



# Configure Multilevel Precedence and Preemption

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## Multilevel Precedence and Preemption Overview

The Multilevel Precedence and Preemption (MLPP) service allows placement of priority calls. Properly validated users can preempt lower priority phone calls with higher priority calls. An authenticated user can preempt calls either to targeted stations or through fully subscribed TDM trunks. This capability assures high-ranking personnel of communication to critical organizations and personnel during network stress situations, such as a national emergency or degraded network situations.

## Multilevel Precedence and Preemption Prerequisites

Supported SCCP or SIP phones. See the *Cisco IP Phone Administration Guide* and *Cisco IP Phone User Guide* for your phones for feature support and more information.

## Multilevel Precedence and Preemption Task Flow

**Before you begin**

### Procedure

	Command or Action	Purpose
Step 1	To <a href="#">Configure Domains and Domain Lists, on page 3</a> , perform the following subtasks: <ul style="list-style-type: none"><li>• <a href="#">Configure a Multilevel Precedence and Preemption Domain, on page 4</a></li></ul>	Configure an MLPP domain to specify the devices and resources that are associated with an MLPP subscriber.

	Command or Action	Purpose
	<ul style="list-style-type: none"> <li>• <a href="#">Configure a Resource Priority Namespace Network Domain, on page 4</a></li> <li>• <a href="#">Configure a Resource Priority Namespace Network Domain List, on page 5</a></li> </ul>	
<b>Step 2</b>	<a href="#">Configure a Common Device Configuration for Multilevel Precedence and Preemption, on page 5</a>	A common device configuration includes MLPP-related information that can be applied to multiple users and their devices. Ensure that each device is associated with a common device configuration. These settings override the enterprise parameter settings.
<b>Step 3</b>	<a href="#">Configure the Enterprise Parameters for Multilevel Precedence and Preemption, on page 6</a>	Set enterprise parameters to enable MLPP indication and preemption. If individual devices and devices in common device configurations have MLPP settings of Default, the MLLP-related enterprise parameters apply to these devices and common device configurations.
<b>Step 4</b>	<a href="#">Configure a Partition for Multilevel Precedence and Preemption, on page 7</a>	Configure a partition to create a logical grouping of directory numbers (DNs) and route patterns with similar reachability characteristics. Devices that are typically placed in partitions include DN and route patterns. These entities associate with DN that users dial. For simplicity, partition names usually reflect their characteristics.
<b>Step 5</b>	<a href="#">Configure a Calling Search Space for Multilevel Precedence and Preemption, on page 8</a>	A calling search space is an ordered list of partitions. Calling search spaces determine the partitions that calling devices, including IP phones, softphones, and gateways, can search when attempting to complete a call.
<b>Step 6</b>	<a href="#">Configure a Route Pattern for Multilevel Precedence and Preemption, on page 9</a>	Configure route patterns to route or block both internal and external calls.
<b>Step 7</b>	<a href="#">Configure a Translation Pattern for Multilevel Precedence and Preemption, on page 10</a>	Configure translation patterns to specify how to route a call after it is placed. Configuring translation patterns allows your system to manipulate calling and called digits as needed. When the system identifies that a pattern match occurred, your system uses the calling search space that is configured for the translation pattern to perform the subsequent match.
<b>Step 8</b>	<a href="#">Configure Multilevel Precedence and Preemption for Gateways, on page 11</a>	Configure Cisco Unified Communications Manager to communicate with non-IP telecommunications devices.

