



# Interdomain Federation with Skype for Business

This section explains the Interdomain Federation with Skype for Business.

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- [Skype for Business Federation Task Flow, on page 2](#)

## Skype for Business Interdomain Federation

The IM and Presence Service supports interdomain federation with Skype for Business server via Expressway. The following integrations are supported:

- Business to Business—Federation with a remote Skype for Business server in another company's network
- Single Enterprise Network—Federation with an on-premise Skype for Business server that is located within the same enterprise network, but in a different domain.



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**Note** You can also configure federation with a Skype for Business server that is hosted by an Office365 deployment. For details, including configuration information, refer to [Interdomain Federation with Office 365](#).

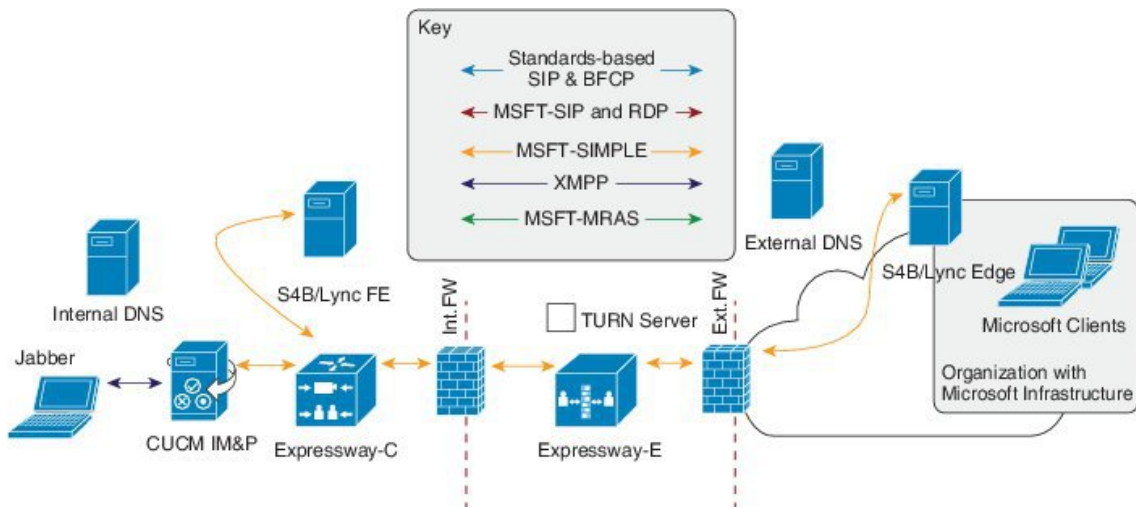
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### Skype for Business Federation Example

The following image demonstrates both a Business to Business federation and a Single Enterprise Network federation for a Skype for Business server.

- With Business to Business federation, communication occurs between the IM and Presence Service on the left of the diagram, and a remote Skype for Business server that is located in another company's network on the right side of the diagram. This integration requires communications to cross the company firewall. So in addition to an Expressway-C that is deployed within the enterprise network, you must deploy Expressway-E within the DMZ of the firewall.
- With Single Enterprise Network, an on-premise Skype for Business server is located in the company network, but in a separate domain. In the diagram, the Skype for Business server is within the internal firewall. This integration requires Expressway-C, but does not require Expressway-E as communication does not need to cross the firewall.

Figure 1: Federation with Skype for Business



# Skype for Business Federation Task Flow

Complete these tasks to configure interdomain federation with an on-premise or remote Skype for Business server. You can use this configuration to configure either of the following deployments:

- A business to business integration with another business that is deploying an on-premise Skype for Business server.
- Within a single enterprise, you can configure interdomain federation between the IM and Presence Service and an on-premise Skype for Business server.



**Note** For federation with an Office 365-hosted Skype for Business deployment, go to [Interdomain Federation with Office 365](#).

### Before You Begin

By default, the Federation routing parameter is set to the database publisher node FQDN upon installation. If you want to reset this value, go to [Configure Federation Routing Parameters](#).

