



# Configuring Tone Download to MGCP Gateways

The Customizable Tone Download to Cisco IOS MGCP Gateways from Cisco Unified Communications Manager feature enables the Cisco IOS gateway to download region-specific tones and the associated frequencies, amplitudes, and cadences in its XML configuration files.

Cisco IOS gateways support static tone tables that are predefined for each country in Cisco IOS tone tables. Voice ports use the static tone tables associated with the Cisco Unified Communications Manager network locale unless the custom tone download feature is enabled

## Feature History for Customizable Tone Download to Cisco IOS MGCP Gateways from Cisco Unified Communications Manager

Release	Modification
12.2(15)ZJ	This feature was introduced.
12.3(4)T	This feature was integrated into Cisco IOS Release 12.3(4)T.

## Feature History for Globalized Cadence and Tone for Cisco IOS Gateways

Release	Modification
12.2(11)T	This feature was introduced.

## Finding Support Information for Platforms and Cisco IOS Software Images

Use Cisco Feature Navigator to find information about platform support and Cisco IOS software image support. Access Cisco Feature Navigator at <http://www.cisco.com/go/fn>. You must have an account on Cisco.com. If you do not have an account or have forgotten your username or password, click **Cancel** at the login dialog box and follow the instructions that appear.



### Note

For more information about this and related Cisco IOS voice features, see the following:

- “[Overview of Cisco Unified Communications Manager and Cisco IOS Interoperability](#)” on page 13.
- Entire Cisco IOS Voice Configuration Library—including library preface and glossary, other feature documents, and troubleshooting documentation—at [http://www.cisco.com/univercd/cc/td/doc/product/software/ios123/123cgcr/voice\\_c/vcl.htm](http://www.cisco.com/univercd/cc/td/doc/product/software/ios123/123cgcr/voice_c/vcl.htm).



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## Information About Tone Download to MGCP Gateways

To configure tone download, you should be familiar with the following concepts:

- [Tone Download Process for MGCP Gateways, page 2](#)
- [Static Tones, page 2](#)
- [Custom Tones, page 4](#)

## Tone Download Process for MGCP Gateways

When configuring MGCP gateways in a Cisco IP-telephony network, you can use a centralized TFTP server in your network to automatically download an XML file with the gateway-specific configuration.

The XML configuration file includes the network locale for each voice port on the gateway. The network locale configured in Cisco Unified Communications Manager defines the tones and cadences that are used by a device in a specific geographic area. A network locale is associated with each voice port in the MGCP gateway.

When the XML file is downloaded to the gateway, it is parsed, converted to Cisco IOS commands, and the active configuration is updated. If the gateway is restarted or reset, it triggers a download of the XML file from the TFTP server. If the specified TFTP server is not available, the gateway keeps trying to download the updated XML file and does not alter the current configuration.

For information on downloading XML configuration files to your MGCP gateway, see the [“Enabling Single-Point Configuration for MGCP Gateways”](#) section on page 45.

## Static Tones

The Globalized Cadence and Tone for Cisco IOS Gateways feature enables Cisco IOS gateways to support Cisco Unified Communications Manager localization using static tone tables that are predefined for each country in Cisco IOS tone tables. The static tone table that is used for a voice port is determined by the network locale that is specified for the voice port in Cisco Unified Communications Manager. When an MGCP gateway registers to Cisco Unified Communications Manager, or if the gateway restarts or resets, the network locale for each voice port is downloaded in the gateway’s XML configuration file.

The static tones and cadences associated with the Cisco Unified Communications Manager network locale are used by a voice port unless a custom tone table is downloaded. No configuration is required on the MGCP gateway to use the static tones.

Table 11 shows the list of valid two-letter country codes and the corresponding countries.

**Table 11**      **Country Codes**

<b>Code</b>	<b>Country</b>	<b>Code</b>	<b>Country</b>
AR	Argentina	KE	Kenya
AT	Austria	KR	Korea Republic
AU	Australia	LB	Lebanon
BE	Belgium	LU	Luxemborg
BR	Brazil	MX	Mexico
CA	Canada	MY	Malaysia
CH	Switzerland	NG	Nigeria
CN	China	NL	Netherlands
CO	Colombia	NO	Norway
CY	Cyprus	NP	Nepal
CZ	Czech Republic	NZ	New Zealand
DE	Germany	PA	Panama
DK	Denmark	PE	Peru
EG	Egypt	PH	Philippines
ES	Spain	PK	Pakistan
FI	Finland	PL	Poland
FR	France	PT	Portugal
GB	United Kingdom	RU	Russian Federation
GH	Ghana	SA	Saudi Arabia
GR	Greece	SE	Sweden
HK	Hong Kong	SG	Singapore
HU	Hungary	SI	Slovenia
ID	Indonesia	SK	Slovakia
IE	Ireland	TH	Thailand
IL	Israel	TR	Turkey
IN	India	TW	Taiwan
IS	Iceland	US	United States
IT	Italy	VE	Venezuela
JO	Jordan	ZA	South Africa
JP	Japan	ZW	Zimbabwe

## Custom Tones

The Customizable Tone Download to Cisco IOS MGCP Gateways from Cisco Unified Communications Manager feature enables an MGCP gateway to download locale-specific tones and their associated frequency, amplitude, and cadence information from the XML-based configuration file.