	Command or Action	Purpose
<b>Step 9</b>	<a href="#">Configure Multilevel Precedence and Preemption for Phones, on page 12</a>	
<b>Step 10</b>	<a href="#">Configure a Directory Number to Place Multilevel Precedence and Preemption Calls, on page 14</a>	After you configure a device, you can add a line (directory number) from the updated <b>Device Configuration</b> window.
<b>Step 11</b>	<a href="#">Configure a User Device Profile for Multilevel Precedence and Preemption, on page 14</a>	When a user profile is assigned to a phone, the phone inherits the configuration of the assigned user, including any CSS that is associated with the user. The phone CSS can, however, override the user profile. Cisco Unified Communications Manager assigns the precedence level that is associated with the dialed pattern to the call when a pattern match occurs. The system sets the call request as a precedence call with the assigned precedence level.
<b>Step 12</b>	<a href="#">Configure the Default Device Profile for Multilevel Precedence and Preemption, on page 15</a>	Use the default device profile for whenever a user logs on to a phone model for which no user device profile exists. A default device profile comprises the set of services and features that are associated with a particular device.

## Configure Domains and Domain Lists

Configure an MLPP domain to specify the devices and resources that are associated with an MLPP subscriber.

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	<a href="#">Configure a Multilevel Precedence and Preemption Domain, on page 4</a>	<p>Associate devices and resources with an MLPP subscriber. When an MLPP subscriber that belongs to a particular domain places a precedence call to another MLPP subscriber that belongs to the same domain, the MLPP service can preempt the existing call that the called MLPP subscriber is on for a higher precedence call. MLPP service availability does not span across different domains.</p> <p>The MLPP domain subscription of the originating user determines the domain of the call and its connections. Only higher precedence calls in one domain can preempt connections that calls in the same domain are using.</p>

	Command or Action	Purpose
<b>Step 2</b>	<a href="#">Configure a Resource Priority Namespace Network Domain, on page 4</a>	Configure namespace domains for a Voice over Secured IP (VoSIP) network that uses SIP trunks. Your system prioritizes the SIP-signaled resources so that those resources can be used most effectively during emergencies and congestion of telephone circuits, IP bandwidth, and gateways. Endpoints receive the precedence and preemption information.
<b>Step 3</b>	<a href="#">Configure a Resource Priority Namespace Network Domain List, on page 5</a>	Configure a list of acceptable network domains. Incoming calls are compared to the list and processed, if an acceptable network domain is in the list.

## Configure a Multilevel Precedence and Preemption Domain

Associate devices and resources with an MLPP subscriber. When an MLPP subscriber that belongs to a particular domain places a precedence call to another MLPP subscriber that belongs to the same domain, the MLPP service can preempt the existing call that the called MLPP subscriber is on for a higher precedence call. MLPP service availability does not span across different domains.

The MLPP domain subscription of the originating user determines the domain of the call and its connections. Only higher precedence calls in one domain can preempt connections that calls in the same domain are using.

### Procedure

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- Step 1** From Cisco Unified CM Administration, choose **System > MLPP > Domain > MLPP Domain**.
- Step 2** Click **Add New**.
- Step 3** In the **Domain Name** field, enter the name that you want to assign to the new MLPP domain.  
You can enter up to 50 alphanumeric characters, and any combination of spaces, periods (.), hyphens (-), and underscore characters (\_).
- Step 4** In the **Domain ID** field, enter a unique six-character hexadecimal MLPP domain ID.  
Domain IDs must fall in the range between 000001 and FFFFFFFF. (000000 is reserved for the default MLPP domain ID.)
- Step 5** Click **Save**.
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## Configure a Resource Priority Namespace Network Domain

Configure namespace domains for a Voice over Secured IP (VoSIP) network that uses SIP trunks. Your system prioritizes the SIP-signaled resources so that those resources can be used most effectively during emergencies and congestion of telephone circuits, IP bandwidth, and gateways. Endpoints receive the precedence and preemption information.

### Procedure

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- Step 1** From Cisco Unified CM Administration, **System > MLPP > Namespace > Resource Priority Namespace Network Domain**.
- Step 2** Enter the name for the Resource Priority Namespace Network Domain in the information section. The maximum number of domain names is 100.
- Step 3** Enter a description for the domain name.  
The description can include up to 50 characters in any language, but it cannot include double-quotes ("), percentage sign (%), ampersand (&), or angle brackets (<>).
- Step 4** Check the **Make this the Default Resource Priority Namespace Network Domain** check box if you want the domain name to be the default.
- Step 5** Click **Save**.
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## Configure a Resource Priority Namespace Network Domain List

Configure a list of acceptable network domains. Incoming calls are compared to the list and processed, if an acceptable network domain is in the list.

