



## **Troubleshooting Guide for Cisco Unified Videoconferencing 3500 Gateway Releases 5.5 and 5.6**

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# CHAPTER 1

## Troubleshooting the Cisco Unified Videoconferencing 3500 Gateway

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This section covers problems you might encounter when configuring, operating and managing the Cisco Unified Videoconferencing 3500 Gateway and provides suggested actions you can perform to solve the problems.

This section describes the following topics:

- [Checking Your Gateway Environment, page 1-2](#)
- [Checking Your LAN Environment, page 1-2](#)
- [Checking Your ISDN Environment, page 1-2](#)
- [Resolving IP-to-ISDN Call Failure, page 1-3](#)
- [Resolving ISDN-to-IP Call Failure, page 1-4](#)
- [Resolving Peer-to-Peer Call Failure, page 1-4](#)
- [Resolving Intermittent Call Failure, page 1-5](#)
- [Resolving IP Video Quality Issues, page 1-6](#)
- [Resolving ISDN Video Quality Issues, page 1-6](#)
- [Resolving Video Channel Issues, page 1-7](#)
- [Resolving DTMF Issues, page 1-7](#)

## Checking Your Gateway Environment

This section describes how to verify that your system status is operational and whether or not the gateway is registered to a gatekeeper.

- Check the Status screen in the gateway, and table of endpoints in the gatekeeper.
- Check that the Gateway PRI/BRI synchronization is correct (the CD LED is green on the gateway board).
- Check the ISDN connectivity to the public ISDN switch or the PBX/PABX.
- Verify at Gateway > Board (or Device) > LED Monitoring that the far/near (red/yellow) LEDs are off. If they are on, contact the ISDN provider.
- Check that the gateway LAN interface is working at 100Mb/Full Duplex. If not, hard code it on both sides (switch and gateway) to 100Mb/Full Duplex and restart both devices.

## Checking Your LAN Environment

This section describes how to verify that your LAN network connection is operating correctly.

- Check that your H.323 entities are properly registered to the gatekeeper.
- Make a call between two LAN endpoints and verify the video and audio quality.
- Verify that the LAN interface performance is satisfactory (no packet loss, jitter or delay issues occur). Check with the network administrator if necessary.

## Checking Your ISDN Environment

This section describes how to verify that your ISDN network connection is operating correctly.

- Check that the video endpoint is ISDN enabled and has ISDN lines connected and properly configured for bonding calls.
- Make an ISDN-to-ISDN call and verify the video and audio quality.
- At Gateway > Port verify that all necessary ISDN ports are enabled.
- At Gateway > Board (or Device) > LED Monitoring verify that the CD LED is steady green. If it is off, check the ISDN physical layer setting.
- At Gateway > Port > Physical Interface confirm proper country selection, signaling protocol and network access settings (TE is most commonly used).
- Some Central Switches/PBXs/PABXs require Double Framing or Extended CRC4 framing. At Gateway > Port > Physical Interface > Advanced confirm proper framing selection.

# Resolving IP-to-ISDN Call Failure

This section describes what to do if IP-to-ISDN calls fail to connect.

**Table 1-1** *Resolving IP-to-ISDN Call Failure*

Possible Causes	Verification Steps
The gateway is not registered to the gatekeeper.	<ul style="list-style-type: none"> <li>Verify at Gateway &gt; Settings &gt; IP Connectivity that the gateway is in Using gatekeeper mode and not in Peer-to-Peer mode.</li> <li>Verify at Gateway &gt; Settings &gt; IP Connectivity that the gatekeeper IP address is correct.</li> <li>When using more than one gateway, verify that each gateway has a unique registration name.</li> </ul>
The LAN endpoint dialed the wrong gateway access prefix.	Confirm that the correct gateway service prefix is used.
The H.320 endpoint is unavailable or busy, or there is an ISDN connection problem.	Make a direct video call to the ISDN endpoint from another ISDN endpoint to identify whether the source of the problem is the ISDN endpoint or the gateway.
The LAN endpoint made the call while set to ISDN call mode, instead of LAN call mode.	Change the endpoint dialer to LAN mode and try calling again.
The gatekeeper table of services does not include the gateway services because the gateway is set to H.323 version 1 mode registration	<ul style="list-style-type: none"> <li>At Gateway &gt; Settings &gt; IP Connectivity set the gateway registration mode to Version 2 and try to make the call again,</li> <li>–or–</li> <li>Add the gateway services manually to the gatekeeper table of services.</li> </ul>
The gateway service is a substring of a gatekeeper service, endpoint E.164 number, or MCU service.	<p>Check the gatekeeper table of endpoints.</p> <ul style="list-style-type: none"> <li>Look for an E.164 number that begins with the specified service prefix.</li> <li>Double click each network MCU, and look for a service that begins with the specified service prefix.</li> </ul>
The ISDN endpoint does not support the call bandwidth.	Check the ISDN endpoint supported bandwidth. Dial again with an appropriate bandwidth.

