



Contact Source

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Directory Servers

You can use the following directory servers with Cisco Jabber:



Note Cisco Jabber for Windows, Cisco Jabber for Mac, Cisco Jabber for iPhone and iPad, and Cisco Jabber for Android support the LDAPv3 standard for directory integration. Any directory server that supports this standard should be compatible with these clients.

- Active Directory Domain Services for Windows Server 2012 R2
- Active Directory Domain Services for Windows Server 2008 R2
- Cisco Unified Communications Manager User Data Server (UDS)

Cisco Jabber supports UDS using the following Cisco Unified Communications Manager versions:

Cisco Unified Communications Manager, version 9.1(2), with the following Cisco Options Package (COP) file: `cmterm-cucm-uds-912-5.cop.sgn`.

Cisco Unified Communications Manager, version 10.0(1). No COP file is required.

- OpenLDAP
- Active Directory Lightweight Directory Service (AD LDS) or Active Directory Application Mode (ADAM)



Restriction Directory integration with OpenLDAP, AD LDS, or ADAM requires that you define specific parameters in a Cisco Jabber configuration file.

What is a Contact Source?

A contact source is a collection of data for users. When users search for contacts or add contacts in the Cisco Jabber client, the contact information is read from a contact source.

Cisco Jabber retrieves the information from the contact source to populate contact lists, update contact cards in the client and other areas that display contact information. When the client receives any incoming communications, for example an instant message or a voice/video call, the contact source is used to resolve the contact information.

When to Configure Directory Integration



Note Install Cisco Jabber for Windows on a workstation that is registered to an Active Directory domain. In this environment, you do not need to configure Cisco Jabber for Windows to connect to the directory. The client automatically discovers the directory and connects to a Global Catalog server in that domain.

Configure Cisco Jabber to connect to a directory services if you plan to use one of the following services as the contact source:

- Domain Controller
- Cisco Unified Communications Manager User Data Service
- OpenLDAP
- Active Directory Lightweight Directory Service
- Active Directory Application Mode

You can optionally configure directory integration to:

- Change the default attribute mappings.
- Adjust directory query settings.
- Specify how the client retrieves contact photos.
- Perform intradomain federation.

Why Do I Need a Contact Source?

Cisco Jabber uses the contact source in the following ways:

- Users search for a contact—The client takes the information entered and searches in the contact source. Information is retrieved from the contact source and the client will display the available methods to interact with the contact.
- Client receives incoming notification—The client will take the information from the incoming notification and resolve the URI, number, JabberID with a contact from the contact source. The client will display the contact details in the alert.

Contact Source Options

In on-premises deployments, the client requires one of the following contact sources to resolve directory look ups for user information:

- Lightweight Directory Access Protocol (LDAP)—If you have a corporate directory, you can use the following LDAP-based contact source options to configure your directory as the contact source:
 - Enhanced Directory Integration (EDI)—Select this option to deploy Cisco Jabber for Windows.
 - Basic Directory Integration (BDI)—Select this option to deploy Cisco Jabber for Mac, iOS, and Android.
 - Cisco Directory Integration (CDI)—Use this contact source option to deploy all clients.
- Cisco Unified Communications Manager User Data Service (UDS)—If you do not have a corporate directory or if your deployment includes users connecting with Expressway Mobile and Remote Access, you can use this option.