### Procedure

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- Step 1** From Cisco Unified CM Administration, choose **System > MLPP > Namespace > Resource Priority Namespace List**.
- Step 2** Enter the name for the Resource Priority Namespace List. The maximum number of characters is 50.
- Step 3** Enter a description for the list. The description can include up to 50 characters in any language, but it cannot include double-quotes ("), percentage sign (%), ampersand (&), back-slash (\), or angle brackets (<>).
- Step 4** Use the Up and Down Arrows to move a Resource Priority Namespace Network Domain to the **Selected Resource Priority Namespaces** field.
- Step 5** Click **Save**.
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## Configure a Common Device Configuration for Multilevel Precedence and Preemption

A common device configuration includes MLPP-related information that can be applied to multiple users and their devices. Ensure that each device is associated with a common device configuration. These settings override the enterprise parameter settings.

### Procedure

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- Step 1** From Cisco Unified CM Administration, choose **Device > Device Settings > Common Device Configuration**.
- Step 2** Perform one of the following tasks:

- Click **Find** to modify an existing common device configuration and choose a common device configuration from the resulting list.
- Click **Add New** to add a new common device configuration.

**Step 3** Configure the fields on the **Common Device Configuration** window. For more information on the fields and their configuration options, see Online Help.

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

## Configure the Enterprise Parameters for Multilevel Precedence and Preemption

Set enterprise parameters to enable MLPP indication and preemption. If individual devices and devices in common device configurations have MLPP settings of Default, the MLLP-related enterprise parameters apply to these devices and common device configurations.

### Procedure

**Step 1** Choose **System > Enterprise Parameters**.

**Step 2** Configure the MLPP enterprise parameters on the **Enterprise Parameters Configuration** window. See the Related Topics section for more information about the parameters and their configuration options.

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

## Enterprise Parameters for Multilevel Precedence and Preemption

*Table 1: Enterprise Parameters for Multilevel Precedence and Preemption*

Parameter	Description
MLPP Domain Identifier	Set this parameter to define a domain. Because MLPP service applies to a domain, Cisco Unified Communications Manager marks only connections and resources that belong to calls from MLPP users in a given domain with a precedence level. Cisco Unified Communications Manager can preempt only lower precedence calls from MLPP users in the same domain.  The default is <b>000000</b> .
MLPP Indication Status	This parameter specifies whether devices use MLPP tones and special displays to indicate MLPP precedence calls. To enable MLPP indication across the enterprise, set this parameter to MLPP Indication turned on.  The default is <b>MLPP Indication turned off</b> .
MLPP Preemption Setting	This parameter determines whether devices should apply preemption and preemption signaling (such as preemption tones) to accommodate higher precedence calls. To enable MLPP preemption across the enterprise, set this parameter to Forceful Preemption.  The default is <b>No preemption allowed</b> .

Parameter	Description
Precedence Alternate Party Timeout	In a precedence call, if the called party subscribes to alternate party diversion, this timer indicates the seconds after which Cisco Unified Communications Manager will divert the call to the alternate party if the called party does not acknowledge preemption or does not answer a precedence call.  The default is <b>30</b> seconds.
Use Standard VM Handling For Precedence Calls	This parameter determines whether a precedence call will forward to the voice-messaging system.  If the parameter is set to <b>False</b> , precedence calls do not forward to the voice-messaging system. If the parameter is set to <b>True</b> , precedence calls forward to the voice-messaging system.  For MLPP, the recommended setting for this parameter is <b>False</b> , as users, not the voice-messaging system, should always answer precedence calls.  The default is <b>False</b> .