## Resolving ISDN-to-IP Call Failure

This section describes what to do if ISDN-to-IP calls fail to connect.


**Note**

In this section we assume that the LAN endpoint is an H.323 endpoint.

**Table 1-2** *Resolving ISDN-to-IP Call Failure*

Possible Causes	Verification Steps
The LAN endpoint does not appear in the gatekeeper list of registered H.323 endpoints.	Make sure that the LAN endpoint is properly registered with the gatekeeper, and make the call again.
ISDN Central Switch/PBX/PABX call routing problem.	<ul style="list-style-type: none"> <li>• Open a Telnet connection to the gateway.</li> <li>• Make an ISDN-to-IP call.</li> <li>• Verify whether the call reaches the gateway.</li> <li>• If the call does not reach the gateway, ask the ISDN provider to check the ISDN Central Switch/PBX/PABX call routing rules.</li> </ul>

## Resolving Peer-to-Peer Call Failure

This section describes what to do if peer-to-peer calls (both IP-to-ISDN and ISDN-to-IP calls) fail to connect.


**Note**

In this section we assume that the LAN endpoint is an H.323 endpoint.

**Table 1-3** *Resolving Peer-to-Peer Call Failure*

Possible Causes	Verification Steps
One of the peers does not exist.	Check that the peer is configured in the peer list at Gateway > Settings> IP Connectivity.
Ports configuration mismatch.	In the peer list at Gateway > Settings> IP Connectivity, check that: <ul style="list-style-type: none"> <li>• The LAN endpoint is configured with the correct signaling port number.</li> <li>• The gateway Q.931 port is identical to the port configured in the gateway (using the Advanced Commands).</li> </ul>
The wrong dial plan is in use—the destination number does not begin with a gateway service.	Change the destination number.

# Resolving Intermittent Call Failure

This section describes what to do if calls intermittently fail to connect.

**Table 1-4** *Resolving Intermittent Call Failure*

Possible Causes	Verification Steps
PRI/E1 line is fractional.	<p>Check with the PRI line provider if the PRI/E1 line is a fractional line (Economy PRI/E1 in the UK).</p> <p>If so, At Gateway &gt; Port &gt; Physical Interface set the Fractional button to use the correct channels only.</p>
The gateway DID option is checked but there is no endpoint with such a DID number on the LAN.	<ul style="list-style-type: none"> <li>• Check that a LAN endpoint with the same DID number is registered with the gatekeeper.</li> <li>• Check the gateway log and make sure that the ISDN network delivered the correct Called Party Number to the gateway.</li> <li>• You may need to redefine the LAN endpoint E.164 number accordingly (sometimes the ISDN network is set to deliver only the last 3-5 digits).</li> <li>• Make a call to another properly registered endpoint to see if the source of the problem is the gateway or the endpoints.</li> </ul>
The gateway TCS4 option is checked and the dialing delimiter is not a legal TCS4 delimiter.	<ul style="list-style-type: none"> <li>• Ensure that the initiating endpoint uses the correct TCS4 delimiter (see the endpoint users guide).</li> <li>• Verify that the endpoint you are using supports TCS4.</li> </ul>
The gateway IVR option is checked but there is no endpoint with such an E.164 number on the LAN.	<ul style="list-style-type: none"> <li>• Check that a LAN endpoint with the same E.164 number that you dialed during the IVR phase is registered with the gatekeeper.</li> <li>• You may need to register the LAN endpoint to the gatekeeper with a correct E.164 number.</li> <li>• Check that the ISDN endpoint DTMF generation works properly:</li> <li>• Open a Telnet connection to the gateway.</li> <li>• Make a call to the gateway IVR.</li> <li>• Dial the E.164 number using DTMF tones.</li> <li>• Check the Telnet log for correct DTMF digit detection.</li> <li>• Make a call to another properly registered endpoint.</li> </ul>

## Resolving IP Video Quality Issues

This section describes what to do if you encounter poor video quality on the IP endpoint on your LAN.