	IM and Presence Service Configuration	Expressway Configuration	Skype for Business Configuration	Description
Step 1	<a href="#">Turn on Federation Services</a> , on page 4			Make sure that Federation services are running.

	<b>IM and Presence Service Configuration</b>	<b>Expressway Configuration</b>	<b>Skype for Business Configuration</b>	<b>Description</b>
Step 2	<a href="#">Assign DNS SRV for IM and Presence, on page 4</a>			Configure a DNS SRV record so that Skype for Business can route traffic to the IM and Presence Service.
Step 3	<a href="#">Add Federated Domain to IM and Presence, on page 5</a>			Add domain entries for all Skype for Business domains.
Step 4	<a href="#">Configure Static Route on IM and Presence, on page 5</a>			Configure a static route that points to Expressway-C.
Step 5	<a href="#">Add Expressway as a TLS Peer, on page 5</a>			Configure Expressway-C as a TLS peer.
Step 6	<a href="#">Add Expressway to Access Control List, on page 6</a>			Add all Expressway-C servers to an access control list.
Step 7	<a href="#">Restart Cisco XCP Router, on page 7</a>			After completing your configurations, restart the Cisco XCP Router service.
Step 8		<a href="#">Configure Expressway for Federation with Skype for Business, on page 7</a>		Configure Expressway for interdomain federation.
Step 9			<a href="#">Configure User Trust Settings, on page 8</a>	Configure trust settings for IM and Presence users.
Step 10			<a href="#">Configure Global Federation Access Settings, on page 8</a>	Configure global access edge settings for federation.
Step 11			<a href="#">Add IM and Presence as Allowed Domain, on page 9</a>	Optional. Complete this task only if your global access edge settings do not allow the IM and Presence domain.

	IM and Presence Service Configuration	Expressway Configuration	Skype for Business Configuration	Description
Step 12			<a href="#">Add Expressway as SIP Federated Provider for IM and Presence, on page 9</a>	Optional. Complete this task only if you are not using a DNS SRV to route traffic to the IM and Presence Service.
Step 13	<a href="#">Exchange Certificates, on page 10</a>			Exchange certificates between the servers in your setup.

## Turn on Federation Services

Turn on the **Cisco XCP SIP Federation Connection Manager** service. This turns on the SIP Federation feature for each user that you provision. You must complete this task on each node in the cluster.

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- Step 1** Log in to the **Cisco Unified IM and Presence Serviceability** user interface. Choose **Tools > Service Activation**.
- Step 2** From the **Server** drop-down, choose an IM and Presence node and click **Go**.
- Step 3** Under **IM and Presence Services**, make sure that the adjacent radio button to the **Cisco XCP SIP Federation Connection Manager** service is checked.
- Step 4** Click **Save**.
- Step 5** The Cisco SIP Proxy service must be running for SIP federation to work. Log in to the **Cisco Unified IM and Presence Serviceability** user interface. Choose **Tools > Feature Services** and verify that the Cisco SIP Proxy service is running.
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## Assign DNS SRV for IM and Presence

Configure a DNS SRV record for the IM and Presence Service. Skype for Business uses this record to route traffic to IM and Presence Service via Expressway.

- With business to business federation, the record must be a public DNS SRV that points to the Expressway-E IP addresses.
- For federation within a single enterprise, you can use internal DNS that points to the Expressway-C IP addresses. Expressway-E is not required as the federation takes place within a single enterprise.

### Example:

```
nslookup
set type=srv
_sipfederationtls._tcp.expwye
```

where `expwye` is the domain for Expressway-E.




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**Note** You can still configure interdomain federation without the DNS SRV record, but in this case, you must add the route manually on the Skype for Business server. If you choose to do this, you can skip this task.

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**What to do next**

[Add Federated Domain to IM and Presence, on page 5](#)

## Add Federated Domain to IM and Presence

On the IM and Presence Service, add a Federated domain entry for each Skype for Business domain that you want to federate with.