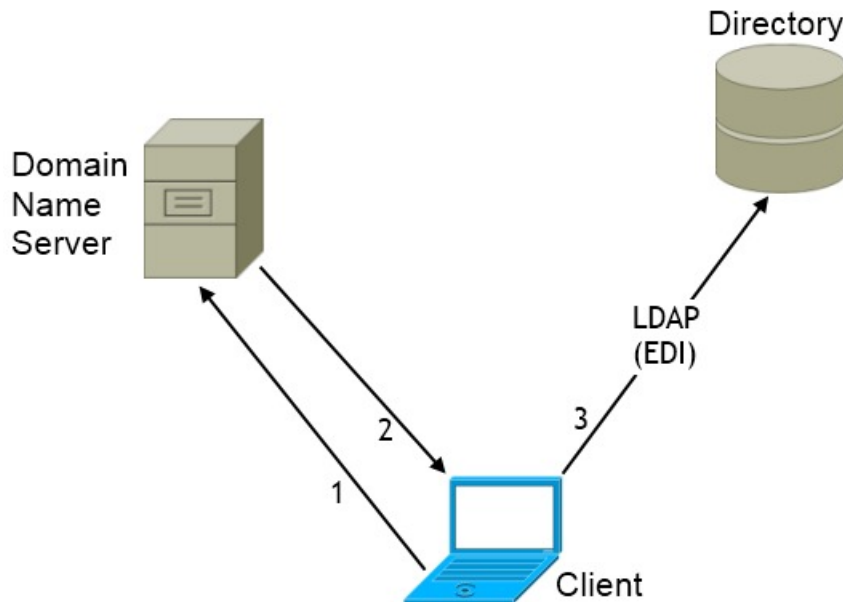
LDAP Options: EDI and BDI

Enhanced Directory Integration

EDI uses native Microsoft Windows APIs to retrieve contact data from the directory service.

The following are the default settings for on-premises deployments with EDI:

- Cisco Jabber integrates with Active Directory as the contact source.
- Cisco Jabber automatically discovers and connects to a Global Catalog.



In the preceding diagram, the client does the following by default:

1. Gets the DNS domain from the workstation and looks up the SRV record for the Global Catalog.
2. Retrieves the address of the Global Catalog from the SRV record.
3. Connects to the Global Catalog with the logged in user's credentials.

Domain Name Retrieval

Cisco Jabber for Windows retrieves the fully qualified DNS domain from the `USERDNSDOMAIN` environment variable on the client workstation.

After the client gets the DNS domain, it can locate the Domain Name Server and retrieve SRV records.

If the `USERDNSDOMAIN` environment variable is not present, you can deploy the `LdapUserDomain` configuration parameter to specify which domain to execute the request for the LDAP service. If that parameter is not configured, then Jabber uses the domain from the email address screen.

In some instances, the value of the `USERDNSDOMAIN` environment variable does not resolve to the DNS domain that corresponds to the domain of the entire forest. For example, when an organization uses a sub-domain or resource domain. In this case, the `USERDNSDOMAIN` environment variable resolves to a child domain, not the parent domain. As a result, the client cannot access information for all users in the organization.

If the `USERDNSDOMAIN` environment variable resolves to a child domain, you can use one of the following options to enable Cisco Jabber for Windows to connect to a service in the parent domain:

- Ensure that the Global Catalog or LDAP directory server can access all users in the organization.
- Configure your DNS server to direct the client to a server that can access all users in the organization when Cisco Jabber for Windows requests a Global Catalog or LDAP directory server.
- Configure Cisco Jabber for Windows to use the FQDN of the domain controller.

Specify the FQDN of the domain controller as the value of the `PrimaryServerName` parameter in your client configuration as follows:

```
<PrimaryServerName>parent-domain-fqdn</PrimaryServerName>
```

Directory Server Discovery

Cisco Jabber can automatically discover and connect to the directory server if:

- The workstation on which you install Cisco Jabber automatically detects the workstation by determining the user domain.
- The workstation retrieves the server connection address from the DNS SRV record.

Directory Server	SRV Record
Global Catalog	<i>_gc._msdcs._tcp.domain.com</i>
Domain Controller LDAP-based directory servers	<i>_ldap._msdcs._tcp.domain.com</i>