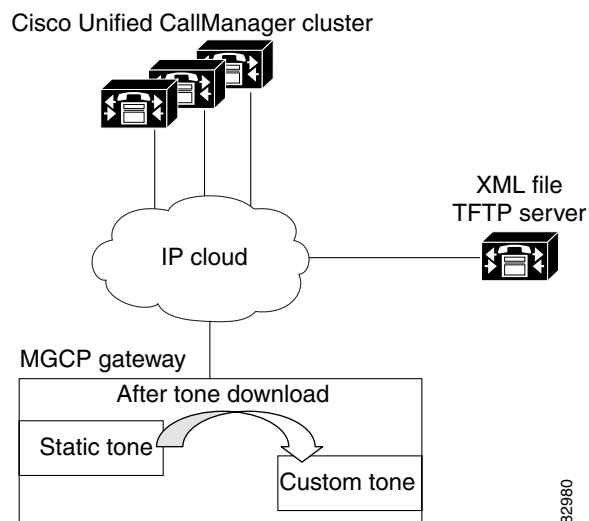
The XML tone file includes all supported tones for one country with the frequency, amplitude, and cadence information. The XML tone file is parsed and saved into a custom tone table on the MGCP gateway. Each gateway supports up to two custom tone tables. The default values for North America are overwritten with the new values specified in the XML file. Dual tones and sequential tones, and up to 4 frequencies for standard or custom tones are supported.

When Cisco Unified Communications Manager requests a specific tone, the gateway references the custom tone table associated with the network locale of the voice port. After the custom tone specification is downloaded to the gateway, it can be used even if the gateway loses connectivity to Cisco Unified Communications Manager and reverts to H.323 control in fallback mode.

If custom tone download is not configured, the voice port uses the static tone table associated with the network locale of the voice port. If custom tone download is configured but fails, the voice port continues to use the static tone table for the network locale.

Figure 11 shows the download of the XML file from the TFTP server to the MGCP gateway.

**Figure 11** Download of XML File from TFTP Server



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## How to Configure Tone Download to MGCP Gateways

This section contains the following procedures:

- [Verifying Globalized Cadence and Tone Configuration, page 5](#) (optional)
- [Configuring Customizable Tone Download to Cisco IOS MGCP Gateways, page 9](#) (required)
- [Verifying Customizable Tone Download, page 10](#) (optional)

## Verifying Globalized Cadence and Tone Configuration

Perform this task to verify which network locale is configured in Cisco Unified Communications Manager.

**Note**

There are no configuration tasks necessary to enable globalized cadence and tone except those described in [Prerequisites](#).

### Prerequisites

- Cisco IOS Release 12.2(11)T or later
- Cisco Unified Communications Manager 3.2 (formerly known as Cisco CallManager 3.2) or higher
- Cisco Unified Communications Manager 4.0 (formerly known as Cisco CallManager 4.0) or higher
- Cisco IOS gateway must be configured for MGCP and must have single-point configuration enabled. See “[Configuring MGCP Gateway Support for Cisco Unified Communications Manager](#)” on [page 23](#) for information.

**Note**

The IP hostname should match the gateway name that is specified in the Cisco Unified Communications Manager configuration.

- Ad-hoc conferencing and transcoding port adapter (WS-SVC-CMM-ACT) must be installed and configured on the Cisco Catalyst 6500 Series and Cisco 7600 Series Router Communication Media Module (CMM).

### SUMMARY STEPS

1. **show voice port** *slot/port*

### DETAILED STEPS

**Step 1** **show voice port** *slot/port*

Use the **show voice port** command to verify the globalized cadence and tone configuration as shown in the following examples.

**Cisco IAD2420 series**

```
Router# show voice port 0/5
```

```
E&M 0:5 Slot is 0, Port is 5
Type of VoicePort is E&M
Operation State is DOWN
Administrative State is UP
No Interface Down Failure
Description is not set
Noise Regeneration is enabled
Non Linear Processing is enabled
Non Linear Mute is disabled
Non Linear Threshold is -21 dB
Music On Hold Threshold is Set to -38 dBm
In Gain is Set to 0 dB
Out Attenuation is Set to 3 dB
```

```

Echo Cancellation is enabled
Echo Cancellation NLP mute is disabled
Echo Cancellation NLP threshold is -21 dB
Echo Cancel Coverage is set to 8 ms
Playout-delay Mode is set to default
Playout-delay Nominal is set to 60 ms
Playout-delay Maximum is set to 200 ms
Playout-delay Minimum mode is set to default, value 40 ms
Playout-delay Fax is set to 300 ms
Connection Mode is normal
Connection Number is not set
Initial Time Out is set to 10 s
Interdigit Time Out is set to 10 s
Call Disconnect Time Out is set to 60 s
Ringing Time Out is set to 180 s
Wait Release Time Out is set to 30 s
Companding Type is u-law
Coder Type is g729ar8
Voice Activity Detection is enabled
Nominal Playout Delay is 60 milliseconds
Maximum Playout Delay is 200 milliseconds
Rx A bit no conditioning set
Rx B bit no conditioning set
Rx C bit no conditioning set
Rx D bit no conditioning set
Tx A bit no conditioning set
Tx B bit no conditioning set
Tx C bit no conditioning set
Tx D bit no conditioning set
Rx Seize ABCD bits = 1111 Default pattern
Rx Idle ABCD bits = 0000 Default pattern
Tx Seize ABCD bits = 1111 Default pattern
Tx Idle ABCD bits = 0000 Default pattern
Ignored Rx ABCD bits = BCD
Region Tone is set for CN