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- Step 1** From Cisco Unified CM IM and Presence Administration, choose **Presence > Inter-Domain Federation > SIP Federation**.
  - Step 2** Click **Add New**.
  - Step 3** In the **Domain Name** field, enter the Skype for Business domain.
  - Step 4** Enter a **Description** of the domain. For example, *Skype for Business federated domain*.
  - Step 5** From the **Integration Type** drop-down, select **Inter-domain to OCS/Lync/S4B**.
  - Step 6** Click **Save**.
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**What to do next**

[Restart Cisco XCP Router, on page 7](#)

## Configure Static Route on IM and Presence

On the IM and Presence Service, configure a static route for Skype for Business users. The static route must use TLS and point to Expressway-C.

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- Step 1** From Cisco Unified CM IM and Presence Administration, choose **Presence > Routing > Static Routes**.
  - Step 2** Click **Add New**.
  - Step 3** In the **Destination Pattern** field, enter the Skype for Business FQDN in a reversed format. For example, if the domain is *s4b.com*, enter *.com.s4b.\**.
  - Step 4** In the **Next Hop** field, enter the Expressway-C IP address or FQDN.
  - Step 5** In the **Next Hop Port** field enter **5061**.
  - Step 6** From the **Route Type** drop-down list, choose **Domain**.
  - Step 7** From the **Protocol Type** drop-down list box, select **TLS**.
  - Step 8** Click **Save**.
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**What to do next**

[Add Expressway as a TLS Peer, on page 5](#)

## Add Expressway as a TLS Peer

Use this procedure in the IM and Presence Service to configure Expressway-C as a peer for TLS.

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- Step 1** Add Expressway-C as a TLS peer subject:
- From Cisco Unified CM IM and Presence Administration, choose **System > Security > TLS Peer Subjects**.
  - Click **Add New**.
  - In the **Peer Subject Name** field, enter the Expressway-C fully qualified domain name of the Expressway-C.
  - Enter a **Description**.
  - Click **Save**.
- Step 2** Create a TLS Context that includes the Expressway TLS peer subject that you configured:
- From Cisco Unified CM Administration, choose **System > Security > TLS Context Configuration**
  - Click **Find**.
  - Select **Default\_Cisco\_UP\_SIP\_Proxy\_Peer\_Auth\_TLS\_Context**.
  - Under **TLS Cipher Mapping**, use the arrows to move the desired TLS ciphers to the **Selected TLS Ciphers** box. However, leaving this at the default setting should be sufficient in most cases.
  - Under **TLS Peer Subject Mapping**, use the arrows to move the TLS peer subject that you created to the **Selected TLS Peer Subjects** list box.
  - Click **Save**.
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## Add Expressway to Access Control List

On the IM and Presence Service, add inbound access control list (ACL) entries for each Expressway-C server so that Expressway-C can access the IM and Presence Service without authentication. For multicluster deployments, complete this procedure on each cluster.



**Note** If you have an ACL that provides global access (*Allow from all*), or an ACL which provides access to the domain on which the Expressway-C server resides (for example, *Allow from company.com*) then you do not need to add ACL entries for the Expressway-C server.

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- Step 1** Log in to the IM and Presence Service publisher node.
- Step 2** From Cisco Unified CM IM Administration, choose **System > Security > Incoming ACL**.
- Step 3** Create your ACL entries:
- Click **Add New**.
  - Enter a **Description** for the new ACL entry. For example, *Skype for Business Federation via Expressway-C*.
  - Enter an **Address Pattern** that provides access to the Expressway-C IP address or FQDN. For example, *Allow from 10.10.10.1* or *Allow from expwyc.company.com*.
  - Click **Save**.
  - Repeat this set of steps to create another ACL entry. To provide server access, you need two entries: an ACL with the server IP address, and an ACL with the server FQDN.
- Step 4** Restart Cisco SIP Proxy services:
- Choose **Presence > Routing > Settings**.

- b) Click **Restart All Proxy Services**.

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**What to do next**

[Restart Cisco XCP Router, on page 7](#)

## Restart Cisco XCP Router

After completing your configurations, restart the **Cisco XCP Router**.

