins credentials in the domain where the server is being deployed.

Using LCsCmd.exe to activate

The Activate syntax for a Standard Edition server is:

```
LcsCmd.exe /server[:<server FQDN>] /action:Activate /role:< SE
| Proxy > [/user:<service account name>] /password:<pw>
/nostart
```

Example

LcsCmd.exe /server:LCSServer-01.NWTraders.local /action:Activate /role:SE /user:LCService /password:My$tr0ngPwd /NoStart

All activate actions require the /password:<Passwd> parameter for the service account. You must use the /user:<service account name> parameter to specify a different service account than the default name of LCService.

/NoStart is an optional parameter that allows you to avoid starting the LCS 2005 with SP1 Standard Edition service at the end of activation, which allows you to control when the service should start manually. You should use the /NoStart parameter if you are deploying your server in a domain outside the forest root.

Important   If you are deploying outside the forest root, ensure that replication has fully replicated to the root domain, and then manually start the Live Communications Server service (LCService).

Activate LCS 2005 with SP1 Standard Edition

To activate LCS 2005 with SP1 Standard Edition from a command line:

1. Log on to a computer in your forest with an account that is a member of the Domain Admins group.

Note   If you are running outside of the forest root domain, the account must also be a member of the RTCDomainServerAdmins group and the Domain Admins group.

---

2. Open a command prompt.

3. Run LcsCmd.exe from either a CD, a shared network folder or locally from any existing deployments of LCS 2005 with SP1. LcsCmd.exe is copied to C:\Program Files\Common Files\Microsoft LC during installation.

4. At the command prompt, type the following:

```
Folder_path\Setup\I386\LcsCmd.exe /server[:<Server FQDN>]
/action:Activate /role:SE [/user:<Service Account Name>]
/password:<service account password> [/UnregSPN] /NoStart
[/Archserver:<archiving server name> /queuename:<archiving
server queuename>
```

For example:

LCSServer-01\Installs\LCS_2005SP1\Setup\I386\LcsCmd.exe
/server:lcsserver-01.NWTraders.local /action:Activate /role:SE
/user:LCService /password:pass@word1 /NoStart

Verify Activation

You can verify activation of the LCS 2005 with SP1 Standard Edition server by looking in the Live Communications Server 2005 console for a server object under the **Live Communications servers and pools** node.

Lab 3a: Installing LCS 2005 with SP1 Standard Edition Using the Command Line
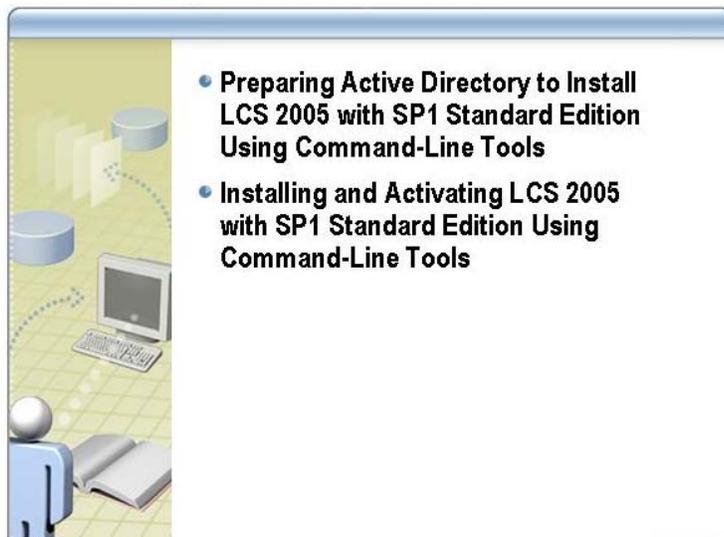
Objectives

After completing this lab, you will be able to use command-line tools to:

- Prepare an Active Directory schema for installing LCS 2005 with SP1 Standard Edition.
- Prepare a forest for installing LCS 2005 with SP1 Standard Edition.
- Prepare a domain for installing LCS 2005 with SP1 Standard Edition.
- Install MSDE in readiness for installing LCS 2005 with SP1.
- Install LCS 2005 with SP1 Standard Edition.
- Activate LCS 2005 with SP1 Standard Edition.

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

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

Introduction

NWTraders wants to implement LCS 2005 with SP1, but does not currently require the load-balancing and fault tolerance capabilities of the Enterprise Edition. Hence, the company has decided to implement the Standard Edition server.

In a multi-domain environment, where you would like to perform some of the installation steps remotely, you can use the command line to prepare the schema, the forest, the domain, and also run the installation files and activate the server.

In this lab, you will use command-line tools to prepare the Active Directory schema, prepare the forest, and prepare the domain in preparation for the installation of Live Communications Server 2005 SP1 Standard Edition. You will also use command-line tools to install MSDE as the back-end

database for LCS 2005 SP1 Standard Edition. Lastly, you will use command-line tools to activate the new LCS 2005 SP1 Standard Edition server.

Many aspects of deploying LCS 2005 with SP1 Standard Edition are the same as those required for Enterprise Edition. This lab environment was created to allow you to experience the deployment of both editions of the product.

