# Configure Logical Partitioning

## Logical Partitioning Overview

With logical partitioning, you can support PSTN and VoIP calls on a single system while meeting regulatory requirements for call separation. For example, under regulatory constraints in India, all calls that are received from or sent to an external phone must be handed off to and carried by a local or long-distance service provider over the full length of the connection, with the applicable toll charges. You can create a single Unified Communications Manager cluster that routes calls appropriately to the PSTN or the VoIP network according to the caller's location and the phone number being called.

logical partitioning defines which sets of VoIP devices are allowed to communicate with each other. Users do not have to remember to use one line for PSTN and one line for VoIP. Phones making off-net calls are only allowed to talk to a PSTN gateway. It's like having two networks to separately handle your VoIP and PSTN calls, but without the expense of dual infrastructure.

## Logical Partitioning Configuration Task Flow

**Procedure**

|  | Command or Action | Purpose |
|---|---|---|
| **Step 1** | Enable Logical Partitioning, on page 2 | Enable Logical Partitioning. |
| **Step 2** | To Configure Geolocations, on page 2, perform the following subtasks:<br><br>• Create Geolocations, on page 3<br>• Assign Geolocations, on page 3<br>• Set the Default Geolocation, on page 4 | Configuring geolocations is a two-step process: defining locations and assigning them to devices. You also can set the default location to be used by all devices in the cluster. |
| **Step 3** | Configure a Logical Partitioning Default Policy, on page 4 | Set up a default policy for devices that are not associated with a geolocation or geolocation |

| | Command or Action | Purpose |
|---|---|---|
| | | filter. The policy allows or denies PSTN calls between these devices. |
| Step 4 | Configure Devices to Avoid Logical Partitioning Checks, on page 4 | You can specifically exempt devices and device pools from the partitioning checks. |
| Step 5 | To Configure Geolocation Filters, on page 5, perform the following subtasks:<br>• Create Geolocation Filter Rules, on page 5<br>• Assign Geolocation Filters, on page 6<br>• Set the Default Geolocation Filter, on page 6 | Logical partitioning assigns a unique identifier to each device based on its location. When one device calls another, these identifiers are used to determine whether the call is allowed and what routing is appropriate. You can choose which fields are used to create this identifier. For example, you can apply different policies based on the room or floor within a building. |
| Step 6 | Define a Set of Logical Partitioning Policy Records, on page 7 | Define a set of logical partitioning policies for allowing or denying calls between geolocations. Before calls between geolocations are allowed to proceed, the system checks to be sure that calls are allowed between the specified geolocations based on these policies. |
| Step 7 | (Optional) Enable Location Conveyance, on page 7 | Configure location conveyance if you want to communicate geolocation information about devices across clusters. |

# Enable Logical Partitioning

Use this procedure to turn on the Logical Partitioning feature.

**Procedure**

**Step 1** From Cisco Unified CM Administration, choose **System** > **Enterprise Parameters**.

**Step 2** For the **Enable Logical Parititioning** enterprise parameter, choose **True** from the drop-down list.

**Step 3** Click **Save**.

# Configure Geolocations

Configuring geolocations is a two-step process: defining locations and assigning them to devices. You also can set the default location to be used by all devices in the cluster.

## Procedure

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | Create Geolocations, on page 3 | Configure geolocations to specify geographic locations. These are used to associate devices with regulatory features such as logical partitioning. Geolocations are used in policy decisions, such as in-country regulations. |
| **Step 2** | Assign Geolocations, on page 3 | Assign a geolocation to a device or device pool. |
| **Step 3** | Set the Default Geolocation, on page 4 | Specify a default geolocation for all devices and device pools in this cluster. |

# Create Geolocations

Use this procedure to create geolocations that you can assign to the devices in your system. You can use the geolocations for logical partitioning.

### Procedure

**Step 1** From Cisco Unified CM Administration, choose **System** > **Geolocation Configuration**.

**Step 2** Click **Add New**.

**Step 3** Enter a **Name** for the geolocation.

**Step 4** Configure the fields on the **Geolocation Configuration** window. For more information on the fields and their configuration options, see the system Online Help.

