



# CHAPTER 4

## Advanced Configuration for the Gateway

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This section describes the following topics:

- [Configuring Advanced Settings, page 4-1](#)
- [About DTMF Settings, page 4-5](#)
- [Configuring DTMF Settings, page 4-7](#)
- [Configuring Advanced Commands, page 4-8](#)
- [Opening a Telnet Terminal for the Gateway, page 4-10](#)

### Configuring Advanced Settings

In the Advanced section of the Settings tab, you can configure, enable, and disable various advanced gateway settings.

#### Procedure

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**Step 1** In the gateway interface, on the sidebar, click **Gateway** (if not already selected).

**Step 2** Click the **Settings** tab.

**Step 3** Click the **Advanced** button.

[Table 4-1](#) explains the IP-to-ISDN (or Serial) call settings you can configure in this section.

[Table 4-2](#) explains the ISDN (or Serial)-to-IP call settings you can configure in this section.

[Table 4-3](#) explains the IP call settings you can configure in this section.

[Table 4-4](#) explains the ISDN call settings you can configure in this section (available in Cisco Unified Videoconferencing 3545 PRI Gateway only).

[Table 4-5](#) explains the general call settings you can configure in this section.

**Table 4-1**      **Advanced Settings—IP to ISDN (or Serial) Calls**

Field or Check Box	Description
Conceal caller ID (unavailable in Cisco Unified Videoconferencing 3545 Serial Gateway)	Select to have the gateway hide the identifier of the calling endpoint on the IP network, regardless of whether the <b>Support Presentation Restriction</b> advanced setting is selected. The <i>callerID</i> field of the Q.931 message is sent over the ISDN network empty.

Table 4-1 Advanced Settings—IP to ISDN (or Serial) Calls (continued)

Field or Check Box	Description
Ignore caller bearer rate and force service rate	<p>Select to configure the gateway to ignore the incoming call bearer rate and to use instead the bandwidth specified for the service in the Services tab to process the call. If the service bit rate is set to Auto, the gateway process the call at the bearer rate.</p> <p>Deselect to allow an administrator to limit a specific service to a maximum bit rate. When deselected and the bearer rate is greater than the service rate, the gateway processes the call at the service rate. When deselected and the bearer rate is lower than or equal to the service rate, the gateway processes the call at the bearer rate. If the bearer bit rate is set to Auto, the gateway process the call at the bearer rate.</p>
Auto dial voice call in case of video call fail (unavailable in Cisco Unified Videoconferencing 3545 Serial Gateway)	<p>Select to instruct the gateway to attempt to reconnect video calls as voice calls after a video call has failed at call setup. The gateway uses the auto-redial mechanism for outgoing video calls when any of the ISDN disconnect reasons listed below occur.</p> <p>When selected, the gateway first tries to redial the call as a restricted video call at 56 Kbps. If the call fails for any of the reasons listed below, the gateway tries to redial the call as a voice call.</p> <p>When deselected, the call disconnects.</p> <p>The gateway log indicates both the disconnect reason and the gateway attempt at redialing.</p> <p><b>Note</b> The auto-redial mechanism operates independently of the downspeeding functionality.</p> <p>The ISDN disconnect reasons are:</p> <ul style="list-style-type: none"> <li>• 0x12—No user responding.</li> <li>• 0x39—Bearer capacity not authorized.</li> <li>• 0x3a—Bearer capacity not presently available.</li> <li>• 0x3f—Reports a “service or option not available” event only when no other cause in the “service or option not available” class applies.</li> <li>• 0x4f—Reports a “service or option not implemented” event only when no other cause in the “service or option not implemented” class applies.</li> <li>• 0x41—Bearer capability not implemented.</li> <li>• 0x45—Requested facility not implemented.</li> <li>• 0x58—Incompatible destination.</li> </ul>
Use default service bit rate of n kbps for services defined to use 'auto' bit rate	<p>Choose the default bit rate. When using a service with the bit rate set to Auto, the gateway uses the default bit rate if the received bearer rate is not one of the supported bit rates.</p>