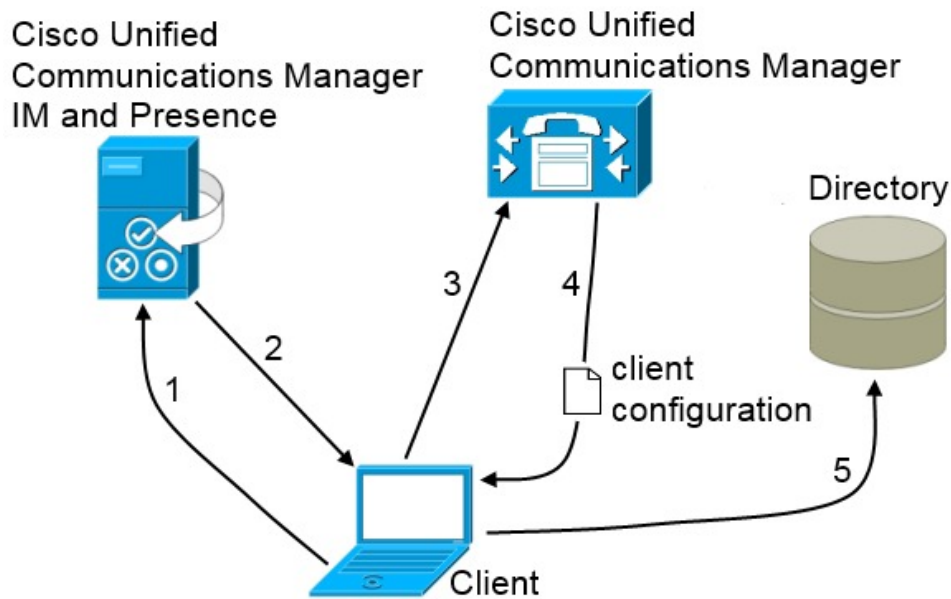
Basic Directory Integration

The client retrieves contact data from the directory service as follows.

1. The client connects to the Cisco Unified Communication Manager IM and Presence Service node.
2. The client gets the LDAP profile configuration section in the service profile from the Cisco Unified Communication Manager IM and Presence Service node.

The service profile contains the location of Cisco Unified Communication Manager (TFTP) node. Depending on your configuration, the service profile can also contain the credentials to authenticate with the directory.

3. The client connects to the Cisco Unified Communication Manager node.
4. The client downloads the client configuration file from the Cisco Unified Communication Manager node.
The client configuration file contains the location of the directory. Depending on your configuration, the client configuration file can also contain the credentials to authenticate with the directory.
5. The client uses the directory location and the authentication credentials to connect to the directory.



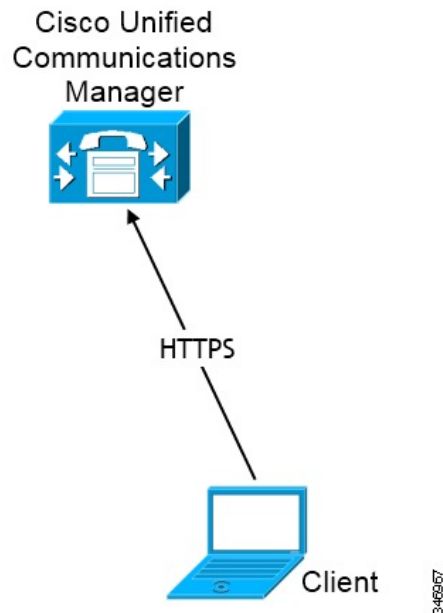
Cisco Unified Communications Manager User Data Service

User Data Service (UDS) is a REST interface on Cisco Unified Communications Manager that provides contact resolution.

UDS is used for contact resolution in the following cases:

- If you set the `DirectoryServerType` parameter to use a value of UDS in the client configuration file.
With this configuration, the client uses UDS for contact resolution when it is inside or outside of the corporate firewall.
- If you deploy Expressway for Remote and Mobile Access.
With this configuration, the client automatically uses UDS for contact resolution when it is outside of the corporate firewall.

You synchronize contact data into Cisco Unified Communications Manager from a directory server. Cisco Jabber then automatically retrieves that contact data from UDS.



Contact Resolution with Multiple Clusters

For contact resolution with multiple Cisco Unified Communications Manager clusters, synchronize all users on the corporate directory to each cluster. Provision a subset of those users on the appropriate cluster.

For example, your organization has 40,000 users. 20,000 users reside in North America. 20,000 users reside in Europe. Your organization has the following Cisco Unified Communications Manager clusters for each location:

- `cucm-cluster-na` for North America
- `cucm-cluster-eu` for Europe

In this example, synchronize all 40,000 users to both clusters. Provision the 20,000 users in North America on `cucm-cluster-na` and the 20,000 users in Europe on `cucm-cluster-eu`.