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
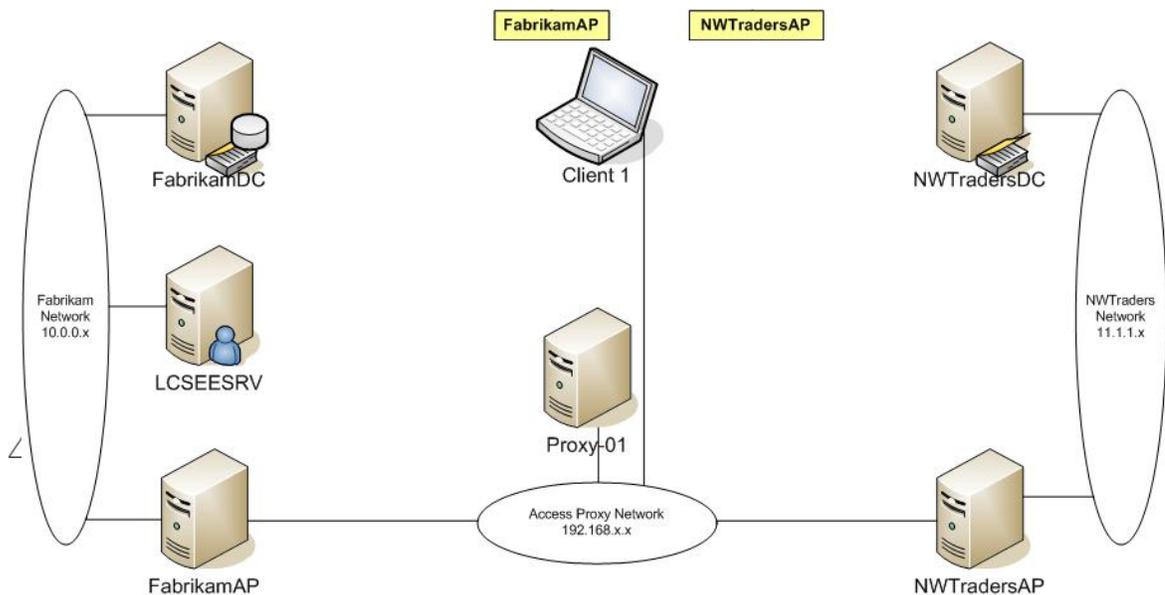
Virtual PC Image to Computer NetBIOS Name Mappings

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-NWTradersDC-A	NWTradersDC

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

A Service Control Manager message box may appear on 7034A-NWTradersDC-A, 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, this service appears to start properly.

Do not close down the image at the end of this lab.

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Exercise 1
Preparing Active Directory to Install LCS 2005 with SP1 Standard Edition Using Command-Line Tools

Scenario

Holly Holt, the network administrator, has a background in open source software, so prefers to use command line instructions where possible. She plans to use the command line support in LCS 2005 with SP1 to install LCS into the NWTraders environment.

Description

In this exercise, you will use command-line tools to prepare the Active Directory schema, prepare the forest, and prepare the domain in preparation for the installation of LCS 2005 with SP1 Standard Edition.

Tasks	Detailed Steps
⚠️ **Important:** Perform this exercise on the 7034A-NWTradersDC-A virtual machine.	
1. Prepare the Active Directory schema for LCS 2005 with SP1 Standard Edition.	a. Log on to **7034A-NWTradersDC-A** as **Administrator** with a password of **pass@word1**. b. Click **Start**, and then click **Run**. c. Type **cmd**, and then click **OK**. The Command Prompt window opens. d. At the command prompt, type **E:** and press ENTER. e. At the command prompt, type **cd E:\Demo Files\lcs2005sp1\SE\setup\i386**, and press ENTER. f. Type **lcscmd.exe /forest /action:SchemaPrep**, and press ENTER. 🖥️ *Notice that the response says that the action completed successfully, and that you can check the log for more details.* g. Leave the command prompt window open.
2. Verify that SchemaPrep was successful by using LDP.	a. Click **Start**, and then click **Run**. b. Type **E:\Demo Files\Windows Server™ 2003 Support Tools\ldp.exe**, and then click **OK**. c. Click **Connection**, click **Connect**, and then click **OK**. d. Click **Connection**, click **Bind**, and then click **OK**. e. Click **View**, click **Tree**, and then click **OK**. f. Maximize the window. g. Expand **DC=NWTraders,DC=local**. h. Double-click **CN=Configuration,DC=NWTraders,DC=local**. i. Double-click **CN=Schema,CN=Configuration,DC=NWTraders,DC=local**.

