CHAPTER 2

Region Configuration

Use regions to specify the bandwidth that is used for audio and video calls within a region and between existing regions.

- The audio codec determines the type of compression and the maximum amount of bandwidth that is used per audio call.
- The video call bandwidth comprises the sum of the audio bandwidth and video bandwidth but does not include overhead.

Note The default audio codec for all calls through Cisco Unified CallManager specifies G.711. If you do not plan to use any other audio codec, you do not need to use regions. See the "Related Topics" section on page 2-8 for more information.

Note Cisco Unified CallManager allows addition of a maximum of 500 regions.

Use the following procedures to add, update, or delete regions:

Refer to the "Regions" section in the *Cisco Unified CallManager New and Changed Information Guide, Release 5.1(1),* for more information about configuring regions and selecting audio codecs.

Finding a Region

Because you may have several regions in your network, Cisco Unified CallManager Administration lets you locate specific regions on the basis of specific criteria. Use the following procedure to locate regions.

Note During your work in a browser session, the cookies on the client machine store your find/list search preferences. If you navigate to other menu items and return to this menu item, or if you close the browser and then reopen a new browser window, the system retains your Cisco Unified CallManager search preferences until you modify your search.

Procedure

Step 1 Choose **System > Region**.

The Find and List Regions window displays. Use the drop-down list box to search for a region by Name.

Step 2 From the Find Regions window drop-down list box, choose one of the following criteria:

- begins with
- contains
- is exactly
- ends with
- is empty
- is not empty

Step 3 Specify the appropriate search text, if applicable, and click **Find**.

Tip To find all regions that are registered in the database, click **Find** without entering any search text.

A list of discovered regions displays by Name.

From the Find and List Regions window, you can also specify how many items per page to display.

Note You can delete multiple regions from the Find and List Regions window by checking the check boxes next to the appropriate regions and clicking **Delete Selected**. You can delete all regions in the window by checking the check box in the Matching records title bar and clicking **Delete Selected**.

Step 4 From the list of records, click the region name that matches your search criteria.

The window displays the region that you chose.

Additional Information

See the "Related Topics" section on page 2-8.

Configuring a Region

Use the following procedure to add or update a region.

Before You Begin

For every region, an association exists with that region in other regions; therefore, the addition of regions occurs in a matrixlike fashion. For example, if you add regions A, B, and C, a matrix with region A, region B, and region C as both columns and rows results, as shown in the following matrix:

	Region A	Region B	Region C
Region A			
Region B			
Region C			

If you assign 20 regions, the database adds 400 entries (20 x 20). Some performance limitations exist when large numbers of regions are assigned.

Note Cisco Unified CallManager allows addition of a maximum of 500 regions.

Configuring Default Values

Region entries contain two values—Audio codec and video call bandwidth.

- Audio Codec—You define audio codec values that are to be used within the same region, and you also define audio codec values that are to be used between regions.
- Video Call Bandwidth—You define video call bandwidth values that are to be used within the same region, and you also define video call bandwidth values that are to be used between regions.

Tip If you set both the audio codec values and the video call bandwidth values to use the default, the system optimizes its performance by making more efficient use of resources.

Note Regions have default values for use within a region (the recommended default value specifies G.711), and regions have default values for use between regions (the recommended default value specifies G.729).

You configure the default values for regions in the Cisco Unified CallManager Administration Service Parameters Configuration window (**System > Service Parameters**).

1. Choose **System > Service Parameters**.
2. From the drop-down Server list box, choose the Cisco Unified CallManager server that you want to configure.
3. From the drop-down Service list box, choose **Cisco CallManager (Active)** as the service.
4. The Cisco CallManager Service Parameters Configuration window displays.
5. Scroll down to **Clusterwide Parameters (System - Location and Region)** and configure the parameters in this section.

6. Click the **Save** icon that displays in the tool bar in the upper, left corner of the window (or click the **Save** button that displays at the bottom of the window).

Use the following procedure to add or update a region.

Procedure

Step 1 Choose **System > Region**.

The Region Configuration window displays.