```

Analog Info Follows:

```

Currently processing none
Maintenance Mode Set to None (not in mtc mode)
Number of signaling protocol errors are 0
Impedance is set to 600r Ohm
Station name None, Station number None
Translation profile (Incoming):
Translation profile (Outgoing):

```

Voice card specific Info Follows:

```

Operation Type is 2-wire
E&M Type is 1
Signal Type is immediate
Dial Type is dtmf
In Seizure is inactive
Out Seizure is active
Digit Duration Timing is set to 100 ms
InterDigit Duration Timing is set to 100 ms
Pulse Rate Timing is set to 10 pulses/second
InterDigit Pulse Duration Timing is set to 750 ms
Clear Wait Duration Timing is set to 400 ms
Wink Wait Duration Timing is set to 200 ms
Wait Wink Duration Timing is set to 550 ms
Wink Duration Timing is set to 200 ms
Delay Start Timing is set to 150 ms
Delay Duration Timing is set to 2000 ms
Dial Pulse Min. Delay is set to 140 ms
Percent Break of Pulse is 60 percent

```

```
Auto Cut-through is disabled
Dialout Delay is 300 ms
```

### Cisco 2600 series

```
Router# show voice port
TE Basic Rate Interface 1/0/0 Slot is 1, Sub-unit is 0, Port is 0
  Type of VoicePort is ISDN-BRI
  Operation State is DORMANT
  Administrative State is UP
  The Last Interface Down Failure Cause is Administrative Shutdown
  Description is not set
  Noise Regeneration is enabled
  Non Linear Processing is enabled
  Music On Hold Threshold is Set to -38 dBm
  In Gain is Set to 0 dB
  Out Attenuation is Set to 0 dB
  Echo Cancellation is enabled
  Echo Cancellation NLP mute is disabled
  Echo Cancellation NLP threshold is -21 dB
  Echo Cancel Coverage is set to 8 ms
  Playout-delay Mode is set to default
  Playout-delay Nominal is set to 60 ms
  Playout-delay Maximum is set to 200 ms
  Playout-delay Minimum mode is set to default, value 40 ms
  Connection Mode is normal
  Connection Number is not set
  Initial Time Out is set to 10 s
  Interdigit Time Out is set to 10 s
  Ringing Time Out is set to 180 s
  Busyout on interface monitor
    Ethernet0/0
  Companding Type is u-law
  Region Tone is set for US
  Wait Release Time Out is 30 s
  Station name None, Station number None
TE Basic Rate Interface 1/0/1 Slot is 1, Sub-unit is 0, Port is 1
  Type of VoicePort is ISDN-BRI
  Operation State is DORMANT
  Administrative State is UP
  No Interface Down Failure
  Description is not set
  Noise Regeneration is enabled
  Non Linear Processing is enabled
  Music On Hold Threshold is Set to -38 dBm
  In Gain is Set to 0 dB
  Out Attenuation is Set to 0 dB
  Echo Cancellation is enabled
  Echo Cancellation NLP mute is disabled
  Echo Cancellation NLP threshold is -21 dB
  Echo Cancel Coverage is set to 8 ms
  Playout-delay Mode is set to default
  Playout-delay Nominal is set to 60 ms
  Playout-delay Maximum is set to 200 ms
  Playout-delay Minimum mode is set to default, value 40 ms
  Connection Mode is normal
  Connection Number is not set
  Initial Time Out is set to 10 s
  Interdigit Time Out is set to 10 s
  Ringing Time Out is set to 180 s
  Companding Type is u-law
  Region Tone is set for US
  Wait Release Time Out is 30 s
  Station name None, Station number None
```

**Cisco 3660**

```

Router# show voice port
Foreign Exchange Station 2/0/0 Slot is 2, Sub-unit is 0, Port is 0
Type of VoicePort is FXS
Operation State is DORMANT
Administrative State is UP
No Interface Down Failure
Description is not set
Noise Regeneration is enabled
Non Linear Processing is enabled
Non Linear Mute is disabled
Non Linear Threshold is -21 dB
Music On Hold Threshold is Set to -38 dBm
In Gain is Set to 0 dB
Out Attenuation is Set to 3 dB
Echo Cancellation is enabled
Echo Cancellation NLP mute is disabled
Echo Cancellation NLP threshold is -21 dB
Echo Cancel Coverage is set to 8 ms
Playout-delay Mode is set to default
Playout-delay Nominal is set to 60 ms
Playout-delay Maximum is set to 200 ms
Playout-delay Minimum mode is set to default, value 40 ms
Playout-delay Fax is set to 300 ms
Connection Mode is normal
Connection Number is not set
Initial Time Out is set to 10 s
Interdigit Time Out is set to 10 s
Call Disconnect Time Out is set to 60 s
Ringing Time Out is set to 180 s
Wait Release Time Out is set to 30 s
Companding Type is u-law
Region Tone is set for US