**Table 1-5** *Resolving IP Video Quality Issues*

Possible Causes	Verification Steps
The LAN port of the unit is not synchronized with the LAN switch.	Hard code both the gateway and the switch to 100Mb/Full Duplex at Gateway > Board (or Device) > Addressing > Port settings
Call rate problem.	<ul style="list-style-type: none"> <li>In LAN-to-ISDN calls, verify that you are using the correct service prefix set with correct bit rate in the gateway.</li> <li>In Gateway &gt; Settings &gt; Advanced, verify that the Ignore bearer rate and force service rate option setting is not the cause.</li> </ul>
Packet loss and packet reordering, re-transmission, jitter or delay.	Verify that the LAN interface performance is satisfactory (no packet loss, jitter or delay issues occur). Check with the network administrator if necessary.
The LAN network is suffering from massive packet loss.	At Gateway > Settings > Advanced, verify that Enable packet handling is checked, and increase the value of the Network jitter tolerance parameter if necessary.

## Resolving ISDN Video Quality Issues

This section describes what to do if you encounter poor video quality on the ISDN endpoint.

**Table 1-6** *Resolving ISDN Video Quality Issues*

Possible Causes	Verification Steps
The ISDN connection is not stable, and the orange/yellow panel LEDs are steady or flickering.	<ul style="list-style-type: none"> <li>Call your operator for help.</li> <li>Check your PABX.</li> </ul>
ISDN endpoint problem.	Make a call to other ISDN endpoints (from the same vendor and from different vendors). If the video quality is good, there may be an interoperability problem with the specific endpoint.
LAN endpoint problem.	Make a call from another LAN endpoint. If the video quality on the ISDN endpoint is good, the problem lies with the LAN endpoint you are calling from.

**Table 1-6** *Resolving ISDN Video Quality Issues (continued)*

Possible Causes	Verification Steps
LAN problems.	Make a LAN-to-LAN call and verify that the LAN interface performance is satisfactory (no packet loss, jitter or delay issues occur). Check with the network administrator if necessary.
Video bit rate sent from the LAN side is too low.	Check the LAN endpoint bearer capabilities/call rate settings for the LAN-to-ISDN call.
ISDN Downspeeding occurs due to dropped ISDN lines.	If the problem recurs, check with the ISDN provider at both ends of the connection.

## Resolving Video Channel Issues

This section describes what to do if video channels fail to open on the ISDN or LAN endpoint.

**Table 1-7** *Resolving Video Channel Issues*

Possible Causes	Verification Steps
The LAN endpoint or ISDN endpoint does not support the required video codecs.	At Gateway > Calls > Details check that the video channels are open to the ISDN and to the LAN side.
Some of the media modes in the Gateway configuration are disabled.	At Gateway > Settings > Media Modes verify that all the relevant video codecs are checked.

## Resolving DTMF Issues

This section describes what to do if DTMF is not operating correctly.

**Table 1-8** *Resolving DTMF Issues*

Possible Causes	Verification Steps
DTMF is not enabled in the gateway.	<p>IP-to-ISDN calls</p> <p>At Gateway &gt; Settings &gt; Advanced verify that Translate DTMF signal from IP Out-of-band (H.245) to ISDN in-band (ISDN G.711 only) is checked.</p> <p>If this is a video call, verify that this option is checked for both voice and video calls.</p> <p>ISDN-to-IP calls</p> <p>At Gateway &gt; Settings &gt; Advanced verify that Duplicate DTMF Signal from ISDN side as Out of band on IP side is checked.</p>

**Table 1-8** *Resolving DTMF Issues (continued)*

<b>Possible Causes</b>	<b>Verification Steps</b>
The gateway does not properly identify DTMF tones.	Open a Telnet connection to the gateway and verify that you see the DTMFs in the gateway log. If not, verify that the ISDN endpoint generates the DTMF tones.
An incorrect audio codec is used.	Verify that the G.711 audio codec is used in the call is G.711 (the gateway supports DTMF detection for G.711 only). If another audio codec is used, force the call to G.711 mode by disabling all the audio media modes at Gateway > Settings > Media Modes.