Step 2 Perform one of the following tasks:

- To add a new region, click the **Add New** button and continue with Step 3.
- To update an existing region, locate the appropriate region as described in the "Finding a Region" section on page 2-1 and continue with Step 3.

Note Cisco Unified CallManager recommends that you reset devices after changing a region name.

Step 3 In the Region Name field, enter the name that you want to assign to the region.

Step 4 To save the new region in the database, click the **Save** icon that displays in the tool bar in the upper, left corner of the window (or click the **Save** button that displays at the bottom of the window).

Step 5 To configure the default codecs to use within this region, click the region name to highlight it in the Regions window pane.

a. From the Audio Codec drop-down list box, choose a default audio codec value to use within this region.

   The audio codec determines the type of compression and the maximum amount of bandwidth that is allocated for these calls. See Table 2-2 for a summary of the available codec types and bandwidth usage.

b. In the Video Call Bandwidth column, click the appropriate radio button to configure the default value to specify the video bandwidth to use for video calls within this region.

   If you specify *None*, the system does not allow video calls.

Note For enhanced scalability, Cisco recommends that you properly set the default values in the Cisco Unified CallManager Administration Service Parameters Configuration window for both the audio codec and the video call bandwidth values and then choose the Default settings in the Cisco Unified CallManager Administration Region Configuration window.

Step 6 To configure the default codecs to use between this region and other regions, click another region name (other than this region) to highlight it in the Regions window pane.

a. From the Audio Codec drop-down list box, choose a default audio codec value to use between this region and the region that you highlighted.

   The audio codec determines the type of compression and the maximum amount of bandwidth that is allocated for these calls. See Table 2-2 for a summary of the available codec types and bandwidth usage.

b. In the Video Call Bandwidth column, click the appropriate radio button to configure the default value to specify the video bandwidth to use for video calls between this region and the region that you highlighted.

If you specify *None*, the system does not allow video calls between this region and the specified region.

Note For enhanced scalability, Cisco recommends that you properly set the default values in the Cisco Unified CallManager Administration Service Parameters Configuration window for both the audio codec and the video call bandwidth values and then choose the Default settings in the Cisco Unified CallManager Administration Region Configuration window.

Step 7 To save the new region in the database, click the **Save** icon that displays in the tool bar in the upper, left corner of the window (or click the **Save** button that displays at the bottom of the window).

Tip The Region Configuration window displays an Items per page drop-down list box that allows you to list 25, 50, 100, 150, 200, or 250 configured regions. If you choose to display 100 or more regions, Cisco Unified CallManager may experience performance degradation.

Next Step

After adding a new region to the database, you can use it to configure device pools. Devices acquire a region setting from the device pool to which they are assigned. See the "Configuring a Device Pool" section in the *Cisco Unified CallManager Administration Guide, Release 5.0(4),* for information on configuring device pools.

Additional Information

See the "Related Topics" section on page 2-8.

Region Configuration Settings

Table 2-1 summarizes the audio codec and video call bandwidth settings that can be specified for regions. For related procedures, see the "Related Topics" section on page 2-8.

Table 2-1 Region Configuration Settings

Field	Description
Region Information	
Name	Enter a unique name for this region. This name can comprise up to 30 characters. Valid characters include letters, numbers, dashes, dots (periods), blanks, and underscores. **Note** Cisco Unified CallManager recommends that you reset devices after changing a region name.
Region Relationships	
Modify Relationship to Other Regions	
Regions	The entries in this column specify all existing regions, including the Default region, the region that you are configuring, and all other regions.

Table 2-1 Region Configuration Settings (continued)

Field	Description
Audio Codec	For each region that is specified in the Regions window pane, choose the corresponding value from the drop-down list box in this column to set the audio codec to use for calls within this region and between this region and the specified region. To choose the default setting, click the Defaults radio button. • Cisco recommends that you choose the Default settings that you configured in the Cisco Unified CallManager Administration Service Parameters Configuration window. See the "Configuring Default Values" section on page 2-3. • Because of bandwidth constraints at most remote-site deployments, use G.729 as the recommended default codec setting between a new region and existing regions.
Video Call Bandwidth	For each region that is specified in the Regions window pane, click one radio button in this column as specified: • Use System Default—Click this button to use the default value. The default value normally specifies 384 kbps, unless the default value has been set to a different value in the Service Parameters Configuration window. • None—Click this radio button if no video call bandwidth is allotted between this region and the specified region. • kbps—Click this button to allot video call bandwidth between this region and the specified region. Enter the bandwidth that is available for each video call between these two regions. Valid values range from 1 to 8128.