```

**Cisco VG200**

```

Router# show voice port

DS0 Group 1/0:15 - 1/0:15
Type of VoicePort is XCC
Operation State is DORMANT
Administrative State is UP
No Interface Down Failure
Description is not set
Noise Regeneration is enabled
Non Linear Processing is enabled
Non Linear Mute is disabled
Non Linear Threshold is -21 dB
Music On Hold Threshold is Set to -38 dBm
In Gain is Set to 0 dB
Out Attenuation is Set to 0 dB
Echo Cancellation is enabled
Echo Cancellation NLP mute is disabled
Echo Cancellation NLP threshold is -21 dB
Echo Cancel Coverage is set to 8 ms
Playout-delay Mode is set to default
Playout-delay Nominal is set to 60 ms
Playout-delay Maximum is set to 200 ms
Playout-delay Minimum mode is set to default, value 40 ms
Playout-delay Fax is set to 300 ms
Connection Mode is normal
Connection Number is not set
Initial Time Out is set to 10 s

```



```
Interdigit Time Out is set to 10 s
Call Disconnect Time Out is set to 60 s
Ringing Time Out is set to 180 s
Wait Release Time Out is set to 30 s
Companding Type is A-law
Rx A bit no conditioning set
Rx B bit no conditioning set
Rx C bit no conditioning set
Rx D bit no conditioning set
Tx A bit no conditioning set
Tx B bit no conditioning set
Tx C bit no conditioning set
Tx D bit no conditioning set
Region Tone is set for US
Continuity Test Tone CO1 is set to 2010
Continuity Test Tone CO2 is set to 1780
Station name None, Station number None
Translation profile (Incoming):
Translation profile (Outgoing):
```

## Configuring Customizable Tone Download to Cisco IOS MGCP Gateways

Perform this task to download custom tones to the Cisco IOS gateway.

### Prerequisites

- Cisco Unified Communications Manager 3.3(2) (formerly known as Cisco CallManager 3.3(2)) or higher.
- Cisco Unified Communications Manager 4.0 (formerly known as Cisco CallManager 4.0) or higher
- DSP 3.6.16 or later for analog interfaces; DSP 4.0 or later for digital interfaces.
- For languages other than English and countries other than the United States, locale files that provide regional tones and cadences must be installed in Cisco Unified Communications Manager. The locale installer adds the files to the correct directories and updates the Cisco Unified Communications Manager database.

See the [Using the Cisco IP Telephony Locale Installer](#) document for information.

- The following cards are supported:
  - AIM-ATM-VOICE
  - AIM-VOICE
  - NM-HDA
  - NM-HDV
  - VIC-2FXO
  - VIC-2FXS

### Restrictions

Up to two custom tone tables are supported on a gateway; that is, no more than two custom tone tables can be downloaded to one gateway even if there are more than two countries or regions configured for the gateway.

**SUMMARY STEPS**

1. **enable**
2. **configure terminal**
3. **ccm-manager config** {server *ip-address* | *name*}
4. **ccm-manager config**
5. **ccm-manager download-tones**
6. **exit**

**DETAILED STEPS**

	<b>Command or Action</b>	<b>Purpose</b>
<b>Step 1</b>	<b>enable</b>  <b>Example:</b> Router> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>• Enter your password when prompted.</li> </ul>
<b>Step 2</b>	<b>configure terminal</b>  <b>Example:</b> Router# configure terminal	Enters global configuration mode.
<b>Step 3</b>	<b>ccm-manager config</b> {server <i>ip-address</i>   <i>name</i> }  <b>Example:</b> Router(config)# ccm-manager config server 10.10.10.0	Specifies the TFTP server that contains the XML configuration file to download.  <b>Note</b> Up to three servers can be configured.
<b>Step 4</b>	<b>ccm-manager config</b>  <b>Example:</b> Router(config)# ccm-manager config	Enables single-point download and configuration.
<b>Step 5</b>	<b>ccm-manager download-tones</b>  <b>Example:</b> Router(config)# ccm-manager download-tones	Enables the custom tone download to the gateway.
<b>Step 6</b>	<b>exit</b>  <b>Example:</b> Router(config)# exit	Exits the session.

**Verifying Customizable Tone Download**

Perform this task to verify that the customizable tone download and voice ports are configured correctly.

**SUMMARY STEPS**

1. **show voice port** *port/slot*

2. **show ccm-manager download-tones**
3. **debug ccm-manager config-download all**
4. **debug ccm-manager config-download tone**

## DETAILED STEPS

### Step 1 **show voice port *port/slot***

Use the **show voice port** command to verify that the custom tones are assigned. The following sample shows that voice port 1/0/1 has C1 assigned, which corresponds to France:

```
Router# show voice port
!
recEive and transMit Slot is 1, Sub-unit is 0, Port is 1
  Type of VoicePort is E&M
  Operation State is DORMANT
  Administrative State is UP
  No Interface Down Failure
  Description is not set
  Noise Regeneration is enabled
  Non Linear Processing is enabled
  Non Linear Mute is disabled
  Non Linear Threshold is -21 dB
  Music On Hold Threshold is Set to -38 dBm
  In Gain is Set to 0 dB
  Out Attenuation is Set to 0 dB
  Echo Cancellation is enabled
  Echo Cancellation NLP mute is disabled
  Echo Cancellation NLP threshold is -21 dB
  Echo Cancel Coverage is set to 8 ms
  Playout-delay Mode is set to default
  Playout-delay Nominal is set to 60 ms
  Playout-delay Maximum is set to 200 ms
  Playout-delay Minimum mode is set to default, value 40 ms
  Playout-delay Fax is set to 300 ms
.
.
.
Rx Seize ABCD bits = 1111 Default pattern
Rx Idle ABCD bits = 0000 Default pattern
Tx Seize ABCD bits = 1111 Default pattern
Tx Idle ABCD bits = 0000 Default pattern
Ignored Rx ABCD bits = BCD
Region Tone is set for C1
!
! Custom Tone 1 is assigned to this voice port.
```