When users in Europe call users in North America, Cisco Jabber retrieves the contact details for the user in Europe from `cucm-cluster-na`.

When users in North America call users in Europe, Cisco Jabber retrieves the contact details for the user in North America from `cucm-cluster-eu`.

LDAP Prerequisites

Cisco Jabber searches the contact source using various attributes, not all of these attributes are indexed by default. To ensure efficient searches the attributes used by Cisco Jabber must be indexed.

If you use the default attribute mappings, ensure the following attributes are indexed:

- `sAMAccountName`
- `displayName`

- sn
- name
- proxyAddresses
- mail
- department
- givenName
- telephoneNumber
- otherTelephone
- mobile
- homePhone
- msRTCSIP-PrimaryUserAddress

LDAP Service Account

Cisco Jabber uses an account to authenticate with the directory server. We recommend that this account has read-only access to the directory and is a commonly known public set of credentials.

Configure Cisco Jabber to connect to a directory server using a service profile or using parameters in the `jabber-config.xml` file. Cisco Jabber for all clients for Windows connects to a Global Catalog server by default and this is the recommended method for Cisco Jabber for all clients for Windows, you do not need to configure Cisco Jabber for all clients for Windows to connect to the directory.

Jabber ID Attribute Mapping

The LDAP attribute for user ID is `sAMAccountName`. This is the default attribute.

If the attribute for the user ID is other than `sAMAccountName`, and you're using the default IM address scheme in Cisco Unified Communications Manager IM and Presence Service, you must specify the attribute as the value for the parameter in your client configuration file as follows:

The EDI parameter is `UserAccountName`. `<UserAccountName>attribute-name</UserAccountName>`

The BDI parameter is `BDIUserAccountName`.

`<BDIUserAccountName>attribute-name</BDIUserAccountName>`

If you do not specify the attribute in your configuration, and the attribute is other than `sAMAccountName`, the client cannot resolve contacts in your directory. As a result, users do not get presence and cannot send or receive instant messages.

Search Jabber IDs

Cisco Jabber uses the Jabber ID to search for contact information in the directory. There are a few options to optimize searching in the directory:

- Search base—By default the client will start a search at the root of a directory tree. You can use search bases to specify a different search start or to restrict searches to specific groups. For example, a subset of your users have instant messaging capabilities only. Include those users in an OU and then specify that as a search base.
- Base Filter—Specify a directory subkey name only to retrieve objects other than user objects when you query the directory.
- Predictive Search Filter—You can define multiple, comma-separated values to filter search queries. The default value is ANR(Ambiguous name resolution.)

Local Contact Sources

Cisco Jabber has the ability to access and search local contact sources. These local contact sources include the following:

- Local contacts stored in Microsoft Outlook are accessed by Cisco Jabber for Windows.
- Local contacts stored in IBM Notes are accessed by Cisco Jabber for Windows (from release 11.1).
- Local address book contacts are accessed by Cisco Jabber for Mac, Cisco Jabber for Android and Cisco Jabber for iPhone and iPad.

Custom Contact Sources

Cisco Jabber for all clients for Windows provides users with the ability to import custom contacts into their client. For more information see the *Import contact lists* topic in the Cisco Jabber for all clients for Windows User Guide.

Contact Caching

Cisco Jabber creates a local cache of the users contact list. When a user searches for somebody in their contact list, Cisco Jabber searches the local cache for a match before starting a directory search.

If a user searches for somebody who is not in their contact list, Cisco Jabber will search the local cache for a match and then Cisco Jabber will search the company directory for a match. If the user starts a chat or a call with this contact, the contact information is added to the local cache. Subsequent searches for this contact will return the contact information in a *Contacts or recents* list.

The local cache information expires after 24 hours.

Dial Plan Mapping

You configure dial plan mapping to ensure that dialing rules on Cisco Unified Communications Manager match dialing rules on your directory.

