



Microsoft Component Integration Setup for IM and Presence Service

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Line URI Setup on Microsoft Active Directory

Before you configure the Line URI parameter on Microsoft Active Directory, note the following:

- For the Line URI, we recommend that you use the format:
tel:xxxx;phone-context=dialstring where:
 - **xxxx** specifies the directory number that the CTI Manager reports to IM and Presence Service as the calling or called number when a call is placed.
 - **phone-context=dialstring** enables the Microsoft Lync client to control one of the devices that are associated with the directory number.



Note If you are using E.164 numbers, do not include **phone-context=dialstring** because it will result in an error at the Microsoft Lync client. See [Lync Error When Using E.164 Numbers](#).

- If you configure the device ID, the Microsoft Lync client controls that particular device on initial sign in; for example: **tel:xxxx;phone-context=dialstring;device=SEP0002FD3BB5C5**
- If you configure the partition, the Microsoft Lync client specifies the partition for the directory number; for example:
tel:xxxx;phone-context=dialstring;device=SEP0002FD3BB5C5;partition=myPartition
- The Line URI only takes effect when the Microsoft Lync user signs in.

- After initial sign in, the Microsoft Lync user can change the line appearance that they wish to control using the Cisco Unified Communications Manager IM and Presence Service Lync Remote Call Control Plugin.
- If you do not configure the device ID in the Line URI, the CTI Gateway determines the devices that are associated with the line Directory Number (DN). If only one device is associated with the line DN, the CTI Gateway uses that device.



Note You can also use the E.164 format for the Line URI. However, you must ensure that the DNs are also configured with E.164 on Cisco Unified Communications Manager.

Related Topics

[Line Appearances](#)

[IM and Presence Service User Authentication](#), on page 2

[Lync Remote Call Control Installation](#)

IM and Presence Service User Authentication

When configuring the SIP URI on Microsoft Active Directory, consider how IM and Presence Service performs the user authentication checks. The user authentication logic is as follows:

1. IM and Presence Service checks if the Microsoft Lync (sign in) user ID matches the Cisco Unified Communications Manager user ID. If IM and Presence Service cannot find a match:
2. IM and Presence Service checks if the Microsoft Lync user email (the From header) matches the Cisco Unified Communications Manager user email. If IM and Presence Service cannot find a match:
3. IM and Presence Service checks if the Microsoft Lync user email matches the ocsPrimaryAddress value of a Cisco Unified Communications Manager user.

For example, a user Joe has the Microsoft Lync user ID joe@someCompany.com. The From header in the SIP INVITE is sip:joe@someCompany.com.

In this case, IM and Presence Service checks the following:

- If there is a user in the Cisco Unified Communications Manager database whose user ID is 'joe'. If this user ID does not exist:
- If there is a user in the Cisco Unified Communications Manager database whose mail is 'joe@someCompany.com'. If this mail does not exist:
- If there is a user in the Cisco Unified Communications Manager database whose ocsPrimaryAddress is 'sip:joe@someCompany.com'.

Set Up Microsoft Active Directory

Before you begin

- Read the topic describing Line URI configuration on Microsoft Active Directory.
- Read the topic describing the user authentication checks on IM and Presence Service.

Procedure

- Step 1** From the **Microsoft Active Directory** application window, add a user name and the telephone number that are associated with each particular user.
- Step 2** For each of the users that you added, open the **Properties** window on Microsoft Active Directory and configure the following parameters:
- a) Enable the user for the Microsoft Lync Server.
 - b) Enter the SIP URI.
 - c) Enter the Microsoft Lync server name or pool.

Caution Ensure the Microsoft Lync server name or pool name does not contain the underscore character.

- d) Under Telephony Settings, select **Configure**.
- e) Check **Enable Remote call control**.
- f) Enter the Remote Call Control SIP URI; for example, **sip:8000@my-cups.my-domain.com**, where **my-cups.my-domain.com** specifies the FQDN of the IM and Presence Service node that you configured for this integration.
- g) Enter the Line URI value.