**Table 4-2** Advanced Settings—ISDN (or Serial) to IP Calls

Field or Check Box	Description
Conceal caller ID (unavailable in Cisco Unified Videoconferencing 3545 Serial Gateway)	Select to have the gateway hide the identifier of the calling endpoint on the ISDN network, regardless of whether or not the Support Presentation Restriction advanced setting is selected. The <i>callerID</i> field of the Q.931 message is sent over the IP network containing the string “0000.”
Enable T.120 capabilities in incoming IVR and TCS4 calls	Select to enable the gateway to send T.120 capabilities messages to the ISDN endpoint upon receiving a call at the IVR-internal or TCS4 stage. The gateway sends the T.120 messages before connecting to the IP network endpoint.
Support sub-address at Call Setup (unavailable in Cisco Unified Videoconferencing 3545 Serial Gateway)	<p>Sub-addressing is a one-stage Direct Inward Dialing (DID) dialing mechanism in which a phone sends two numbers. One number is for routing on the circuit switched network. The other number is forwarded to the gateway inside a Q.931 sub-addressing information element for IP address resolution by the gatekeeper.</p> <p>Sub-addressing can also be used for implementing ISDN fallback when not enough bandwidth is available for routing an IP-oriented call over IP.</p> <p>Select for the gateway to take the E.164 number from the Q.931 information element sub-address field and forward it to the gatekeeper for address resolution. Sub-addressing requires gatekeeper support.</p>

**Table 4-3** Advanced Settings—IP Options

Field or Check Box	Description
Support H.323 Fast Start in voice-only call setup (unavailable in Cisco Unified Videoconferencing 3545 Serial Gateway)	<p>The H.323 fast start functionality enables endpoints that support the feature to join a voice conference in the gateway more quickly.</p> <p>Standard call setup requires four round trips of messages between endpoints before the first media stream is exchanged between peers. The set of messages includes Setup/Connect (Q.931 procedure), Master/Slave Determination (H.245 procedure), Capability Exchange (H.245) and Open Logical Channel (H.245).</p> <p>H.323 fast start shortens the time it takes to start a call by skipping the H.245 phase and combining the call setup procedure into a single H.225 transaction.</p> <p>Select to encapsulate H.245 capabilities exchange and negotiation messages within Q.931 setup messages.</p>
Enable packet handling (may increase call delay)	Select to configure the maximum rate of jitter tolerance in the Network jitter tolerance field. Jitter occurs when IP packets sent at a steady rate reach their destination at different speeds. Streams can also split on their way to the gateway between different routers. This can cause a “later” packet B to arrive before an “earlier” packet A, even though A was sent before B.
Network jitter tolerance	If you selected the Enable packet handling (may increase call delay) check box, then enter the maximum rate of jitter tolerance in milliseconds. Packet loss occurs when jitter exceeds the configured rate.

**Table 4-4** Advanced Settings—ISDN Options

Field or Check Box	Description
Request ISDN rollover when less than n B channels are available (available in Cisco Unified Videoconferencing 3545 PRI Gateway only)	<p>Select to define when the gateway uses the ISDN rollover feature (which is defined in advanced commands—see the <a href="#">“Configuring Advanced Commands” section on page 4-8</a> for more information). When the total number of available B channels in both PRI ports falls below the number specified in this field, the gateway sends a “busy out” message to the PSTN switch for each of the remaining B channels. The switch application “busies out” the remaining B channels and diverts new calls to other gateways on the network with greater available resources. This setting is only active after you configure the gateway to use a 4ESS PRI line.</p> <p>For example, you specify 10 in the Request ISDN rollover when less than n B channels are available field and the number of available B channels falls to 9. The gateway sends a “busy out” request message to the PSTN switch. The PSTN switch application routes new calls through other gateways on the network. When the total number of available B channels returns to at least 10, the gateway sends a “busy out” cancellation message to the PSTN switch indicating the restored ability to receive calls. The PSTN switch makes the “busied out” lines available and attempts attempt to route new calls through the gateway.</p>