## Configure a Partition for Multilevel Precedence and Preemption

Configure a partition to create a logical grouping of directory numbers (DNs) and route patterns with similar reachability characteristics. Devices that are typically placed in partitions include DN and route patterns. These entities associate with DN that users dial. For simplicity, partition names usually reflect their characteristics.

### Procedure

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- Step 1** From Cisco Unified CM Administration, choose **Call Routing > Class of Control > Partition**.
- Step 2** Click **Add New** to create a new partition.
- Step 3** In the **Partition Name, Description** field, enter a name for the partition that is unique to the route plan. Partition names can contain alphanumeric characters, as well as spaces, hyphens (-), and underscore characters (\_). See the online help for guidelines about partition names.
- Step 4** Enter a comma (,) after the partition name and enter a description of the partition on the same line. The description can contain up to 50 characters in any language, but it cannot include double quotes ("), percentage sign (%), ampersand (&), backslash (\), angle brackets (<>), or square brackets ([ ]). If you do not enter a description, Cisco Unified Communications Manager automatically enters the partition name in this field.
- Step 5** To create multiple partitions, use one line for each partition entry.
- Step 6** From the **Time Schedule** drop-down list, choose a time schedule to associate with this partition. The time schedule specifies when the partition is available to receive incoming calls. If you choose **None**, the partition remains active at all times.
- Step 7** Select one of the following radio buttons to configure the **Time Zone**:

- **Originating Device**—When you select this radio button, the system compares the time zone of the calling device to the **Time Schedule** to determine whether the partition is available to receive an incoming call.
- **Specific Time Zone**—After you select this radio button, choose a time zone from the drop-down list. The system compares the chosen time zone to the **Time Schedule** to determine whether the partition is available to receive an incoming call.

**Step 8** Click **Save**.

## Partition Naming Guidelines

The list of partitions in a calling search space is limited to a maximum of 1024 characters. This means that the maximum number of partitions in a CSS varies depending on the length of the partition names. Use the following table to determine the maximum number of partitions that you can add to a calling search space if partition names are of fixed length.

*Table 2: Partition Name Guidelines*

Partition Name Length	Maximum Number of Partitions
2 characters	340
3 characters	256
4 characters	204
5 characters	172
...	...
10 characters	92
15 characters	64

## Configure a Calling Search Space for Multilevel Precedence and Preemption

A calling search space is an ordered list of partitions. Calling search spaces determine the partitions that calling devices, including IP phones, softphones, and gateways, can search when attempting to complete a call.

### Procedure

**Step 1** From Cisco Unified CM Administration, choose **Call Routing > Class of Control > Calling Search Space**.

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

**Step 3** In the **Name** field, enter a name.

Ensure that each calling search space name is unique to the system. The name can include up to 50 alphanumeric characters and can contain any combination of spaces, periods (.), hyphens (-), and underscore characters (\_).

**Step 4** In the **Description** field, enter a description.



The description can include up to 50 characters in any language, but it cannot include double-quotes ("), percentage sign (%), ampersand (&), back-slash (\), or angle brackets (<>).

- Step 5** From the **Available Partitions** drop-down list, perform one of the following steps:
- For a single partition, select that partition.
  - For multiple partitions, hold down the **Control (CTRL)** key, then select the appropriate partitions.
- Step 6** Select the down arrow between the boxes to move the partitions to the **Selected Partitions** field.
- Step 7** (Optional) Change the priority of selected partitions by using the arrow keys to the right of the **Selected Partitions** box.
- Step 8** Click **Save**.

## Configure a Route Pattern for Multilevel Precedence and Preemption

Configure route patterns to route or block both internal and external calls.

### Procedure

- Step 1** From Cisco Unified CM Administration, choose **Call Routing > Route/Hunt > Route Pattern**.
- Step 2** Perform one of the following tasks:
- To modify the settings for an existing route pattern, enter search criteria, click **Find**, and then choose an existing route pattern from the resulting list.
  - To add a new route pattern, click **Add New**.
- Step 3** Configure the fields on the **Route Pattern Configuration** window. See the Related Topics section for more information about the fields and their configuration options.
- Step 4** Click **Save**.