Important The SIP URI that you enter on Microsoft Active Directory must match the static route URI that you define when you are configuring static routes on Microsoft Lync.

What to do next

[Enable Users in Lync Server Control Panel, on page 3](#)

Enable Users in Lync Server Control Panel

The following procedure describes how to enable new users in the Lync Server Control Panel.

Procedure

- Step 1** Go to the Windows server that has Microsoft Lync Server installed.
- Step 2** Select **StartAll Programs > Microsoft Lync Server > Lync Server Control Panel**.
- Step 3** Choose **Enable users for Lync Server** from the **Top Actions** menu.

- Step 4** Select **Add**.
- Step 5** Select the LDAP search option and select **Find**.
- Step 6** Click on the user to enable and select **OK**.
- Step 7** Choose the application pool from the **Assign users to a pool** drop-down list.
- Step 8** Select the Specify a SIP URI option and enter the SIP URI, for example, **sip:UserA@lyncdomain.com**, where **UserA** is the user you added and **lyncdomain.com** specifies the domain name of the Lync server.
- Step 9** Choose **Remote call control** from the **Telephony** drop-down list.
- Step 10** Enter the Line URI in the format tel:<telephone_number>, where <telephone_number> is the telephone number you entered when adding the user.
- Step 11** Enter the Line Server URI, for example, **sip:UserA@my-cups.my-domain.com**, where **UserA** is the user you added and **my-cups.my-domain.com** specifies the domain name of the IM and Presence Service node.
- Please note the following:
- The Line Server URI domain is the value that is matched by the static route MatchUri parameter. See [Set Up Static Route for Microsoft Lync Server](#), on page 5.
 - The Line Server URI domain and the value in the MatchUri parameter must match to enable the Lync server to correctly route SIP messages to the IM and Presence Service node.
 - The IM and Presence Service node must also have this domain set as its proxy domain.
- Step 12** Select **Enable** at the top of the window to enable the new user. The user should have a check mark in the Enabled column.

What to do next

[Microsoft Lync Server Setup Overview](#), on page 4

Related Topics

[Line URI Setup on Microsoft Active Directory](#), on page 1

[IM and Presence Service User Authentication](#), on page 2

[Line Appearances](#)

Microsoft Lync Server Setup Overview



Note

This topic provides a brief description of the configuration required on Microsoft Lync Server for this integration. A comprehensive description of Microsoft Lync configuration is out of the scope of this document. For more information, see the Microsoft Lync documentation at the following URL:
<http://technet.microsoft.com/en-us/library/gg558664.aspx>.

Make sure that the Microsoft Lync server is properly installed and activated. Make sure that the following items are configured on Microsoft Lync:

1. Certificate configuration
2. Static Routes
3. Authorized Host

4. Domain Name Server
5. Pool Properties
6. Server Properties
7. Pool Users
8. User Configuration
9. Microsoft Lync Client Configuration



Note If the CTI Gateway is configured to use TCP, you must define the IP address of the Gateway in Lync Server Topology Builder. See the following URL for more information:
<http://technet.microsoft.com/en-us/library/gg602125.aspx>.

You configure the Microsoft Lync Server using the Lync Server Management Shell utility. The Management Shell utility is installed by default with the Lync server installation. Set up the following items during Microsoft Lync server configuration:

- static routes
- application pools
- Remote Call Control (RCC) application
- Lync server SIP listen port

After you set up the Microsoft Lync Server, commit the topology and restart the front-end service.

Set Up Static Route for Microsoft Lync Server

The Lync server uses the static route to match the URI of the incoming client's SIP message INVITE. The Lync server references the URI value as the Line Server URI.

Procedure

Step 1 Select **Start > All Programs > Microsoft Lync Server > Lync Server Management Shell**.