**Note** Voice ports are automatically configured during the initial download of the XML file from the TFTP server.

### Step 2 **show ccm-manager download-tones**

Use the **show ccm-manager download-tones** command to verify that the custom tones have been downloaded. The following sample output shows that Custom Tone 1 is assigned to France and that Custom Tone 2 is assigned to Spain:

```
Router# show ccm-manager download-tones
```

```

MGCP Download Tones: Enabled
Custom Tone 1: France
Custom Tone 2: Spain

```

The following sample output shows the downloaded tone information including the number of frequencies and cadences:

```

Router# show ccm-manager download-tones C1
!
Custom Tone 1 : United Kingdom
Pulse dial: normal, Percent make: 35%, DTMF low Amp. = 65438, high Amp. = 65463 Pcm: u-Law
FXS FXO E&M FXS FXO E&M
Dual Tone DR NF FOF FOS AOF AOF AOF AOS AOS AOS ONTF OFTF ONTS OFTS ONTT OFTT ONT4 OFT4
(optional) FOF2 FOS2 FOF3 FOS3 FOF4 FOS4 FOT FO4 AOT AO4 RCT1 RCT2 RCT3 RCT4
BUSY           0 1 400 0 -200 -200 -240 0 0 0 375 375 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
RING_BACK     0 2 400 450 -190 -190 -190 -190 -190 -190 400 200 400 2000 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CONGESTION    0 1 400 0 -200 -200 -200 0 0 0 400 350 225 525 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
NUMBER_UNOBTAINABLE 0 1 400 0 -150 -150 -150 0 0 0 400 350 225 525 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
DIAL_TONE     0 2 350 440 -150 -150 -150 -150 -150 -150 -150 65535 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
DIAL_TONE2    0 2 350 440 -150 -150 -150 -150 -150 -150 -150 65535 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
OUT_OF_SERVICE 0 1 950 0 -150 -150 -185 0 0 0 330 330 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
ADDR_ACK     0 1 600 0 -240 -240 -240 0 0 0 125 125 125 65535 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
DISCONNECT   0 1 600 0 -150 -150 -150 0 0 0 330 330 330 65535 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
OFF_HOOK_NOTICE 0 2 1400 2040 -240 -240 -240 -240 -240 -240 -240 100 100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
OFF_HOOK_ALERT 0 2 1400 2040 -150 -150 -185 -150 -150 -185 100 100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
WAITING       0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CONFIRM       0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CNFWRN_J     0 1 950 0 -170 -170 -190 0 0 0 100 100 100 65535 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CNFWRN_D     0 1 600 0 -170 -170 -190 0 0 0 100 100 100 65535 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
STUTT_DIALTONE 0 2 350 440 -150 -150 -150 -150 -150 -150 -150 100 100 100 100 100 100 100 65535 0 0
Sequence Tone DR NF F1C1 F2C1 AOF AOS C1ONT C1OFT C2ONT C2OFT C3ONT C3OFT C4ONT C4OFT F1C2
F2C2 F1C3 F2C3 F1C4 F2C4
INTERCEPT  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
TONE_ON_HOLD 0 1 500 500 0 0 100 150 100 150 100 150 0 10000 500 0 500 0 0 0 0
NO_CIRCUIT   0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
!
Legend:
DR : direction NF : number of frequency
FO<F,S,T,4> : frequency of<1st,2nd,3rd,4th> AO<F,S,T,4> : amplitude of<1st,2nd,3rd,4th>
FOF<1-4> : frequency of 1st, cadence<1-4> FOS<1-4> : frequency of 2nd, cadence<1-4>
ONT<F,S,T,4> : on time<1st,2nd,3rd,4th> OFT<F,S,T,4> : off time<1st,2nd,3rd,4th>
RCT<1-4> : repeat count for cadence<1-4> F(1-4)>C<1-4> : frequency<1-4> of cadence<1-4>
C<1-4>ONT : cadence<1-4> on time C<1-4>OFT : cadence<1-4> off time

```

### Step 3 debug ccm-manager config-download all

The following sample output shows the download of the country-specific gateway tone files:

```

Router# debug ccm-manager config-download all
!
00:53:17: cmapp_xml_tftp_download_file line 170:
File (tftp://10.10.10.55/met2.cnf.xml) read 7490 bytes
:
00:53:17: cmapp_xml_get_info_from_name: name = AALN/S1/SU0/0@met2
00:53:17: cmapp_process_tag_networkLocale
00:53:17: cmapp_process_tag_networkLocale: NetworkLocale = Hong Kong
:
00:53:17: cmapp_xml_get_info_from_name: name = AALN/S1/SU0/1@met2
00:53:17: cmapp_process_tag_networkLocale
00:53:17: cmapp_process_tag_networkLocale: NetworkLocale = United Kingdom