	j.	Under this Schema container, verify the existence of the string **CN=ms-RTC-SIP-SchemaVersion**. If present, the schema was successfully propagated.
	k.	Click **Connection**, and then click **Exit** to close LDP.
3. Prepare the Active Directory forest for LCS 2005 with SP1 Standard Edition.	**a.**	Switch back to the command prompt window.
	b.	At the command prompt, type **lcscmd.exe /forest /action:ForestPrep**, and press ENTER. *Notice that the response says that the action completed successfully, and that you can check the log for more details.*
	c.	Leave the command prompt window open.
4. Verify that ForestPrep was successful by using LDP.	**a.**	Click **Start**, and then click **Run**.
	b.	Type **E:\Demo Files\Windows Server 2003 Support Tools\ldp.exe**, and then click **OK**.
	c.	Click **Connection**, click **Connect**, and then click **OK**.
	d.	Click **Connection**, click **Bind**, and then click **OK**.
	e.	Click **View**, click **Tree**, and then click **OK**.
	f.	Maximize the window.
	g.	Expand **DC=NWTraders,DC=local**.
	h.	Double-click **CN=System,DC=NWTraders,DC=local**.
	i.	Double-click **CN=Microsoft,CN=System,DC=NWTraders,DC=local**.
	j.	Double-click **CN=RTC Service, CN=Microsoft,CN=System,DC=NWTraders,DC=local**.
	k.	Under this RTC Service container, verify the existence of the string **CN=Global Settings,CN=RTC Service, CN=Microsoft,CN=System,DC=NWTraders,DC=local**. If present, the forest was successfully prepared.
	l.	Click **Connection**, and then click **Exit** to close LDP.
5. Prepare the Active Directory domain for LCS 2005 with SP1 Standard Edition.	**a.**	Switch back to the command prompt window.
	b.	At the command prompt, type **lcscmd.exe /domain /action:DomainPrep**, and press ENTER. *Notice that the response says that the action completed successfully, and that you can check the log for more details.*
	c.	Type **exit** and press ENTER to close the command prompt window.
6. Verify that DomainPrep was successful.	**a.**	Click **Start**, point to **Administrative Tools**, and then click **Active Directory Users and Computers**.
	b.	Click the **Users** container.
	c.	Verify that the following global security groups exist: • RTCDomainServerAdmins • RTCDomainUserAdmins • RTCHSDomainServices
	d.	Close Active Directory Users and Computers.

Exercise 2
Installing and Activating LCS 2005 with SP1 Standard Edition Using Command-Line Tools

Scenario

Now that Holly has prepared Active Directory for LCS, she can install LCS 2005 with SP1 Standard Edition on a server. Before she can do that however, she must install MSDE as the back-end database for LCS 2005 with SP1.

Description

In this exercise, you will use command-line tools to install MSDE. Then you will use command-line tools to install and activate LCS 2005 with SP1 Standard Edition on the NWTradersDC computer in the NWTraders domain.

Tasks	Detailed Steps
⚠	**Important:** Perform this exercise on the 7034A-NWTradersDC-A virtual machine.
1. Install MSDE on NWTradersDC using the command line.	a. Log on to **7034A-NWTradersDC-A** as **Administrator** with a password of **pass@word1**.
	b. Click **Start**, and then click **Run**.
	c. Type **cmd**, and then click **OK**. The Command Prompt window opens.
	d. At the command prompt, type **E:**, and press ENTER.
	e. At the command prompt, type **cd E:\Demo Files\lcs2005sp1\SE\setup\i386**, and press ENTER.
	f. At the command prompt, type **sqlsetup.exe /l*v c:\rtcmsde.log DISABLENETWORKPROTOCOLS=1 DISABLEAGENTSTARTUP=1 INSTANCENAME=RTC SAPWD=pass@word1**, and press ENTER.
	This step will take a few minutes to complete. The actual time is takes will vary depending on your hardware specification.
	g. When installation has completed, you will be returned to the command prompt.
	h. Leave the command prompt window open.
2. Install LCS 2005 with SP1 Standard Edition on NWTradersDC using the command line.	a. At the command prompt, type **cd setup**, and press ENTER.
	b. At the command prompt, type **LCServer.msi /qn SERVER=SE DBDATADIR="c:\LC Data" DBLOGDIR="c:\LC Log" INSTALLDIR="C:\Program Files\Microsoft LC 2005\Server" /l*v c:\lcssetup.log**, and press ENTER.
	This step will take several minutes to complete, during which time there is no output to the command prompt. The actual time is takes will vary depending on your hardware specification.

		c.	Wait for 5 minutes before continuing with the next task. You should now see that the **C:\LC Data** and **C:\LC Log** data folders have been created.
		d.	Leave the command prompt window open.
3.	Verify installation by viewing the setup log and opening the Live Communications Server 2005 console.	**a.**	Click **Start**, and then click **My Computer**.
		b.	Double-click **Local Disk (C:)**.
		c.	Double-click **lcssetup.log**.
		d.	Maximize the Notepad window.
		e.	Click **Format**, and then click **Word Wrap**.
		f.	Scroll down to the end of the file.
		g.	Verify that the log file contains the line; **Installation operation completed successfully**.
		h.	Close Notepad.
		i.	Close the Explorer window.
		j.	Click **Start**, point to **Administrative Tools**, and then click **Live Communications Server 2005**.
		k.	Expand the **Forest – NWTraders.local** node.
		l.	Expand the **Domains** node.
		m.	Expand the **NWTraders.local** node.
		n.	Click the **Live Communications servers and pools** node.
			If you get an error message regarding reading from WMI, click OK and try again.
		o.	Verify that there are no LCS servers currently listed.
		p.	Leave the LCS 2005 console open.
4.	Activate LCS 2005 with SP1 on NWTradersDC using the command line and verify activation using the LCS 2005 with SP1 console.	**a.**	Switch back to the command prompt window.
		b.	At the command prompt, type **cd E:\Demo Files\lcs2005sp1\SE\setup\i386**, and press ENTER.
		c.	At the command prompt, type **lcscmd.exe /server:nwtradersdc.nwtraders.local /action:Activate /role:SE /user:LCService /password:pass@word1 /NoStart**, and press ENTER.
			This step will take a minute to complete, and will verify that the activation action has completed successfully.
		d.	Type **exit**, and press ENTER to close the command prompt.
		e.	Switch back to the LCS 2005 console, right-click the **Live Communications servers and pools** node, and click **Refresh**.
		f.	Expand the **Live Communications servers and pools** node.
		g.	Verify that a node now exists for the **nwtradersdc** server.
		h.	Expand the **nwtradersdc** node, and verify that a server icon exists for the server with a FQDN of **nwtradersdc.nwtraders.local**.
		i.	Close the Live Communications Server 2005 console.
		j.	Leave the **7034A-NWTradersDC-A** virtual machine running for Lab 3b.