Step 2 Enter the following command to verify the current system configuration:

```
Get-CsStaticRoutingConfiguration
```

Step 3 Enter the following command to create a static route:

```
$tcpRoute = New-CsStaticRoute -TCPRoute -Destination <IP_address_CUPserver> -Port 5060  
-MatchUri "<Line_Server_URI_domain>" -ReplaceHostInRequestUri $true
```

Step 4 At the prompt, enter the following command to load the static route into the Lync server.

```
Set-CsStaticRoutingConfiguration -Route @{Add=$tcpRoute}
```

Step 5 Verify the new system configuration by entering the Get command from [Step 2, on page 5](#) again.

Note If you need to modify or delete a static route, enter the following command:

```
Remove-CsStaticRoutingConfiguration -Identity Global
```

The following table describes the parameters that you use to insert a new static route for Lync server.

Table 1: Static route parameters

Parameter	Description
\$StepRoute	The name of the variable. It can be named anything but it must begin with a \$ and match the reference in the Set command.
New-CsStaticRoute	The internal command that populates the static route to a variable.
-TCPRoute	This parameter configures the route as TCP.
-Destination	The IP address of the IM and Presence Service node.
-Port	The port to which the IM and Presence Service node listens. For TCP, the port is 5060.
-MatchUri	<p>This value is compared to the Line Server URI value that is specified for each user in the Lync Control Panel. See Enable Users in Lync Server Control Panel, on page 3.</p> <p>This MatchURI value and the Line Server URI value must both match the IM and Presence Service node FQDN.</p> <p>The value of this parameter must be written in double quotes, for example,</p> <pre>-MatchUri "my-cups.my-domain.com"</pre>
-ReplaceHostInRequestUri	This parameter replaces the URI in the initial INVITE to the value that is referenced in the Destination parameter.
-CsStaticRoutingConfiguration	The internal command to move parameter values to the routing database.
-Route	This parameter takes the parameters in the variable and adds the static route.

What to do next

[Set Up Application Pool for Microsoft Lync Server](#), on page 6

Set Up Application Pool for Microsoft Lync Server

The following procedure sets up an application pool that is referenced by the Lync server (registrar). It also links the site information to this pool.

Procedure

Step 1 In the Lync Server Management Shell enter the following command to verify the current system configuration:

```
Get-CsTrustedApplicationPool
```

Step 2 Enter the following command to create the application pool:

```
New-CsTrustedApplicationPool -Identity "<IP_address_CUPserver>" -Registrar <Lync_server_FQDN>
-Site 1 -TreatAsAuthenticated $True -ThrottleAsServer $True -RequiresReplication $False
```

Step 3 Select **Y** at the prompt.

Step 4 Verify the new system configuration by entering the **Get** command from [Step 1, on page 7](#) again.

Tip If you need to modify or delete the application pool, enter the following command:

```
Remove-CsTrustedApplicationPool -Identity
TrustedApplicationPool:<IP_address_CUPserver>
```

The following table describes the parameters that you use to configure the application pool.

Table 2: Application pool parameters

Parameter	Description
New-CsTrustedApplicationPool	The internal command that adds the application pool.
-Identity	The reference name of the pool which is also the IP address of the IM and Presence Service node. The value of this parameter must be written in double quotes, for example, <code>-Identity "10.0.0.1"</code> This value must match the value in the <code>TrustedApplicationPoolFqdn</code> parameter of the <code>TrustedApplication</code> command in Set Up RCC Application for Microsoft Lync Server , on page 8.
-Registrar	The FQDN of the Lync server.
-Site	The numeric value of the site. Tip You can find the site ID with the <code>Get-CsSite</code> Management Shell command.
-TreatAsAuthenticated	Always set this value to \$True
-ThrottleAsServer	Always set this value to \$True
-RequiresReplication	Because authentication is not required for TCP, you must set this value to \$False

What to do next

[Set Up RCC Application for Microsoft Lync Server](#) , on page 8

Set Up RCC Application for Microsoft Lync Server

The following procedure adds the Microsoft Remote Call Control (RCC) application to the pool.