Application Dial Rules

Application dial rules automatically add or remove digits in phone numbers that users dial. Application dialing rules manipulate numbers that users dial from the client.

For example, you can configure a dial rule that automatically adds the digit 9 to the start of a 7 digit phone number to provide access to outside lines.

Directory Lookup Dial Rules

Directory lookup dial rules transform caller ID numbers into numbers that the client can lookup in the directory. Each directory lookup rule you define specifies which numbers to transform based on the initial digits and the length of the number.

For example, you can create a directory lookup rule that automatically removes the area code and two-digit prefix digits from 10-digit phone numbers. An example of this type of rule is to transform 4089023139 into 23139.

Cisco Unified Communication Manager UDS for Mobile and Remote Access

Cisco Unified Communication Manager UDS is the contact source used when Cisco Jabber connects using Expressway for Mobile and Remote Access. If you deploy LDAP within the corporate firewall, we recommend that you synchronize your LDAP directory server with Cisco Unified Communications Manager to allow the client to connect with UDS when users are outside the corporate firewall.

Cloud Contact Source

Cisco Webex Contact Source

For Cloud deployments, contact data is configured in Cisco Webex Messenger Administration Tool or by user updates. The contact information can be imported using the Cisco Webex Messenger Administration Tool. For more information see the *User Management* section of the Cisco Webex Messenger Administration Guide.

Contact Photo Formats and Dimensions

To achieve the best result with Cisco Jabber, your contact photos should have specific formats and dimensions. Review supported formats and optimal dimensions. Learn about adjustments the client makes to contact photos.

Contact Photo Formats

Cisco Jabber supports the following formats for contact photos in your directory:

- JPG

- PNG
- BMP

**Important**

Cisco Jabber does not apply any modifications to enhance rendering for contact photos in GIF format. As a result, contact photos in GIF format might render incorrectly or with less than optimal quality. To obtain the best quality, use PNG format for your contact photos.

Contact Photo Dimensions



- Tip** The optimum dimensions for contact photos are 128 pixels by 128 pixels with an aspect ratio of 1:1. 128 pixels by 128 pixels are the maximum dimensions for local contact photos in Microsoft Outlook.

The following table lists the different dimensions for contact photos in Cisco Jabber.

Location	Dimensions
Audio call window	128 pixels by 128 pixels
Invitations and reminders, for example: <ul style="list-style-type: none"> • Incoming call windows • Meeting reminder windows 	64 pixels by 64 pixels
Lists of contacts, for example: <ul style="list-style-type: none"> • Contact lists • Participant rosters • Call history • Voicemail messages 	32 pixels by 32 pixels

Contact Photo Adjustments

Cisco Jabber adjusts contact photos as follows:

- Resizing—If contact photos in your directory are smaller or larger than 128 pixels by 128 pixels, the client automatically resizes the photos. For example, contact photos in your directory are 64 pixels by 64 pixels. When Cisco Jabber retrieves the contact photos from your directory, it resizes the photos to 128 pixels by 128 pixels.



Tip Resizing contact photos can result in less than optimal resolution. For this reason, use contact photos that are 128 pixels by 128 pixels so that the client does not automatically resize them.

- **Cropping**—Cisco Jabber automatically crops nonsquare contact photos to a square aspect ratio, or an aspect ratio of 1:1 where the width is the same as the height.
- **Portrait orientation**—If contact photos in your directory have portrait orientation, the client crops 30 percent from the top and 70 percent from the bottom.

For example, if contact photos in your directory have a width of 100 pixels and a height of 200 pixels, Cisco Jabber needs to crop 100 pixels from the height to achieve an aspect ratio of 1:1. In this case, the client crops 30 pixels from the top of the photos and 70 pixels from the bottom of the photos.

- **Landscape orientation**—If contact photos in your directory have landscape orientation, the client crops 50 percent from each side.

For example, if contact photos in your directory have a width of 200 pixels and a height of 100 pixels, Cisco Jabber needs to crop 100 pixels from the width to achieve an aspect ratio of 1:1. In this case, the client crops 50 pixels from the right side of the photos and 50 pixels from the left side of the photos.