Lesson: Deploying LCS 2005 with SP1 Standard Edition in Child Domains

- **Preparing a Child Domain**
- **Running DomainAdd to Forest Root in a Child Domain**
- **Deploying a Standard Edition Server in a Child Domain**
- **Enabling Mutual TLS**
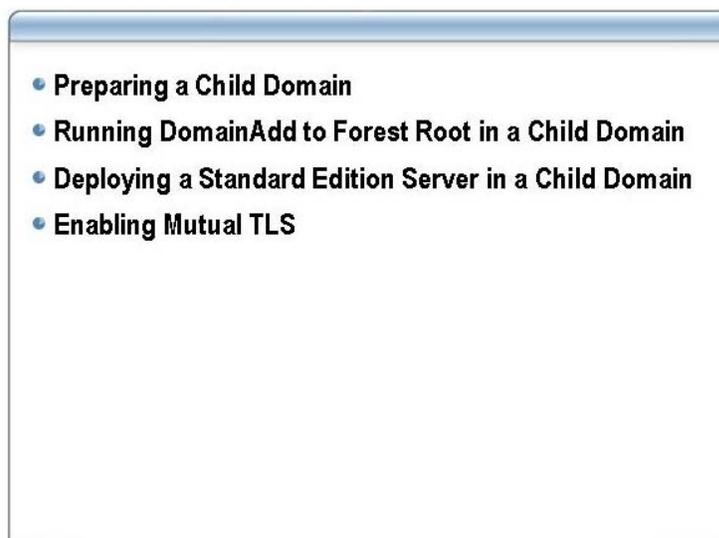
Introduction

If your organization is planning to deploy LCS 2005 with SP1 in child domains, you need to consider some additional tasks. You need to prepare each child domain, run the DomainAdd to Forest Root procedure in each child domain for LCS 2005 with SP1, and deploy the Standard Edition server in each child domain. Finally, you need to enable MTLS for each child domain.

Lesson objectives

After completing this lesson, you will be able to:

- Prepare a child domain for LCS 2005 with SP1.
- Run the DomainAdd to Forest Root task in a child domain.
- Deploy a Standard Edition server in a child domain.
- Enable Mutual TLS for a child domain.

Preparing a Child Domain

Run DomainPrep on child domain DC

- **Requires Domain Admins and local Administrators privileges**
- **Creates default LCS security groups in child domain**
- **Modifies ACLs on child domain user objects to enable administration by child domain RTC security groups**
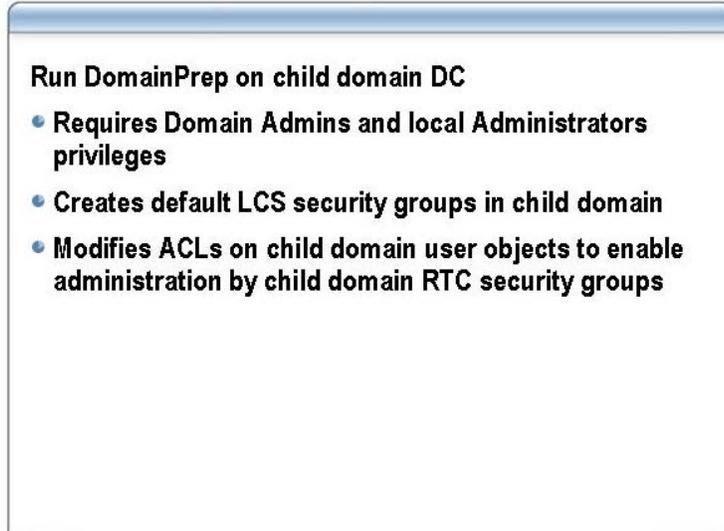
Child Domain Preparation	If you have child domains in your environment, you will need to run the Prep Domain procedure in every child domain where a Standard Edition server is being deployed.
DomainPrep	DomainPrep is the command-line version of Prep Domain. Use the DomainPrep action to prepare the domain to host LCS 2005 with SP1. This action creates all the Active Directory groups and assigns them the required permissions that enable a deployment of LCS 2005 with SP1. DomainPrep is required and must be run once in each child domain where you want to deploy LCS 2005 with SP1.
	Before performing this task, ensure that the SchemaPrep and ForestPrep tasks have already been successfully completed in the forest and log on to a computer in the domain with an account that has Domain Admins privileges in the domain where you want to deploy LCS 2005 with SP1.