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- Step 1** From Cisco Unified IM and Presence Serviceability, choose **Tools > Control Center - Network Services**.
- Step 2** From the **Server** drop-down list box, choose the IM and Presence database publisher node and click **Go**.
- Step 3** Under **IM and Presence Services**, select the **Cisco XCP Router** service.
- Step 4** Click **Restart**.
- Step 5** Repeat this procedure for all IM and Presence Service cluster nodes.
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**What to do next**

[Configure Static Route on IM and Presence, on page 5](#)

## Configure Expressway for Federation with Skype for Business

After interdomain federation is configured on the IM and Presence Service, set up Expressway for interdomain federation with Skype for Business.

- For business to business interdomain federation, you must deploy both Expressway-C and Expressway-E.
- For interdomain federation with a Skype for Business server that is located within your enterprise network, you can deploy an Expressway-C cluster only as the communication does not need to extend across the WAN.

For Expressway configuration details, see the *Chat and Presence XMPP Federation and Microsoft SIP Federation using IM and Presence or Expressway* at:

<http://www.cisco.com/c/en/us/support/unified-communications/expressway-series/products-installation-and-configuration-guides-list.html>.



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**Note** Make sure that your Expressway-C zone configuration points to the port that is associated with TLS Peer Authentication on the IM and Presence Service. You can confirm the correct port on Cisco Unified CM IM and Presence Administration by going to **System > Application Listeners** and confirming the port associated to **Default Cisco SIP Proxy TLS Listener - Peer Auth**. The default is **5062**.

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**What to do next**

After Expressway is configured, proceed with the Skype for Business setup:

[Configure User Trust Settings, on page 8](#)

## Configure User Trust Settings

On the Skype for Business server, configure user trust settings for Federated IM and Presence users.

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- Step 1** Log in to the Skype for Business server.
- Step 2** In the left navigation bar, click **Federation and External Access**.
- Step 3** In the header bar, click **EXTERNAL ACCESS POLICY**.
- Step 4** Click **New** and select **User Policy**.
- Step 5** In the **Name** field, enter the IM and Presence domain
- Step 6** Check the following options:
- Enable communications with federated users
  - Enable communications with remote users
  - Enable communications with public users
- Step 7** Click **Commit**.
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### What to do next

[Configure Global Federation Access Settings, on page 8](#)

## Configure Global Federation Access Settings

On the Skype for Business server, configure global access edge settings for SIP Federation.

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- Step 1** In the left navigation bar, click **Federation and External Access**.
- Step 2** In the header bar, click **ACCESS EDGE CONFIGURATION**.
- Step 3** Select **Global**.
- Step 4** If you want to allow access to all domains globally, select each of the following options. Otherwise, choose which options you want to allow:
- Enable federation and public IM connectivity
  - Enable partner domain discovery—Select this option to use a public DNS SRV record to route traffic to the IM and Presence Service. If you do not want to use a DNS SRV record, or do not have a DNS SRV record, leave this option unchecked.
  - Enable remote user access
  - Enable anonymous user access to conferences
- Note** If you choose not to allow access globally, you will have to add the IM and Presence manually as an allowed domain and a SIP Federated Provider.
- Step 5** Click **Commit**.
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**What to do next**

If you configured restricted access (i.e., you left some global options unchecked), [Add IM and Presence as Allowed Domain, on page 9](#).

If you allowed access globally, but do not have a public DNS SRV record for routing to IM and Presence Service, [Add Expressway as SIP Federated Provider for IM and Presence, on page 9](#).

Otherwise, if you allowed access globally, and you have a public DNS SRV record to route traffic to the IM and Presence Service, [Exchange Certificates, on page 10](#).

## Add IM and Presence as Allowed Domain

Use this procedure if the Global Access Edge settings on the Skype for Business server do not allow all domains. In this case, add a specific entry for the IM and Presence Service domain.