```

### Step 4 debug ccm-manager config-download tone

Use the **debug ccm-manager config-download tone** command to troubleshoot the download procedure. The following sample output shows the locale name as United Kingdom and lists all of the dual-tone parameters for that region:

```
Router# debug ccm-manager config-download tone

00:09:07:
cmapp_prefix_process_tag_tones:
00:09:07: cmapp_process_tag_trkLocaleName: region = United Kingdom
00:09:07: cmapp_process_tag_pulse_ratio: pulse ratio = 40
00:09:07: cmapp_process_tag_dtmf_llevel: low frequency level = 65438
00:09:07: cmapp_process_tag_dtmf_hlevel: high frequency level = 65463
00:09:07: cmapp_process_tag_special_oper: operation = uLaw
00:09:07: cmapp_prefix_process_tag_lpig:
00:09:07: cmapp_process_tag_fxs: ignore LPIG for fxs
00:09:07: cmapp_process_tag_fxo: ignore LPIG for fxo
00:09:07: cmapp_process_tag_digital: ignore LPIG for digital
00:09:07: cmapp_prefix_process_tag_lpog:
00:09:07: cmapp_process_tag_fxs: ignore LPOG for fxsBoth ports are in service
00:09:07: cmapp_process_tag_fxo: ignore LPOG for fxo
00:09:07: cmapp_process_tag_digital: ignore LPOG for digital
00:09:07: cmapp_prefix_process_tag_tonetable_info:
00:09:07:
cmapp_prefix_process_tag_dualtone: TID=[0:CPTONE_BUSY]
00:09:07: cmapp_process_tag_nf: number of frequencies = 1
00:09:07: cmapp_process_tag_dr: direction = 0
00:09:07: cmapp_process_tag_fof: frequency 1 = 400
00:09:07: cmapp_process_tag_fos: frequency 2 = 0
00:09:07: cmapp_process_tag_fot: frequency 3 = 0
00:09:07: cmapp_process_tag_fo4: frequency 4 = 0
00:09:07: cmapp_prefix_process_tag_aof_level:
00:09:07: cmapp_process_tag_fxs: amplitude of 1st = -200
00:09:07: cmapp_process_tag_fxo: amplitude of 1st = -200
00:09:07: cmapp_process_tag_digital: amplitude of 1st = -240
00:09:07: cmapp_prefix_process_tag_aos_level:
00:09:07: cmapp_process_tag_fxs: amplitude of 2nd = 0
00:09:07: cmapp_process_tag_fxo: amplitude of 2nd = 0
00:09:07: cmapp_process_tag_digital: amplitude of 2nd = 0
00:09:07: cmapp_prefix_process_tag_aot_level:
00:09:07: cmapp_process_tag_fxs: amplitude of 3rd = 0
00:09:07: cmapp_process_tag_fxo: amplitude of 3rd = 0
00:09:07: cmapp_process_tag_digital: amplitude of 3rd = 0
00:09:07: cmapp_prefix_process_tag_ao4_level:
00:09:07: cmapp_process_tag_fxs: amplitude of 4th = 0
00:09:07: cmapp_process_tag_fxo: amplitude of 4th = 0
00:09:07: cmapp_process_tag_digital: amplitude of 4th = 0
00:09:07: cmapp_process_tag_ontf: frequency 1 on time = 375
00:09:07: cmapp_process_tag_oftf: frequency 1 off time = 375
00:09:07: cmapp_process_tag_onts: frequency 2 on time = 0
00:09:07: cmapp_process_tag_ofts: frequency 2 off time = 0
00:09:07: cmapp_process_tag_ontt: frequency 3 on time = 0
00:09:07: cmapp_process_tag_oftt: frequency 3 off time = 0
00:09:07: cmapp_process_tag_ont4: frequency 4 on time = 0
00:09:07: cmapp_process_tag_of4: frequency 4 off time = 0
00:09:07: cmapp_process_tag_fof2: frequency 1 cadence 2 = 0
00:09:07: cmapp_process_tag_fos2: frequency 2 cadence 2 = 0
00:09:07: cmapp_process_tag_fof3: frequency 1 cadence 3 = 0
00:09:07: cmapp_process_tag_fos3: frequency 2 cadence 3 = 0
00:09:07: cmapp_process_tag_fof4: frequency 1 cadence 4 = 0
00:09:07: cmapp_process_tag_fos4: frequency 2 cadence 4 = 0
00:09:07: cmapp_process_tag_rct1: cadence 1 repeat count = 0
00:09:07: cmapp_process_tag_rct2: cadence 2 repeat count = 0
00:09:07: cmapp_process_tag_rct3: cadence 3 repeat count = 0
00:09:07: cmapp_process_tag_rct4: cadence 4 repeat count = 0
```

```

00:09:07:
cmapp_prefix_process_tag_dualtone: TID=[1:CPTONE_RING_BACK]
00:09:07: cmapp_process_tag_nf: number of frequencies = 2
00:09:07: cmapp_process_tag_dr: direction = 0
00:09:07: cmapp_process_tag_fof: frequency 1 = 400
00:09:07: cmapp_process_tag_fos: frequency 2 = 450
00:09:07: cmapp_process_tag_fot: frequency 3 = 0
00:09:07: cmapp_process_tag_fo4: frequency 4 = 0
00:09:07: cmapp_prefix_process_tag_aof_level:
00:09:07: cmapp_process_tag_fxs: amplitude of 1st = -190
00:09:07: cmapp_process_tag_fxo: amplitude of 1st = -190
00:09:07: cmapp_process_tag_digital: amplitude of 1st = -190
00:09:07: cmapp_prefix_process_tag_aos_level:
00:09:07: cmapp_process_tag_fxs: amplitude of 2nd = -190
00:09:07: cmapp_process_tag_fxo: amplitude of 2nd = -190
00:09:07: cmapp_process_tag_digital: amplitude of 2nd = -190
00:09:07: cmapp_prefix_process_tag_aot_level:
00:09:07: cmapp_process_tag_fxs: amplitude of 3rd = 0
00:09:07: cmapp_process_tag_fxo: amplitude of 3rd = 0
00:09:07: cmapp_process_tag_digital: amplitude of 3rd = 0
00:09:07: cmapp_prefix_process_tag_ao4_level:
00:09:07: cmapp_process_tag_fxs: amplitude of 4th = 0
00:09:07: cmapp_process_tag_fxo: amplitude of 4th = 0
00:09:07: cmapp_process_tag_digital: amplitude of 4th = 0
00:09:07: cmapp_process_tag_ontf: frequency 1 on time = 400
00:09:07: cmapp_process_tag_oftf: frequency 1 off time = 200
00:09:07: cmapp_process_tag_onts: frequency 2 on time = 400
00:09:07: cmapp_process_tag_ofts: frequency 2 off time = 2000
00:09:07: cmapp_process_tag_ontt: frequency 3 on time = 0
00:09:07: cmapp_process_tag_oftt: frequency 3 off time = 0
00:09:07: cmapp_process_tag_ont4: frequency 4 on time = 0
00:09:07: cmapp_process_tag_of4: frequency 4 off time = 0
00:09:07: cmapp_process_tag_fof2: frequency 1 cadence 2 = 0
00:09:07: cmapp_process_tag_fos2: frequency 2 cadence 2 = 0
00:09:07: cmapp_process_tag_fof3: frequency 1 cadence 3 = 0
00:09:07: cmapp_process_tag_fos3: frequency 2 cadence 3 = 0
00:09:07: cmapp_process_tag_fof4: frequency 1 cadence 4 = 0
00:09:07: cmapp_process_tag_fos4: frequency 2 cadence 4 = 0
00:09:07: cmapp_process_tag_rct1: cadence 1 repeat count = 0
00:09:07: cmapp_process_tag_rct2: cadence 2 repeat count = 0
00:09:07: cmapp_process_tag_rct3: cadence 3 repeat count = 0
00:09:07: cmapp_process_tag_rct4: cadence 4 repeat count = 0
00:09:07:
cmapp_prefix_process_tag_dualtone: TID=[2:CPTONE_CONGESTION]
00:09:07: cmapp_process_tag_nf: number of frequencies = 1
00:09:07: cmapp_process_tag_dr: direction = 0
00:09:07: cmapp_process_tag_fof: frequency 1 = 400
00:09:07: cmapp_process_tag_fos: frequency 2 = 0
00:09:07: cmapp_process_tag_fot: frequency 3 = 0
00:09:07: cmapp_process_tag_fo4: frequency 4 = 0
00:09:07: cmapp_prefix_process_tag_aof_level:
00:09:07: cmapp_process_tag_fxs: amplitude of 1st = -200
00:09:07: cmapp_process_tag_fxo: amplitude of 1st = -200
00:09:07: cmapp_process_tag_digital: amplitude of 1st = -200
00:09:07: cmapp_prefix_process_tag_aos_level:
00:09:07: cmapp_process_tag_fxs: amplitude of 2nd = 0
00:09:07: cmapp_process_tag_fxo: amplitude of 2nd = 0
00:09:07: cmapp_process_tag_digital: amplitude of 2nd = 0
00:09:07: cmapp_prefix_process_tag_aot_level:
00:09:07: cmapp_process_tag_fxs: amplitude of 3rd = 0
00:09:07: cmapp_process_tag_fxo: amplitude of 3rd = 0
00:09:07: cmapp_process_tag_digital: amplitude of 3rd = 0
00:09:07: cmapp_prefix_process_tag_ao4_level:
00:09:07: cmapp_process_tag_fxs: amplitude of 4th = 0