# Running DomainAdd to Forest Root in a Child Domain
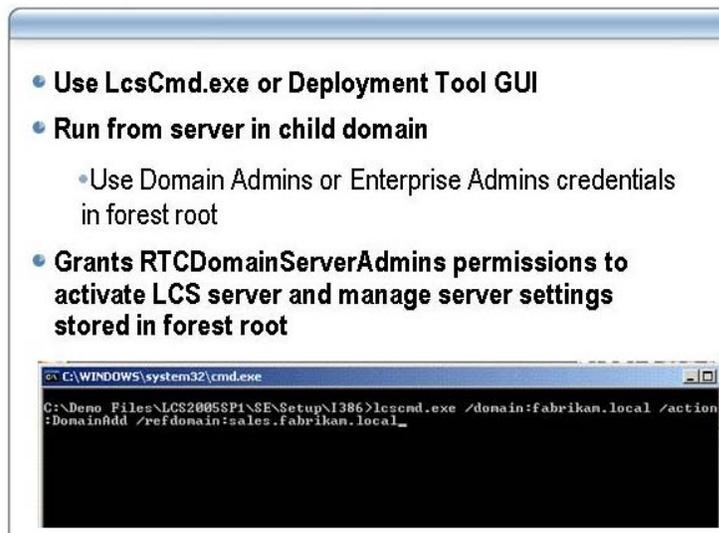
Introduction

If you have child domains in your environment, you will need to run the DomainAdd to Forest Root procedure in every child domain where a Standard Edition server is being deployed.

DomainAdd

Use the DomainAdd action to perform DomainAdd preparation tasks between a child domain and a forest root domain.

Note DomainAdd can also be used to grant one domain access to another domain, which enables cross-domain scenarios. When DomainAdd is run to add one domain to another, only ACEs generic to the added domain are granted. See *Enabling Cross-Domain Administration* in Module 4: "Administering Live Communications Server 2005 with SP1".

The syntax for the DomainAdd action is:

```
LcsCmd.exe /domain[:{FQDN}] /action:DomainAdd /refdomain:FQDN
```

Parameters

The following table lists the parameters for the DomainAdd action:

Parameters	Required?	Usage
/refdomain:{FQDN}	Yes	Indicates the domain whose LCS global groups receive permissions on the context domain.
/usersonly[:{0|1|true|false}]	Optional	Using this switch grants only a subset of permissions required for a users-only domain scenario, such as those needed for servers in the *refdomain* to host users in the context domain.

Example

LcsCmd.exe /domain:NWTraders.local /action:DomainAdd
/refdomain:sales.NWTraders.local

DomainAdd to the Forest Root

Use the DomainAdd to Forest Root procedure to grant the LCS administrative group, RTCDomainServerAdmins, the permissions necessary to activate the LCS server and manage the settings for this server that are stored in the forest root.

The DomainAdd to the Forest Root procedure grants the added child domain, where LCS 2005 with SP1 Standard Edition servers are being deployed, the necessary permissions to access LCS objects stored in the forest root. This procedure is required in every child domain where a LCS 2005 with SP1 Standard Edition server is being deployed.

What Does DomainAdd to the Forest Root Do?

The DomainAdd to the Forest Root procedure grants the added domain permissions on Active Directory objects used by LCS. Some permissions, such as global settings and the list of servers or pools, are specific to the forest root domain. Others, such as the LCS user settings, exist in every domain. These permissions for administrators in the child domain are required to deploy and manage LCS 2005.

The permissions granted by running the DomainAdd to Forest Root task on LCS objects that are specific to the forest root enable the following scenarios for the child domain.

- **RTCDomainServerAdmins members in the child domain can deploy a Live Communications Server in the child domain**. Deployment of a LCS 2005 with SP1 Standard Edition or Enterprise pool will create objects that are stored in the forest root and available as global information about your LCS deployment and topology.

- **RTCHSDomainServices members in the child domain can access global settings information about the deployment for routing and user authentication**. Servers use these permissions to identify supported Session Initiation Protocol (SIP) domains and trusted servers in the LCS 2005 with SP1 deployment.

- **RTCDomainServerAdmins members can manually add to the list of global information about the deployment, which is stored in the forest root**. For example, RTCDomainServerAdmins can add supported SIP domains and Access Proxies or configure global settings for users.

- **RTCDomainUserAdmins members in the child domain can assign users in the child domain to a Live Communications Server**.

Run DomainAdd to Forest Root

To run the DomainAdd to Forest Root procedure:

1. Log on to a server in the child domain using an account that has Domain Admins or Enterprise Admins credentials for the forest root domain.

2. Open a command prompt.

3. Type the following command and press ENTER:

```
Folder_path\Setup\I386\LcsCmd.exe /domain:root_domain
/action:DomainAdd /refdomain:child_domain
```

4. In the command output, look for the message "Action completed successfully".

Deploying a Standard Edition Server in a Child Domain

- Add setup account to LCS administration groups in child domain
- Deploy Standard Edition server files
- Activate Standard Edition server
- Requires Domain Admins and local Administrators privileges

Introduction

The setup steps to deploy LCS 2005 with SP1 in a child domain do not differ greatly from the steps used to deploy LCS 2005 with SP1 in a forest root domain.