**Table 4-5** Advanced Settings—General

Field or Check Box	Description
Restrict Gateway use to MCU conferences only	Select for the gateway to send and receive calls to and from a Cisco Unified Videoconferencing 35xx MCU only. This setting, together with a scheduling server, reserves resources for scheduled conferences only.
Support Presentation Restriction (unavailable in Cisco Unified Videoconferencing 3545 Serial Gateway)	Select to enable support for the presentation restriction feature. This feature responds to an instruction from the calling endpoint to forward or to conceal the endpoint identifier.
Support H.239	<p>Select to enable support for dual video channels using the H.239 protocol. This setting is selected by default.</p> <p>When selected, the gateway supports H.239 in ISDN-to-IP calls and in IP-to-ISDN calls. The gateway identifies the protocol version that an IP endpoint uses and sends H.239 capabilities only to those endpoints working with protocol version 4.0 or later. H.239 support has no impact on gateway capacity.</p> <p>We recommend that you do not enable this feature if you establish communication with endpoints that do not support H.245 generic capabilities (endpoints based on H.323 version 2 or earlier) as this might cause the endpoints to fail upon receiving these capability exchanges.</p>

## About DTMF Settings

The Cisco Unified Videoconferencing 3545 Gateway performs Dual Tone Multi-Frequency (DTMF) detection on IP-to-ISDN calls and on ISDN-to-IP calls. The gateway can send DTMF tone information to the IP endpoint in-band only, or both in-band and out-of-band. The gateway sends DTMF tone information to the ISDN endpoint in-band only.



### Note

For Cisco Unified Videoconferencing 3545 PRI Gateway, enabling DTMF detection for video calls reduces the number of supported calls at 128 Kbps from 30 to 22 when using an E1 connection. Capacities are lower when using a T1 connection

## About DTMF

The signal generated by a DTMF encoder is a direct algebraic summation, in real time, of the amplitudes of time sine (or cosine) waves of different frequencies.

An example of the use of DTMF is in touch tone telephone dialing. DTMF tones are sent out as you dial. For example, pressing “1” sends a tone created by combining frequencies of 1209 Hz and 697 Hz.

The touch tone system uses pairs of tones to represent the various keys on the telephone. A “low tone” and a “high tone” are associated with each button (0-9, \*, and #). The low tones vary according to the horizontal row in which the tone button is located in [Table 4-6](#). The high tones correspond to the vertical column in which the tone is located. The local telephone company receives each pair of tones, decodes the number dialed and makes the connection.

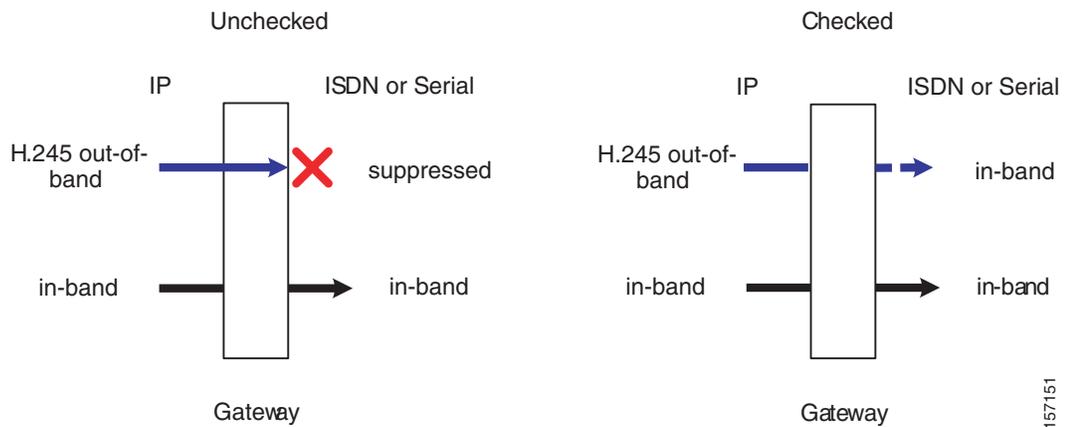
**Table 4-6** DTMF Tone Assignments

	1209 Hz	1336 Hz	1477 Hz	1633 Hz
697 Hz	1	2	3	A
770 Hz	4	5	6	B
852 Hz	7	8	9	C
941 Hz	*	0	#	D

## About DTMF Detection on IP-to-ISDN or Serial Calls

The gateway passes incoming in-band DTMF signals to the ISDN or serial-side endpoint unchanged. In addition, you can configure the gateway to convert H.245 out-of-band DTMF signals from the IP side to in-band signals on the ISDN or serial side. [Figure 4-1](#) illustrates IP-to-ISDN or serial DTMF processing.