## Route Pattern Configuration Fields for Multilevel Precedence and Preemption

*Table 3: Route Pattern Configuration Fields for Multilevel Precedence and Preemption*

Field	Description
Route Pattern	Enter the route pattern, including numbers and wildcards, without spaces. For example, for NANP, enter 9.@ for typical local access or 8XXX for a typical private network numbering plan. Valid characters include the uppercase characters A, B, C, and D and \+, which represents the international escape character +.

Field	Description
MLPP Precedence	<p>Choose an MLPP precedence setting for this route pattern from the drop-down list:</p> <ul style="list-style-type: none"> <li>• Executive Override—Highest precedence setting for MLPP calls.</li> <li>• Flash Override—Second highest precedence setting for MLPP calls.</li> <li>• Flash—Third highest precedence setting for MLPP calls.</li> <li>• Immediate—Fourth highest precedence setting for MLPP calls.</li> <li>• Priority—Fifth highest precedence setting for MLPP calls.</li> <li>• Routine—Lowest precedence setting for MLPP calls.</li> <li>• Default—Does not override the incoming precedence level but rather lets it pass unchanged.</li> </ul>
Apply Call Blocking Percentage	<p>Check this check box to enable the Destination Code Control (DCC) feature. By enabling DCC, all calls other than flash and higher precedence calls made to the destination are filtered and allowed or disallowed based on the Call Blocking Percentage quota set for the destination. Flash and higher precedence calls are allowed at all times. DCC is disabled by default.</p> <p>The Apply Call Blocking Percentage field is enabled only if the MLPP level is immediate, priority, routine or default.</p>
Call Blocking Percentage (%)	<p>Enter the percentage of calls to be blocked for this destination in numerals. This value specifies the percentage of lower precedence calls made to this destination that get blocked by the route pattern. This percentage limits the lower precedence calls only; the flash and higher precedence calls made to this destination are allowed at all times</p> <p>The Call Blocking Percentage (%) field is enabled only if the Apply Call Blocking Percentage check box is checked.</p>
Resource Priority Namespace Network Domain	<p>Choose a Resource Priority Namespace Network Domain from the drop-down list. To configure the Resource Priority Namespace Network Domains, choose System &gt; MLPP &gt; Namespace &gt; Resource Priority Namespace Network Domain.</p>

## Configure a Translation Pattern for Multilevel Precedence and Preemption

Configure translation patterns to specify how to route a call after it is placed. Configuring translation patterns allows your system to manipulate calling and called digits as needed. When the system identifies that a pattern match occurred, your system uses the calling search space that is configured for the translation pattern to perform the subsequent match.

### Procedure

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- Step 1** In Cisco Unified CM Administration, choose **Call Routing > Translation Pattern**.
- Step 2** Perform one of the following tasks:

- To modify the settings for an existing translation pattern, enter search criteria, click **Find**, and choose an existing Translation Pattern from the resulting list.
- To add a new translation pattern, click **Add New**.

**Step 3** From the **MLPP Precedence** drop-down list, choose one of the following settings for this translation pattern:

- **Executive Override**—Highest precedence setting for MLPP calls.
- **Flash Override**—Second highest precedence setting for MLPP calls.
- **Flash**—Third highest precedence setting for MLPP calls.
- **Immediate**—Fourth highest precedence setting for MLPP calls.
- **Priority**—Fifth highest precedence setting for MLPP calls.
- **Routine**—Lowest precedence setting for MLPP calls.
- **Default**—Does not override the incoming precedence level but rather lets it pass unchanged.

**Step 4** From the **Resource-Priority Namespace Network Domain** drop-down list, choose a resource priority namespace network domain that you configured.

**Step 5** From the **Calling Search Space** drop-down list, choose the calling search space that you configured.

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

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## Configure Multilevel Precedence and Preemption for Gateways

Configure Cisco Unified Communications Manager to communicate with non-IP telecommunications devices.