The main deployment steps are:

- Add the LCS administration account to LCS groups in the child domain
- Install LCS 2005 with SP1 files on the Standard Edition server
- Activate the Standard Edition server

Add LCS Administration Account to Child Domain Groups

The account used to run setup and administer LCS must be manually added to the following groups in the child domain:

- RTCDomainServerAdmins
- RTCDomainUserAdmins
- RTC Local Administrators
- RTC Local User Administrators

Install and Activate LCS in Child Domain

Installing and activating LCS in the child domain can either be performed with the LCS Deployment Tool wizard or the available command-line tools.

To successfully install LCS in the child domain, the account running setup must be a member of the Domain Admins and local Administrators groups.

Enabling Mutual TLS
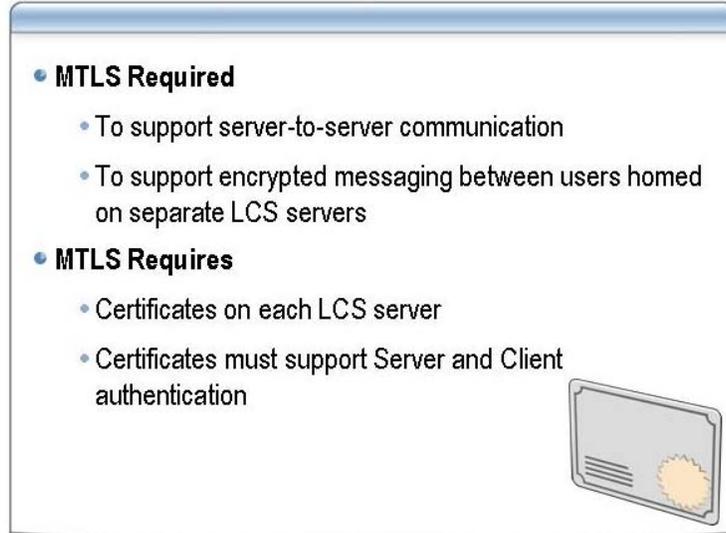
Introduction

Installing LCS in a child domain in an environment where LCS is also installed in a parent or root domain requires certificates. The reason for this is that the LCS servers require a Mutual TLS session to establish connectivity with other LCS servers in the forest.

Note   For organizations that are deploying LCS in a child domain only, or are installing on a single server in the organization, a certificate is recommended but is not required.

The certificates installed must support both Server and Client Authentication as the LCS server will be acting as a client or a server for the conversation depending on whether it initiates or receives a connection.

Enable MTLS

The steps to enable MTLS for servers in a child domain are identical to those for enabling MTLS on servers in a root domain.

Lab 3b: Configuring LCS 2005 with SP1 Standard Edition
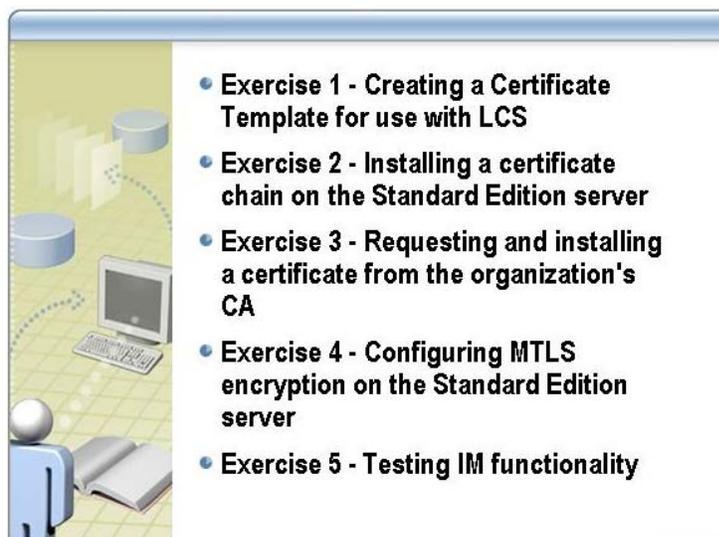
Objectives

After completing this lab, you will be able to:

- Create a certificate template for use with LCS.

- Install a certificate chain on the Standard Edition server.

- Request and install a certificate from the organization's CA.

- Configure MTLS encryption on the Standard Edition server and start the LCS service.

- Test IM functionality.

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

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

Introduction

In the previous lab, you installed LCS 2005 with SP1 Standard Edition through the command line. In this lab, you configure the LCS Standard Edition server to trust a certificate chain, then request a certificate for the server and install that certificate on the server. You then configure the server 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

The encryption facilities in LCS 2005 with SP1 were a key driver for the adoption of LCS within Northwind Traders. Before the LCS administrator (Holly Holt) can set up encryption, she must create a certificate template. The LCS servers will then use a certificate based on this template for mutual encryption. Unfortunately for Holly, there are no command line facilities for carrying out this process.