**Step 5** Click **Save**.

**Step 6** Repeat this procedure to create additional geolocations.

# Assign Geolocations

Assign a geolocation to a device or device pool.

### Procedure

**Step 1** From Cisco Unified CM Administration, choose one of the following menu items:

- **Device** > **Phone**
- **Device** > **Trunk**
- **Device** > **Gateway**
- **System** > **Device Pool**

**Step 2** Perform one of the following tasks:

- Click **Find** to modify the settings for an existing device or device pool. Enter search criteria, and then choose an existing device or device pool from the resulting list.

- Click **Add New** to add a new device or device pool. For devices, choose device types and protocols as needed and click **Next**.

| | |
|---|---|
| **Step 3** | From the Geolocation drop-down list, choose a geolocation that you configured. |
| **Step 4** | Click **Save**. |

## Set the Default Geolocation

Specify a default geolocation for all devices and device pools in this cluster.

**Procedure**

| | |
|---|---|
| **Step 1** | From Cisco Unified CM Administration, choose **System** > **Enterprise Parameters**. |
| **Step 2** | From the **Default Geolocation** drop-down list, choose a Geolocation that you configured. The default value is **Unspecified**. |
| **Step 3** | Click **Save**. |
| **Step 4** | Click **Apply Config**. |
| **Step 5** | (Optional) If you need to override this default for a specific device or device pool, enter the value on either the **Device Configuration** or **Device Pool Configuration** window, and then click **Save**. |

# Configure a Logical Partitioning Default Policy

Set up a default policy for devices that are not associated with a geolocation or geolocation filter. The policy allows or denies PSTN calls between these devices.

**Procedure**

| | |
|---|---|
| **Step 1** | From Cisco Unified CM Administration, choose **Call Routing** > **Logical Partitioning Policy Configuration** |
| **Step 2** | Click **Add New**. |
| **Step 3** | Configure the fields on the **Logical Partition Policy Configuration** window. For more information on the fields and their configuration options, see the system Online Help. |
| **Step 4** | Click **Save**. |
| | **Note**     If a policy that contained the value Allow is then later changed to Deny, then it remains Deny. The opposite is also true. A policy previously set to Deny, later changed to Allow is an Allow. The **Cisco Unified Reporting** > **Geolocation Policy Report** can help you identify policies that overlap. |

# Configure Devices to Avoid Logical Partitioning Checks

You can specifically exempt devices and device pools from the partitioning checks.

**Procedure**

**Step 1**    From Cisco Unified CM Administration, choose one of the following menu items:

- **Device** > **Phone**
- **Device** > **Trunk**
- **Device** > **Gateway**
- **System** > **Device Pool**

**Step 2**    Perform one of the following tasks:

- Click **Find** to modify the settings for an existing device or device pool. Enter search criteria and then choose an existing device or device pool from the resulting list.
- Click **Add New** to add a new device or device pool. For devices, choose device types and protocols as needed and click **Next**.

**Step 3**    From the **Geolocation** drop-down list, choose **Unspecified**.

**Step 4**    Click **Save**.

# Configure Geolocation Filters

Logical partitioning assigns a unique identifier to each device based on its location. When one device calls another, these identifiers are used to determine whether the call is allowed and what routing is appropriate. You can choose which fields are used to create this identifier. For example, you can apply different policies based on the room or floor within a building.

**Procedure**

|  | **Command or Action** | **Purpose** |
|---|---|---|
| **Step 1** | Create Geolocation Filter Rules, on page 5 | Geolocation filters allow you to specify which fields are used to create a geolocation identifier. This feature is used to make policy decisions on a subset of the geolocation objects. |
| **Step 2** | Assign Geolocation Filters, on page 6 | |
| **Step 3** | Set the Default Geolocation Filter, on page 6 | Configure the Default Geolocation Filter enterprise parameter to specify a default geolocation filter for a cluster. This parameter determines the default geolocation filter setting for all devices and device pools that are not associated with a geolocation filter. |

## Create Geolocation Filter Rules

Use this procedure to create geolocation filters that you can use for logical partitioning decisions.