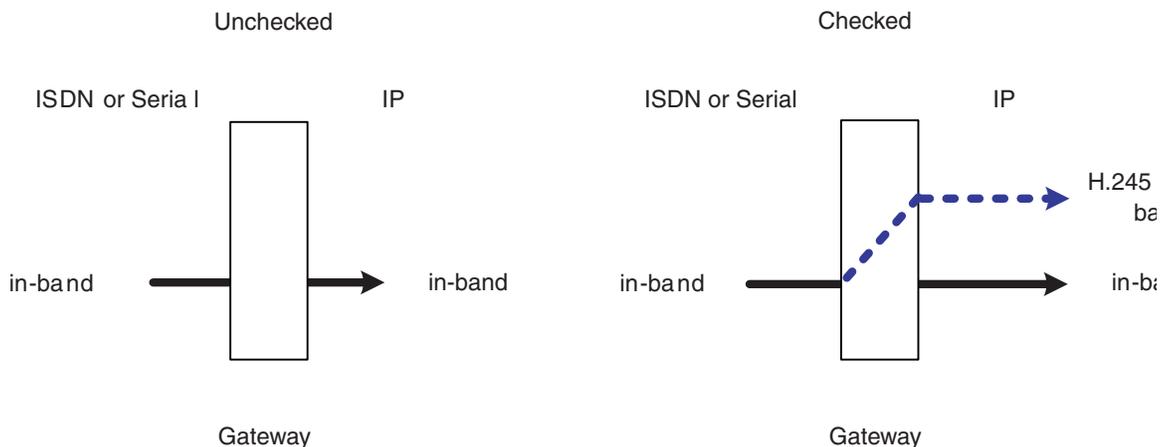
**Figure 4-1** IP-to-ISDN or Serial DTMF Processing



## About DTMF Detection on ISDN or Serial-to-IP Calls

The gateway passes incoming in-band DTMF signals to the IP-side endpoint unchanged. In addition, you can configure the gateway to convert in-band DTMF signals from the ISDN or serial side to H.245 out-of-band signals on the IP side. [Figure 4-2](#) illustrates ISDN or serial-to-IP DTMF processing.

**Figure 4-2** ISDN or Serial-to-IP DTMF Processing



# Configuring DTMF Settings

You can enable DTMF detection and settings in the Advanced section of the Settings tab.

## Procedure

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- Step 1** In the gateway interface, on the sidebar, click **Gateway** (if not already selected).
- Step 2** Click the **Settings** tab.
- Step 3** Click the **Advanced** button.
- Step 4** In the IP to ISDN Calls section of the PRI gateway, you can select the **Translate DTMF from IP out-of-band (H.245) to ISDN in-band (G.711 only)** check box.
- In the IP to Serial Calls section of the serial gateway, you can select the **Translate DTMF from IP out-of-band (H.245) to Serial in-band (G.711 only)** check box.

When selected, the gateway performs the following:

- Converts H.245 out-of-band DTMF signals coming from the H.323 IP-side endpoint to in-band signals on the ISDN side.
- Passes incoming in-band DTMF signals to the ISDN-side endpoint unchanged.

This setting is selected by default. If deselected, the gateway passes in-band DTMF signals to the ISDN-side endpoint unchanged.

- Step 5** In the ISDN to IP Calls section of the PRI gateway, you can select the **Duplicate DTMF signal from ISDN side as out-of-band on IP side** check box.
- In the Serial to IP Calls section of the serial gateway, you can select the **Duplicate DTMF signal from Serial side as out-of-band on IP side** check box.

When selected, the gateway performs the following:

- Converts in-band DTMF signals from the ISDN-side endpoint to out-of-band H.245 signals if the IP-side endpoint is located on an H.323 network.
- Passes incoming in-band DTMF signals to the IP-side endpoint unchanged.

This setting is selected by default. If deselected, the gateway passes in-band DTMF signals to the IP-side endpoint unchanged. If you do select this setting, perform step 6.