Description

In this exercise, you will duplicate a certificate template on the CA running on NWTradersDC. 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-NWTradersDC-A virtual machine.	
1. Create the custom management console.	a. Log on to **7034A-NWTradersDC-A** as Administrator of **NWTraders**.
	b. Click **Start**, and then click **Run**.
	c. Type **mmc**, and then click **OK**. Microsoft Management Console opens.
	d. On the **File** menu, click **Add/Remove Snap-in**.
	e. In the **Add/Remove Snap-in** dialog box, click **Add**.
	f. Click **Certificate Templates**, and then click **Add**.
	g. Click **Certification Authority**, and then click **Add**.
	h. Leave the computer selected at **Local computer: (the computer this console is running on)**, and then click **Finish**.
	i. In the **Add Standalone Snap-in** dialog box, click **Close**.
	j. On the **Add/Remove Snap-in** dialog box, click **OK**.
2. Duplicate the Certificate Template.	a. In the left pane, click **Certificate Templates**.
	b. If prompted, click **OK** to install Certificates.
	c. Right-click **Computer**, and then click **Duplicate Template**.
	d. On the **General** tab, type the Template display name **LCS2005SE**.
	e. On the **Subject Name** tab, click **Supply in the request**.
	f. On the **Request Handling** tab, select the **Allow private key to be exported** check box.
	g. Click **OK** to close the Properties of New Template dialog box.

3.	Configure the certificate template so that certificates can be issued based on this template.	**a.**	Expand **Certification Authority (Local)**.
		b.	Expand **SECA**.
		c.	Right-click **Certificate Templates**, point to **New**, and then click **Certificate Template to Issue**.
		d.	Select the **LCS2005SE** template, and click **OK**.
		e.	In the left pane, right-click **SECA**, point to **All Tasks**, and then click **Stop Service**.
		f.	In the left pane, right-click **SECA**, point to **All Tasks**, and then click **Start Service**.
		g.	Close Microsoft Management Console without saving changes.
4.	Force an update of Group Policy.	**a.**	On the taskbar, click **Start**, and then click **Run**.
		b.	In the **Open** box, type **cmd**, and then click **OK**.
		c.	Type **gpupdate /force**, and then press ENTER.
		d.	Check the output for error messages, and then close the command prompt.

Exercise 2
Install the Certificate Chain on the Standard Edition Server

Scenario
Holly must configure the Northwind Traders Standard Edition server to trust the NWTraders CA.
This trust configuration also ensures that the server trusts any certificates issued by that CA.

Description
In this exercise, you download the certificate chain from the NWTraders CA onto NWTradersDC.
You add that certificate chain to the Trusted Root Certification store on NWTradersDC.

Tasks	Detailed Steps
⚠ **Important:** Perform this exercise on the 7034A-NWTradersDC-A virtual machine.	
1. Export the Certificate Chain as a File on NWTradersDC.	**a.** You should still be logged on to **7034A-NWTradersDC-A** as Administrator of **NWTraders**.
	b. Click **Start**, and then click **Run**.
	c. Type **http://NWTradersDC/certsrv**, and then press ENTER. The Internet Explorer® window will appear.
	d. If prompted, provide the NWTraders Administrator credentials (**NWTraders\Administrator pass@word1**).
	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:\SE_Chain.p7b**.
	i. Close the Download complete dialog box.
	j. Close the Internet Explorer window.
2. Install the Certificate Chain into the Trusted Root Certificate Store on NWTradersDC.	**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**, and then click **Add**.
	f. In the **Certificates snap-in** page, select **Computer account**, and then click **Next**.

	g.	In the **Select Computer** page, make sure **Local computer: (the computer this console is running on)** is selected, and then click **Finish**.
	h.	In the **Add Standalone Snap-in dialog box**, click **Close.**
	i.	On the **Add/Remove Snap-in** dialog box, click **OK**.
	j.	In the left pane of the **Certificates** console, expand **Certificates (Local Computer)**.
	k.	Expand **Trusted Root Certification Authorities**.
	l.	Right-click **Certificates**, point to **All Tasks**, and then click **Import**.
	m.	In the **Welcome** page of the **Certificate Import Wizard**, click **Next**.
	n.	In the **File to Import** page, click **Browse**, and then select the file where you saved the certificate, **C:\SE_Chain.p7b**, and then click **Open**. (Note: You may need to select "***.p7b**" from the **Files of type** list.)
	o.	In the **File to Import** page, click **Next**.
	p.	In the **Certificate Store** page, leave the default value **Place all certificates in the following store**, and under **Certificate store**, ensure that **Trusted Root Certification Authorities** is displayed, and then click **Next**.
	q.	In the **Completing** page, click **Finish**.
	r.	On the **The import was successful message** dialog box, click **OK**.
	s.	Close the Microsoft Management Console without saving the changes.

Exercise 3
Request and Install the Certificate on the Standard Edition Server

Scenario
Although Holly has configured the Standard Edition server to trust certificates issued by the NWTraders CA, she must now request a certificate for the server. It is essential that the common name for this certificate matches the FQDN of the server.

Description
In this exercise, you use a browser to request a certificate from the NWTraders CA for NWTradersDC. 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.

Tasks	Detailed Steps
⚠ **Important:** Perform this exercise on the 7034A-NWTradersDC-A virtual machine.	
1. Request and install the certificate on NWTradersDC.	a. You should still be logged on to **7034A-NWTradersDC-A** as Administrator of **NWTraders**.
	b. Click **Start**, and then click **Run**.
	c. Type **http://NWTradersDC/certsrv**, and then click **OK**.
	d. Provide the NWTraders 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. If you get an error at this time, stop and start the Certification Authority service.
	i. In **Certificate Template**, select the **LCS2005SE** template.
	j. In the **Name** field, type **NWTradersDC.NWTraders.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.