**Procedure**

**Step 1** From Cisco Unified CM Administration, choose **System** > **Geolocation Filter**.

**Step 2** Click **Add New**.

**Step 3** Enter a **Name** and **Description** for the filter.

**Step 4** Check the check boxes that correspond to the items you want to use for logical partitioning decisions.

**Step 5** Configure the fields on the **Geolocation Filter Configuration** window. For more information on the fields and their configuration options, see the system Online Help.

**Step 6** Click **Save**.

**Step 7** Repeat these steps to create additional geolocation filters.

## Assign Geolocation Filters

**Procedure**

**Step 1** From Cisco Unified CM Administration, choose one of the following menu items:

- **Device** > **Phone**
- **Device** > **Trunk**
- **Device** > **Gateway**
- **System** > **Device Pool**

**Step 2** Perform one of the following tasks:

- Click **Find** to modify the settings for an existing device or device pool. Enter search criteria and then choose an existing device or device pool from the resulting list.
- Click **Add New** to add a new device or device pool. For devices, choose device types and protocols as needed and click **Next**.

**Step 3** From the **Geolocation Filter** drop-down list, choose a geolocation filter that you configured.

**Step 4** Click **Save**.

## Set the Default Geolocation Filter

**Procedure**

**Step 1** From Cisco Unified CM Administration, choose **System** > **Enterprise Parameters**.

**Step 2** From the **Default Geolocation** drop-down list, choose a Geolocation that you configured. The default value is **Unspecified**.

**Step 3** Click **Save**.

**Step 4** Click **Apply Config**.

**Step 5** (Optional) If you need to override this default for a specific device or device pool, specify the default geolocation filter value on either the **Device Configuration** or **Device Pool Configuration** window, and then click **Save**.

# Define a Set of Logical Partitioning Policy Records

Define a set of logical partitioning policies for allowing or denying calls between geolocations. Before calls between geolocations are allowed to proceed, the system checks to be sure that calls are allowed between the specified geolocations based on these policies.

### Procedure

**Step 1** From Cisco Unified CM Administration, choose **Call Routing** > **Logical Partitioning Policy Configuration**.

**Step 2** Perform one of the following tasks:

- Click **Find** to modify the settings for an existing logical partitioning policy. Enter search criteria and then choose an existing logical partitioning policy from the resulting list.
- Click **Add New** to add a new logical partitioning policy.

**Step 3** Configure the fields on the **Logical Partitioning Policy Configuration** window. For more information on the fields and their configuration options, see the system Online Help.

**Note** If any policy is left blank without any configuration values, it will become a blank geolocation policy and configuring a Logical Policy for a specific Device Type with the blank Logical Partitioning configurations makes Unified Communications Manager add the policy value (Allow or Deny) in the configured device type.

**Step 4** Click **Save**.

# Enable Location Conveyance

Location Conveyance is an optional configuration that lets you share geolocation information across clusters.

### Procedure

**Step 1** From Cisco Unified CM Administration, choose **Device** > **Trunk**.

**Step 2** Do one of the following:

- Click **Find** and select an existing trunk.
- Click **Add New** to configure a new trunk.

**Step 3** Complete the fields in the **Trunk Configuration** window. For more information on the fields and their configuration options, see the system Online Help.