```

```

00:09:07: cmapp_process_tag_fxo: amplitude of 4th = 0
00:09:07: cmapp_process_tag_digital: amplitude of 4th = 0
00:09:07: cmapp_process_tag_ontf: frequency 1 on time = 400
00:09:07: cmapp_process_tag_oftf: frequency 1 off time = 350
00:09:07: cmapp_process_tag_onts: frequency 2 on time = 225
00:09:07: cmapp_process_tag_ofts: frequency 2 off time = 525
00:09:07: cmapp_process_tag_ontt: frequency 3 on time = 0
00:09:07: cmapp_process_tag_oftt: frequency 3 off time = 0
00:09:07: cmapp_process_tag_ont4: frequency 4 on time = 0
00:09:07: cmapp_process_tag_of4: frequency 4 off time = 0
00:09:07: cmapp_process_tag_fof2: frequency 1 cadence 2 = 0
00:09:07: cmapp_process_tag_fos2: frequency 2 cadence 2 = 0
00:09:07: cmapp_process_tag_fof3: frequency 1 cadence 3 = 0
00:09:07: cmapp_process_tag_fos3: frequency 2 cadence 3 = 0
00:09:07: cmapp_process_tag_fof4: frequency 1 cadence 4 = 0
00:09:07: cmapp_process_tag_fos4: frequency 2 cadence 4 = 0
00:09:07: cmapp_process_tag_rct1: cadence 1 repeat count = 0
00:09:07: cmapp_process_tag_rct2: cadence 2 repeat count = 0
00:09:07: cmapp_process_tag_rct3: cadence 3 repeat count = 0
00:09:07: cmapp_process_tag_rct4: cadence 4 repeat count = 0