Exercise 4
Add a Mutual TLS Connection on the Standard Edition Server

Scenario
The Standard Edition server now has a suitable certificate installed, so Holly can configure the server to use MTLS. After MTLS has been configured, she can start the LCS service on the server.

Description
In this exercise, you will use the Live Communications Server console to configure MTLS communications on port 5061. 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-NWTradersDC-A virtual machine.	
1. Configure MTLS on NWTradersDC.	**a.** On the taskbar, click **Start**, point to **Administrative Tools**, and then click **Live Communications Server 2005**.
	b. In the console tree, expand the **Forest** node.
	c. Expand the **Domains** node.
	d. Expand the **NWTraders.local** node.
	e. Expand the **Live Communications servers and pools** node.
	f. Expand **the NWTradersDC** node.
	g. Right-click **NWTradersDC.NWTraders.local**, and then click **Properties**.
	h. On the **General** tab, click **Add**.
	i. 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.
	j. Click **Select Certificate**.
	k. In the **Select Certificate** dialog box, select the computer certificate that you created. It will appear as **Issued to NWTradersDC.NWTraders.local**, and will have a validity date from today.
	l. If a warning appears, click **Yes**.
	m. Click **OK** to close the Select Certificate dialog box.
	n. Click **OK** to close the Add Connection dialog box.
	o. Click **OK** to close the NWTradersDC.NWTraders.local Properties dialog box.

2.	Verify that the Live Communications Service is started on both servers.	**a.**	In the Microsoft Office Communications Server 2005 management console, right-click **NWTradersDC.NWTraders.local**. If the **Start** option is available, click **Start**. Check that the server starts correctly.
		b.	Close the Microsoft Office Communications Server 2005 management console.

Exercise 5
Verify Functionality

Scenario

Finally, Holly can check that she has IM connectivity. To do this, she is going to enable her account in Active Directory, and then see if she can log onto Windows Messenger.

Description

In this exercise, you use Active Directory Users and Computers to enable Holly Holt for Live Communications Server. You then log on to Windows Messenger as Holly Holt on NWTradersDC.

Tasks	Detailed Steps
⚠ **Important:** Perform this exercise on the 7034A-NWTradersDC-A virtual machine.	
1. Configure User Accounts for Live Communications Server.	**a.** Log on to **7034A-NWTradersDC-A** as Administrator of **NWTraders**.
	b. Click **Start**, point to click **Administrative Tools**, and then click **Active Directory Users and Computers**.
	c. In the console tree, expand your domain, **NWTraders.local**.
	d. Select the **Users** container.
	e. Right-click **Holly Holt**, and then click **Properties**.
	f. In the **Properties** dialog box, click the **Live Communications** tab.
	g. Select the **Enable Live Communications for this user** check box.
	h. In the **SIP URI** box, type **sip:holly@nwtraders.local**.
	i. In the **Server or pool** drop-down list, click **nwtradersdc.nwtraders.local**.
	j. Click **Advanced Settings**, and in the **User Advanced Settings**, click **Enable federation**, and click **Enable remote user access**. Click **OK** to close the **User Advanced Settings** dialog box.
	k. Click **OK** to close the Holly Holt Properties dialog box.
2. Sign in to Windows Messenger on NWTradersDC as Holly Holt.	**a.** Click **Start**, point to **All Programs**, and then click **Windows Messenger**.
	b. On the **Tools** menu, click **Options**.
	c. On the **Accounts** tab, select the **My contacts include users of a SIP Communications Service** check box.
	d. In the **Sign-in name** field, type **holly@NWTraders.local**, and then click **Advanced**.

	e.	In the **SIP Communications Service Connection Configuration** dialog box, click **Configure settings**.
	f.	In the **Server name or IP address** field, type **nwtradersdc.NWTraders.local**.
	g.	Choose **TLS** for connection type
	h.	Click **OK** to close the SIP Communications Service Connection Configuration dialog box.
	i.	Click **OK** to close the Options dialog box.
	j.	Click **Click here to sign in**.
		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**.
	k.	In the **User name** field, type **holly@NWTraders.local**. The sign-in name should already have this value entered.
	l.	In the **Password** box, type **pass@word1**, and then click **OK**.
	m.	In the **Windows Messenger** window, **Holly Holt** should show as **Online**.
3. Close down the Virtual PC images	a.	In the virtual PC window for **7034A-NWTradersDC-A**, click the **Action** menu, and then click **Close**.
	b.	In the **Close** dialog box, select **Turn off and delete changes**, then click **OK**.

Review

- **Preparing Active Directory for Standard Edition Deployment using the Command Line**
- **Installing LCS 2005 with SP1 Standard Edition using the Command Line**
- **Deploying LCS 2005 with SP1 Standard Edition in Child Domains**

In this module, you saw how you can use the command-line tools to deploy LCS 2005 with SP1, Standard Edition. You also looked at the configuration changes you need to make to enable a child domain within a forest for LCS 2005 with SP1. Finally, you configured the Standard Edition server for MTLS encryption, and tested that the service was running by using Windows Messenger.

In the next module, you will carry out more advanced administrative tasks through the LCS console, including configuring administrative permissions, enabling cross-domain searches, and configuring server-side client settings.