**Step 4** In the **Geolocation Information** area, select a **Geolocation** and **Geolocation Filter**.

**Step 5** To enable Location Conveyance, check the **Send Geolocation Information** check box.

**Step 6** Click **Save**.

# Logical Partitioning Interactions and Restrictions

## Logical Partitioning Interactions

*Table 1: Logical Partitioning Interactions*

| Feature | Interaction |
|---|---|
| Ad Hoc Conference, Join, Join Across Lines, Call Forwarding, Call Transfer | Logical partitioning handling does not take place in the following circumstances:<br>• When all participants are VoIP phones.<br>• When the geolocation or geolocation filter does not associate with a device. |
| Barge, cBarge, and Remote Resume | Logical partitioning handling does not take place in the following circumstances:<br>• When both the caller and the callee devices are VoIP phones, logical partitioning policy checks are ignored.<br>• For the participants in cBarge/Barge, no logical partitioning policy checking exists, and you cannot prevent logical-partitioning-denied scenarios. |
| Cisco Unified Mobility | Logical partitioning handling does not take place in the following circumstances:<br>• Geolocation or geolocation filter does not associate with the involved devices.<br>• No logical partitioning support exists when a dual-mode phone is used. |
| CTI Handling | Logical partitioning handling does not take place in the following circumstances:<br>• When a geolocation or geolocation filter does not associate with any device, handling does not occur.<br>• When all the involved devices specify VoIP phones, handling does not occur. |
| Extension Mobility | Logical partitioning handling does not take place in the following circumstances:<br>• A geolocation or geolocation filter does not associate with a VoIP phone that is logged on to Cisco Extension Mobility, nor does it associate with the calling party or called party device.<br>• The VoIP phone that is logged on to Cisco Extension Mobility calls or receives a call from a VoIP phone. |

| Feature | Interaction |
|---|---|
| Meet-Me Conference | Logical partitioning handling does not take place in the following circumstances:<br><br>• When all participants are VoIP phones, handling does not occur.<br><br>• When geolocation or geolocation filter does not associate with a device, no policy check takes place for that device. |
| Route Lists and Hunt Pilots | Logical partitioning handling does not take place in the following circumstances:<br><br>• When both the calling party and called party devices are VoIP phones, handling does not occur.<br><br>• All devices must associate with both a geolocation and geolocation filter. If any device does not associate with both geolocation and geolocation filter, handling does not occur. |
| Shared Line | Logical partitioning handling does not take place in the following circumstances:<br><br>• When both the caller and the callee devices are VoIP phones, no handling occurs.<br><br>• When geolocation or geolocation filter does not associate with any device, no handling occurs. |

# Logical Partitioning Restrictions

*Table 2: Logical Partitioning Restrictions*

| Restriction | Description |
|---|---|
| Barge/cBarge | Barge/cBarge does not occur; the call instance is dropped.<br><br>For the participants in cBarge/Barge, no logical partitioning policy checking exists, and you cannot prevent logical-partitioning-denied scenarios. |
| BLF Presence | BLF Presence notifications are not checked for a logical partitioning policy. |
| Cisco Extension Mobility | When Cisco Extension Mobility logs in to a phone in a different geolocation, outgoing PSTN calls can occur when Local Route Groups are configured. Incoming PSTN calls are not placed to the phone but receive a reorder tone. |
| Cisco Unified MeetingPlace | The system does not support the logical partitioning feature for calls that involve Cisco Unified MeetingPlace or Cisco Unified MeetingPlace Express. |
| Conferences | The logical partitioning checks are not supported for participants across conferences in conference chaining.<br><br>For example, meet-me and adhoc chained conferences can have participants that are logical partitioning denied. |

| Restriction | Description |
|---|---|
| H.225 gatekeeper-controlled trunk | Cisco Unified Communications Manager does not communicate geolocation information over a H.225 gatekeeper-controlled trunk. |
| H.323 and MGCP Gateways | Cisco Unified Communications Manager does not communicate geolocation info to H.323 or MGCP gateways.<br><br>Communication to a SIP gateway can be disabled through the SIP trunk check box. |
| Mobility Cell Pickup | Logical partitioning deny handling takes place after call is answered on the mobile phone.<br><br>The logical partitioning policy check does not occur before the call is placed to the mobile phone (as it happens for a basic SNR call). The system checks the logical partitioning policy after the mobile phone answers the call. |
| Q.SIG intercluster trunk | Intercluster trunks (ICT) with the Q.SIG protocol are not allowed to communicate geolocation information for the caller or receiving device. The ICT configuration for "Send Geolocation Information" is disabled when the Q.SIG tunneled protocol is selected. |
| Reorder Tones | No reorder tone (fast busy tone) is provided on IOS H.323 and SIP gateways upon release of connected calls due to logical partitioning policies. |
| Shared Line Active Call | For a restricted logical partitioning scenario, the shared line drops the active call information for the duration of the call, even if a feature moves the shared-line call to the allowed category. |
| User Agent Server | The logical partitioning policy checks in the logical partitioning-aware cluster that receives this geolocation may cancel the call if the policy is denied. |