The total bandwidth that is used per call stream depends on the audio codec type as well as factors such as data packet size and overhead (packet header size). The bandwidth figures shown in Table 2-2 apply for 30-ms data packets and include IP headers. Each call comprises two call streams.

Note The codecs that Table 2-2 specifies correlate to an approximate bandwidth usage per call. For information on bandwidth usage for each codec, refer to *Cisco Unified Communications Solution Reference Network Design (SRND)* for the current release of Cisco Unified CallManager.

Table 2-2 Bandwidth That Audio Codecs Use

Audio Codec	Bandwidth Used Per Call (Including IP Headers) With 30-ms Data Packets	Description
G.711	80 kbps	This codec represents the default codec for all Cisco Unified CallManager calls.
G.722	80 kbps	Video endpoints typically prefer this codec.
G.723	24 kbps	The system supports this low-bit-rate codec for use with older Cisco IP Phone model 12 SP Series and Cisco IP Phone model 30 VIP.

Table 2-2 Bandwidth That Audio Codecs Use (continued)

Audio Codec	Bandwidth Used Per Call (Including IP Headers) With 30-ms Data Packets	Description
G.728	16 kbps	Video endpoints support this low-bit-rate codec.
G.729	24 kbps	The system supports this low bit-rate codec for Cisco Unified IP Phone 7900 models.
Wideband	272 kbps	The system supports this high-quality, high-bandwidth audio codec for IP-phone to IP-phone calls that the Cisco Unified IP Phone 7900 models support. Use this audio codec if you want to configure the Advanced Audio Codec (AAC) for calls between SIP phones. Advanced Audio Codec (AAC) specifies a wideband voice codec that provides improved voice fidelity and equal or better sound quality over older codecs.
GSM	29 kbps	The Global System for Mobile Communications (GSM) codec enables the MNET system for GSM wireless handsets to interoperate with Cisco Unified CallManager.

Deleting a Region

This section describes how to delete a region from the Cisco Unified CallManager database.

Before You Begin

Note You cannot delete a region that any device pools are using.

To find out which device pools use the region, choose **Dependency Records** from the Related Links drop-down list box on the Region Configuration window and click **Go**.

If the dependency records feature is not enabled for the system, the dependency records summary window displays a message that shows the action that you can take to enable the dependency records; the message also displays information about high CPU consumption that is related to the dependency records feature. For more information about dependency records, see the "Accessing Dependency Records" section in the *Cisco Unified CallManager System Guide, Release 5.0(4).*

If you attempt to delete a region that is in use, Cisco Unified CallManager displays a message. Before deleting a region that is currently in use, you must perform either or both of the following tasks:

- Update the device pools to use a different region. See the "Configuring a Device Pool" section in the *Cisco Unified CallManager Administration Guide, Release 5.0(4).*
- Delete the device pools that use the region that you want to delete. See the "Deleting a Device Pool" section in the *Cisco Unified CallManager Administration Guide, Release 5.0(4).*

Procedure

Step 1 Find the region by using the procedure in the "Finding a Region" section on page 2-1.

Step 2 From the list of matching records, choose the region that you want to delete.

Step 3 Click the **Delete Selected Item** icon that displays in the tool bar in the upper, left corner of the window (or click the **Delete Selected** button that displays at the bottom of the window) to delete the region.

Tip The Region Configuration window displays an Items per page drop-down list box that allows you to list 25, 50, 100, 150, 200, or 250 configured regions. If you choose to display 100 or more regions, Cisco Unified CallManager may experience performance degradation.

Additional Information

See the "Related Topics" section on page 2-8.

Related Topics