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- Step 1** In the left navigation bar, click **Federation and External Access**.
- Step 2** In the header bar, click **SIP FEDERATED DOMAINS**.
- Step 3** Click **New** and select **Allowed domain**.
- Step 4** In the **Domain name** field, enter the IM and Presence domain.
- Step 5** In the **Access Edge Service (FQDN)** field, enter the Expressway-E fully qualified domain name.
- Step 6** Click **Commit**.
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**What to do next**

Confirm if you are using a public DNS SRV record to route traffic from Skype for Business to the IM and Presence Service.

- If you are not using a DNS SRV record, add Expressway manually as a SIP Provider for IM and Presence. See [Add Expressway as SIP Federated Provider for IM and Presence, on page 9](#).
- If you are using a DNS SRV record, [Exchange Certificates, on page 10](#).

## Add Expressway as SIP Federated Provider for IM and Presence

Use this procedure on the Skype for Business server if you are not using a DNS SRV record to route traffic from Skype for Business. In this case, you must add Expressway manually as a SIP Federation Provider for IM and Presence Service.



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**Note** If you have a DNS SRV record for the IM and Presence Service, you can skip this task.

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- Step 1** On the Skype for Business server, click **Federation and External Access**.
- Step 2** Click **SIP FEDERATED PROVIDERS**.
- Step 3** Click **New** and select **Hosted provider**.

- Step 4** In the **Provider** name field, enter your IM and Presence domain.
- Step 5** In the **Access Edge service (FQDN)** field, enter the fully qualified domain name of the Expressway-E server.
- Step 6** Click **Commit**.

### What to do next

[Exchange Certificates, on page 10](#)

## Exchange Certificates

Follow this process to exchange certificates among the servers in your Interdomain Federation with Skype for Business deployment.



**Note** External Edge certificates from the Skype for Business edge server must have the following OID values under Enhanced Key Usage:

- Server Authentication: (1.3.6.1.5.5.7.3.1)
- Client Authentication: (1.3.6.1.5.5.7.3.2)

- Step 1** Download certificates from each system in the deployment:
- IM and Presence Service (internal certificate can be self-signed)
  - Expressway-C (internal certificate can be self-signed)
  - Expressway-E (external certificate must be CA-signed). Note that the Expressway-E is required for Business to Business federation only. Expressway-E is not used for single enterprise network.
  - Skype for Business edge server (External Edge certificate must be CA-signed)
- Note** In this context, if any of the certificates, such as Expressway-E and Skype for Business, are signed by a Certificate Authority, it is the Root CA certificate that is actually added in the relevant far end trust store. Only in the scenario of self-signed certificates should themselves be added to the far end trust stores.
- Step 2** On the IM and Presence Service, upload the Expressway-C certificate to **cup-trust**.
- Step 3** On the Expressway-C, upload the IM and Presence Service certificate and, (for Single Enterprise Network federation only) the Skype for Business certificate.
- Step 4** Upload the Skype for Business certificate as follows:
- (Single Enterprise Network). On the Expressway-C, upload the Skype for Business certificate
  - (Business to Business only) On the Expressway-E, upload the Skype for Business External Edge certificate.
- Step 5** On the Skype for Business edge server, upload the Expressway-E external certificate (for Business to Business) or the Expressway-C certificate (for federation within a single enterprise).

### Certificate Notes

- For IM and Presence Service, you can download and upload certificates from the **Certificate Management** window in Cisco Unified IM OS Administration (choose **Security > Certificate Management**). For detailed procedures, see the "Security Configuration" chapter of the *Configuration and Administration Guide for IM and Presence Service* at <http://www.cisco.com/c/en/us/support/unified-communications/unified-presence/products-installation-and-configuration-guides-list.html>.
- For Expressway certificate management, see the *Cisco Expressway Administrator Guide* at <http://www.cisco.com/c/en/us/support/unified-communications/expressway-series/products-maintenance-guides-list.html>.
- For Skype for Business certificates, you can use the Skype for Business Deployment Wizard to install or download certificates. Run the wizard and select the **Request, Install or Assign Certificates** option. For details, see your Microsoft Skype for Business documentation.