```

The following sample output shows the network locales in the XML file:

```

Router# debug ccm-manager config-download tone
!
00:54:08: cmapp_xml_tftp_download_file line 170
File (tftp://10.10.10.55/Hong_Kong/gateway-tones.xml) read 20993 bytes
00:54:08: cmapp_prefix_process_tag_tones
00:54:08: cmapp_process_tag_trkLocaleName: region = Hong_Kong
!
00:54:08: cmapp_xml_tftp_download_file line 170
File (tftp://10.10.10.55/United_Kingdom/gateway-tones.xml) read 20993 bytes
00:54:08: cmapp_prefix_process_tag_tones
00:54:08: cmapp_process_tag_trkLocaleName: region = United_Kingdom

```



#### Note

For a description of the significant fields displayed in these output examples, see the [Cisco IOS Voice Command Reference](#) and [Cisco IOS Debug Command Reference](#), Release 12.3T.

## Troubleshooting Tips for Customizable Tone Download

If the custom tone file is not downloaded at least once, the North America tones are used. When a download fails, the static tones associated with the network locale of the voice port are used. For example, if a voice port is defined with a static tone for Hong Kong, and the download fails, the static tone for Hong Kong is used.

The administrator, after correcting the problem (a glitch in the network, a TFTP server that is down, or missing XML tone files), must reset the gateway from Cisco Unified Communications Manager. Resetting the gateway triggers a download of the XML configuration file.

If tone download is successful, the downloaded tone file overwrites the default custom tone table, and the voice port refers to the downloaded custom tones.

# Configuration Examples for Tone Download to MGCP Gateways

This section contains the following examples:

- [Customizable Tone Download Voice-Port Configuration: Example, page 16](#)
- [Customizable Tone Download Using Single-Point Configuration: Example, page 16](#)

## Customizable Tone Download Voice-Port Configuration: Example

The following sample output shows that voice port 1/0/0 has been configured to use C1:

```
Router# show voice port 1/0/0
!
Foreign Exchange Station 1/0/0 Slot is 1, Sub-unit is 0, Port is 0
Type of VoicePort is FXS
Operation State is DORMANT
Administrative State is UP
Companding Type is u-law
Region Tone is set for C1
```

## Customizable Tone Download Using Single-Point Configuration: Example

The following example shows single-point configuration enabled for an MGCP gateway:

```
Router# show running-config
!
version 12.3
no parser cache
no service single-slot-reload-enable
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname Router
!
logging rate-limit console 10 except errors
!
memory-size iomem 10
voice-card 1
!
ip subnet-zero
!
ip domain-name anything.com
!
no ip dhcp-client network-discovery
mgcp
mgcp call-agent 10.10.1.10 2427 service-type mgcp version 0.1
mgcp dtmf-relay voip codec all mode out-of-band
mgcp rtp unreachable timeout 1000
mgcp modem passthrough voip mode cisco
mgcp package-capability rtp-package
mgcp package-capability sst-package
isdn switch-type primary-ni
call rsvp-sync
!
! The following output shows that the TFTP server has an IP address of 10.10.10.50 and
that the download has been enabled.
!
```



```
ccm-manager config server 10.10.10.50
ccm-manager config
ccm-manager download-tones
!
```

## Where to Go Next

- To configure conferencing, transcoding, and MTP support on a Cisco IOS gateway, see “[Configuring Enhanced Conferencing and Transcoding for Voice Gateway Routers](#)” on page 67.
- To enable MGCP PRI backhaul support, see “[Configuring MGCP PRI Backhaul and T1 CAS Support for Cisco Unified Communications Manager](#)” on page 113.
- To enable MGCP BRI backhaul support, see “[Configuring MGCP-Controlled Backhaul of BRI Signaling in Conjunction with Cisco Unified Communications Manager](#)” on page 129.

## Additional References

- “[Cisco Unified Communications Manager and Cisco IOS Interoperability Features Roadmap](#)” on page 9—Describes how to access Cisco Feature Navigator; also lists and describes, by Cisco IOS release, Cisco Unified Communications Manager and Cisco IOS interoperability features.
- “[Overview of Cisco Unified Communications Manager and Cisco IOS Interoperability](#)” on page 13—Describes basics of underlying technology and lists related documents.
- “[Enabling Single-Point Configuration for MGCP Gateways](#)” section on page 45 in [Configuring MGCP Gateway Support for Cisco Unified Communications Manager](#)—Describes how to configure MGCP gateways by downloading XML configuration files.
- [Using the Cisco IP Telephony Locale Installer](#)—Describes how to install the Cisco IP Telephony Locale Installer for Cisco Unified Communications Manager.

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