Procedure

Step 1 In the Lync Server Management Shell enter the following command to verify the current system configuration:

```
Get-CsTrustedApplication
```

Step 2 Enter the following command to add the RCC application to the pool:

```
New-CsTrustedApplication -ApplicationID RCC -TrustedApplicationPoolFqdn
"<IP_address_CUPserver>" -Port 5060 -EnableTcp
```

Step 3 Select **Y** at the prompt.

Step 4 Verify the new system configuration by entering the **Get** command from [Step 1, on page 8](#) again.

Tip If you need to modify or delete the application pool, enter the following command:

```
Remove-CsTrustedApplicationPool -Identity
TrustedApplicationPool:<IP_address_CUPserver>
```

The following table describes the parameters that you use to configure the application pool.

Table 3: Application configuration parameters

Parameter	Description
New-CsTrustedApplication	The internal command that adds the RCC application.
-ApplicationID	The name of the application, for example, RCC.
-TrustedApplicationPoolFQDN	The IP address of the IM and Presence Service node. The value of this parameter must be written in double quotes, for example, <code>-Identity "10.0.0.1"</code> This value must match the value in the Identity parameter of the TrustedApplicationpool command in Set Up Application Pool for Microsoft Lync Server , on page 6.
-Port	The SIP TCP listening port of the IM and Presence Service node. For TCP, the port is 5060.

Parameter	Description
-EnableTCP	<p>This parameter sets the transport to TCP. If this parameter is not included, the transport will default to TLS.</p> <p>Note See Security between IM and Presence Service and Microsoft Lync Setup for more information about Communication with Microsoft Lync server over TLS.</p>

What to do next

[Set Up Lync Server SIP Listen Port, on page 9](#)

Set Up Lync Server SIP Listen Port

The following procedure sets the SIP listen port on the Lync server. This is required for incoming SIP traffic from the IM and Presence Service node.

Procedure

Step 1 In the Lync Server Management Shell enter the following command to verify the current system configuration:

```
Get-CsRegistrarConfiguration
```

Step 2 Enter the following command to set the Lync server listening port:

```
Set-CsRegistrar registrar:<Lync_server_FQDN> -SipServerTcpPort 5060
```

Step 3 Verify the new system configuration by entering the **Get** command from [Step 1, on page 9](#) again.

Tip If you need to modify or delete the application pool, enter the following command:

```
Remove-CsRegistrarConfiguration
```

The following table describes the parameters that you use to configure the Lync server listen port.

Table 4: Lync server listen port parameters

Parameter	Description
Set-CsRegistrar	Internal command that sets the Lync server port.
registrar:	FQDN of the Lync server.
-SipServerTcpPort	SIP listening port of the Lync server. The default value is typically 5060.

What to do next

[Commit Lync Server Setup, on page 10](#)

Commit Lync Server Setup

This procedure describes how to commit the topology and restart the front-end service.

Procedure

-
- Step 1** In the Lync Server Management Shell enter the following command to enable the topology:
- ```
Enable-CsTopology
```
- Step 2** Enter the following command to output the topology to an XML file called rcc.xml and save it to the C drive:
- ```
Get-CsTopology -AsXml | Out-File C:\rcc.xml
```
- Note** You can select any name and location to output the topology information.
- Step 3** Open the rcc.xml file.
- Step 4** In the **Cluster Fqdn** section, change the IPAddress parameter from “<0.0.0.0>” to the IP Address of the IM and Presence Service node.
- Step 5** Save the rcc.xml file.
- Step 6** Enter the following command in the Lync Server Management Shell:
- ```
Publish-CsTopology -FileName C:\rcc.xml
```
- Step 7** Enter the following command to restart the front-end service:
- ```
Restart-Service RtcSrv
```
-

What to do next

[Normalization Rules Setup](#)