- Step 6** In the Apply to field of the PRI gateway, choose the type of calls to which ISDN-to-IP DTMF processing applies: Voice calls or Voice and video calls. Voice calls is the default setting.



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**Tip** Enabling DTMF detection for PRI gateway video calls reduces the number of supported calls at 128 Kbps from 30 to 22.

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# Configuring Advanced Commands

You can send text-based commands to the gateway for enhanced control. You can use these advanced commands to change certain settings in real time and monitor information such as debug information. Advanced commands are not case sensitive.

Table 4-7 describes common advanced commands.

**Table 4-7 Advanced Command Settings**

Command	Description
AddService2SrcNum	Notifies the IP endpoint of the gateway service number to which the ISDN-side endpoint has called. Parameters: disable/enable.
CallSignalPort	Notifies the gatekeeper to which the gateway is registered on which port to communicate. Parameters: 1000 to 3000. Remarks: The number must be unique and not used for any other purpose.
DownSpeed (unavailable in Cisco Unified Videoconferencing 3545 Serial Gateway)	Instructs the gateway to support downspeeding. Parameters: disable/enable.
EnhancedBillingForVoiceCalls (unavailable in Cisco Unified Videoconferencing 3545 Serial Gateway)	Instructs the gateway to support the CDR <i>Real Connect Time</i> field. <i>Real Connect Time</i> indicates the actual time at which an IP-to-ISDN voice call connects to the ISDN terminal. When disabled, the <i>Connect Time</i> field is used for CDR billing purposes. <i>Connect Time</i> indicates the time at which the Connect message is sent to the source endpoint. Parameters: disable/enable. Remarks: Default value is disable. Relevant to voice calls only.
ForceG711ForMcu	Instructs the gateway to open only a G.711 channel in gateway-to-MCU calls. Parameters: disable/enable.

**Table 4-7** *Advanced Command Settings (continued)*

Command	Description
NotifyLevel	<p>Changes the type and number of debug messages that are generated.</p> <p>Parameters:</p> <p>0—Disables gateway logs.</p> <p>3 (default)—Fatal error (gateway can no longer provide service), a problem affecting user functionality (for example, call connect failure or no resources available), or status prints for Customer Support use.</p> <p>6—Debugging.</p> <p>8—Extended debugging.</p> <p>Remarks: We recommend that you do not exceed a NotifyLevel of 6 as this might overload the system with a very large debug message output. Level 3 should be sufficient for normal usage.</p>
Peer-to-Peer disconnect reason add	<p>Instructs the gateway under which circumstances to reroute a call to different peer device.</p> <p>Parameters: Enter a number representing the required H.323 call disconnect reason.</p>
Peer-to-Peer disconnect reason remove	<p>Deletes the H.323 Call Disconnect Reason set by the Peer-to-Peer disconnect reason add advanced command.</p> <p>Parameters: ALL—Enter a number representing the required H.323 call disconnect reason.</p>

**Procedure**

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- Step 1** In the gateway interface, on the sidebar, click **Gateway** (if not already selected).
- Step 2** Click the **Settings** tab.
- Step 3** Click the **Advanced** button.
- Step 4** Click **Commands**.
- Step 5** Configure an advanced command by one of the following methods:
- In the Command field, enter a command.
  - In the Parameters field, enter the parameters for the command.
- or—
- In the Available commands field, select one of the advanced commands.
  - In the Available parameters field, choose from one of the parameters that appears.
- Step 6** Click **Send**.
- In the Response field, the gateway indicates whether it received and executed the command. If you send an invalid command, an “Unknown Command” message appears.
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# Opening a Telnet Terminal for the Gateway

In the Advanced section of the Settings tab, you can open a Telnet terminal to log error and troubleshooting information.

## Procedure

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- Step 1** In the Administrator interface, on the sidebar, click **Gateway** (if not already selected).
  - Step 2** Click the **Settings** tab.
  - Step 3** Click the **Advanced** button.
  - Step 4** Click **Telnet**.
  - Step 5** A separate browser opens with a Telnet terminal. When you finish with your Telnet session, click **Disconnect**.
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