How communication works

This section includes general information on Jabber Video's main types of communication and is essential for the subsequent section, which describes specific messages.

- SIP communication, page 1
- Media communication, page 2
- Media routing, page 2

SIP communication

Jabber Video communicates with the Cisco VCS using the Session Initiation Protocol (SIP). Subscribing, registering, presence querying, call invites—all communication except video and audio, is done in SIP. SIP messages are sent using TCP, with or without TLS encryption depending on the provisioned settings.

The default SIP listening ports used on the Cisco VCS are:

- 5060 (unencrypted)
- 5061 (encrypted)

These are both configurable. Go to VCS Configurations > Protocols > SIP > Configuration to change the listening ports.

Note

If you change the SIP listening port number on the Cisco VCS, you must also configure the Jabber Video clients to contact the Cisco VCS on this port. See Pre-configurable settings for more information.

Jabber Video itself will use ephemeral TCP ports for this communication. These ports are handed over to the Jabber Video client by the TCP stack and are not configurable.

To enable communication with endpoints and other devices that rely on H.323 and do not support SIP, interworking on the Cisco VCS can be used.
Media communication

Media data is transferred through up to nine UDP links (ports). There are at most five media streams:

- Audio
- Primary video
- Secondary video (presentation sharing)
- BFCP (management of presentation sharing/duo video, see below)
- Far end camera control (FECC)

With the exception of BFCP, each of these streams requires two links: one link for RTP packets and one link for RTCP packets. The SRTP protocol is used if encryption is enabled.

Port ranges

The default port range for Jabber Video to receive media is 21,000-21,900. This range is configurable in Cisco TMS:

2. Add (or select) the configuration's Media Port Range Start and Media Port Range End.

A minimum range of 10 ports must be configured, or Jabber Video will revert to default.

Note

The default port range used on the Cisco VCS is 50,000-52,399. To configure:

1. Go to VCS Configuration > Local zone > Traversal subzone.
2. Set the Traversal media port start and Traversal media port end.

Note that in both cases, the port numbers used will be consecutive, but chosen randomly within the specified range.

Duo video - Binary Floor Control Protocol (BFCP)

Jabber Video supports BFCP for handling the control of duo video. BFCP communication can be sent over a UDP or a TCP link. Jabber Video uses the same ports as for audio and video for this communication.

On the Cisco VCS, a port will be chosen at random from the same range that has been assigned to the media links.

Media routing

Cisco Jabber Video for TelePresence supports Interactive Connectivity Establishment (ICE) for better media routing. ICE will be used if enabled both in Jabber Video and the far end.
Media routing without ICE

Media links can be established directly between the two endpoints in non-traversal calls, or between Jabber Video and the Cisco VCS in traversal calls. As a general rule, non-traversal calls are defined as calls between two participants that are on the same network and do not require interworking.

Note that SIP to H.323 calls require interworking and are therefore traversal calls irrespective of whether the endpoints are on the same network. For detailed information, see Cisco VCS Administrator Guide for your version of Cisco VCS.

Media routing with ICE

ICE dynamically discovers the best possible path for media to travel between call participants.
It is possible to further improve the routing of media and force it through dedicated links by using the Enable MNS Mode Provisioning configuration.

Enabling ICE

Media routing using ICE requires a TURN server. Cisco VCS Expressway running version X5.2 or later can function as a TURN server if it has TURN Relay licenses. Having the TURN server option key is required.
To start setting up the Cisco VCS Expressway, go to VCS configuration > Expressway > TURN and configure the fields as described below.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Change to</th>
</tr>
</thead>
<tbody>
<tr>
<td>TURN services</td>
<td>On</td>
</tr>
<tr>
<td>Port</td>
<td>3478</td>
</tr>
<tr>
<td>Media port range start</td>
<td>60000</td>
</tr>
<tr>
<td>Media port range end</td>
<td>61399</td>
</tr>
</tbody>
</table>

To finish setup on the Cisco VCS Expressway:

Procedure

Step 1  Go to VCS configuration > Authentication > Devices > Configuration and set the Database type to LocalDatabase.

Step 2  Go to VCS configuration > Authentication > Devices > Local database and create a username and password. The username and password are necessary to allow for use of TURN Relay licenses. The Jabber Video client is provisioned with the username and password as described below.

To enable ICE on the Jabber Video client, go to Systems > Provisioning > Directory and the Configurations pane for Jabber Video, then update the fields as described below.
### Configuring Jabber Video's TURN port

TURN port configuration should be controlled through DNS. Jabber Video will do an SRV lookup for the TURN IP, priority, weight, and port. As TURN runs over UDP, the lookup will be for `_turn._udp.<domain>`. If no SRV record for TURN is found, Jabber Video will perform an A record lookup (IPv4) or an AAAA lookup (IPv6), but will default to port 3478.

If the port needs to be provisioned, you can append it to the IP address in the **TurnServer** field, for example `192.0.2.0:3478`.

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<table>
<thead>
<tr>
<th>Setting</th>
<th>Change to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable ICE</td>
<td><strong>On</strong></td>
</tr>
<tr>
<td>TurnAuthPassword</td>
<td>Password created when setting up the Cisco VCS Expressway.</td>
</tr>
<tr>
<td>TurnAuthUsername</td>
<td>Username created when setting up the Cisco VCS Expressway.</td>
</tr>
<tr>
<td>TurnServer</td>
<td>The address of the server media is relayed through in an &quot;ICE call&quot;, typically the address of the Cisco VCS Expressway.</td>
</tr>
</tbody>
</table>

**Note**

The ICE Provisioning configurations are not available by default. See the Provisioning the client section for more information.