### Before you begin

- Configure one of the following gateways:
  - Cisco Catalyst 6000 24 port FXS Gateway
  - Cisco Catalyst 6000 E1 VoIP Gateway
  - Cisco Catalyst 6000 T1 VoIP Gateway
  - Cisco DE-30+ Gateway
  - Cisco DT-24+ Gateway
  - H.323 Gateway

### Procedure

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

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

- To modify the settings for an existing gateway, enter search criteria, click **Find**, and choose a gateway from the resulting list.
- To add a new gateway:
  - a. Click **Add New**.

- b. From the **Gateway Type** drop-down list, choose one of the supported gateway models.
- c. Click **Next**.

**Step 3** Configure the MLPP fields on the **Gateway Configuration** window. See the Related Topics section for more information about the fields and their configuration options.

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

## Configure Multilevel Precedence and Preemption for Phones



**Caution** Do not configure a device with the following combination of settings: MLPP Indication is set to Off or Default (when default is Off) while MLPP Preemption is set to Forceful.

### Procedure

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

**Step 2** Enter search criteria.

**Step 3** Click **Find** and choose a phone from the resulting list.

**Step 4** Configure the MLPP fields on the **Phone Configuration** window. See the Related Topics section for more information about the fields and their configuration options.

## Multilevel Precedence and Preemption Settings for Phones

*Table 4: Multilevel Precedence and Preemption Settings for Phones*

MLPP Settings for Phones Field	Description
Common Device Configuration	Choose the common device configuration that you configured. The common device configuration includes the attributes (services or features) that are associated with a particular user.
Calling Search Space	From the drop-down list, choose a calling search space (CSS) that you configured. A calling search space comprises a collection of partitions that are searched to determine how a dialed number should be routed. The calling search space for the device and the calling search space for the directory number are used together. The directory number CSS takes precedence over the device CSS.

MLPP Settings for Phones Field	Description
MLPP Domain	<p>Choose an MLPP domain from the drop-down list for the MLPP domain that is associated with this device. If you leave the <b>None</b> value, this device inherits its MLPP domain from the value that was set in the common device configuration. If the common device configuration does not have an MLPP domain setting, this device inherits its MLPP domain from the value that was set for the MLPP Domain Identifier enterprise parameter.</p>
MLPP Indication	<p>If available, this setting specifies whether a device that can play precedence tones will use the capability when it places an MLPP precedence call.</p> <p>From the drop-down list, choose a setting to assign to this device from the following options:</p> <ul style="list-style-type: none"> <li>• <b>Default</b>—This device inherits its MLPP indication setting from the common device configuration.</li> <li>• <b>Off</b>—This device does not handle nor process indication of an MLPP precedence call.</li> <li>• <b>On</b>—This device handles and processes indication of an MLPP precedence call.</li> </ul> <p><b>Note</b> Do not configure a device with the following combination of settings: MLPP Indication is set to Off or Default (when default is Off) while MLPP Preemption is set to Forceful.</p> <p>Turning on MLPP Indication (at the enterprise parameter or device level) disables normal Ring Setting behavior for the lines on a device, unless MLPP Indication is turned off (overridden) for the device.</p>
MLPP Preemption	<p>Be aware that this setting is not available on all devices. If available, this setting specifies whether a device that can preempt calls in progress will use the capability when it places an MLPP precedence call.</p> <p>From the drop-down list, choose a setting to assign to this device from the following options:</p> <ul style="list-style-type: none"> <li>• <b>Default</b> <ul style="list-style-type: none"> <li>—This device inherits its MLPP preemption setting from the common device configuration.</li> </ul> </li> <li>• <b>Disabled</b>—This device does not allow preemption of lower precedence calls to take place when necessary for completion of higher precedence calls.</li> <li>• <b>Forceful</b>—This device allows preemption of lower precedence calls to take place when necessary for completion of higher precedence calls.</li> </ul>

## Configure a Directory Number to Place Multilevel Precedence and Preemption Calls

After you configure a device, you can add a line (directory number) from the updated **Device Configuration** window.

### Procedure

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- Step 1** From Cisco Unified CM Administration in the **Device Configuration** window, click **Add a new DN** for the appropriate line.
- Step 2** In the **Target (Destination)** field, enter the number to which MLPP precedence calls should be diverted if this directory number receives a precedence call and neither this number nor its call forward destination answers the precedence call.
- Values can include numeric characters, octothorpe (#), and asterisk (\*).
- Step 3** From the **MLPP Calling Search Space** drop-down list, choose the calling search space to associate with the MLPP alternate party target (destination) number.
- Step 4** In the **MLPP No Answer Ring Duration (seconds)**, enter the number of seconds (between 4 and 60) after which an MLPP precedence call is directed to this directory number alternate party if this directory number and its call-forwarding destination have not answered the precedence call.
- Leave this setting blank to use the value that is set in the **Precedence Alternate Party Timeout** enterprise parameter.
- Step 5** Click **Save**.
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## Configure a User Device Profile for Multilevel Precedence and Preemption

When a user profile is assigned to a phone, the phone inherits the configuration of the assigned user, including any CSS that is associated with the user. The phone CSS can, however, override the user profile. Cisco Unified Communications Manager assigns the precedence level that is associated with the dialed pattern to the call when a pattern match occurs. The system sets the call request as a precedence call with the assigned precedence level.

### Procedure

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- Step 1** From Cisco Unified CM Administration, choose **Device > Device Settings > Device Profile**.
- Step 2** Perform one of the following tasks:
- To modify the settings for an existing device profile, enter search criteria, click **Find**, and then choose an existing device profile from the resulting list.
  - To add a new device profile:
    - Click **Add New**.
    - From the **Device Profile Type** drop-down list, choose a profile type.

- Click **Next**.
- From the **Device Protocol** drop-down list, choose either **SIP** or **SCCP**.

**Step 3** Click **Next**.

**Step 4** From the **MLPP Domain** drop-down list, choose an MLLP domain that you configured.

**Step 5** From the **MLPP Indication** drop-down list, choose one of the following settings to specify whether a device that is capable of playing precedence tones will use the capability when it places an MLPP precedence call:

- **Default**—This device inherits its MLPP indication setting from its device pool.
- **Off**—This device does not handle nor process indication of an MLPP precedence call.
- **On**—This device does handle and process indication of an MLPP precedence call.

**Step 6** From the **MLPP Preemption** drop-down list, choose one of the following settings to specify whether a device that is capable of preempting calls in progress will use the capability when it places an MLPP precedence call:

- **Default**—This device inherits its MLPP preemption setting from its device pool.
- **Disabled**—This device does not allow preemption of lower precedence calls to take place when necessary for completion of higher precedence calls.
- **Forceful**—This device allows preemption of lower precedence calls to take place when necessary for completion of higher precedence calls.

**Step 7** Click **Save**.

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## Configure the Default Device Profile for Multilevel Precedence and Preemption

Use the default device profile for whenever a user logs on to a phone model for which no user device profile exists. A default device profile comprises the set of services and features that are associated with a particular device.



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**Caution** Do not configure a default device profile with the following combination of settings: MLPP Indication is set to Off or Default (when default is Off) while MLPP Preemption is set to Forceful.

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### Procedure

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**Step 1** In Cisco Unified CM Administration, choose **Device > Device Settings > Default Device Profile**.

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

- To modify the settings for an existing default device profile, choose an existing default device profile from the **Device Profile Defaults** section.

- To add a new default device profile, choose a device profile type from the drop-down list, click **Next**, choose a device protocol, and then click **Next**.

- Step 3** From the **MLPP Domain** drop-down list, choose an MLPP domain that you configured to associate to the device.
- Step 4** From the **MLPP Indication** drop-down list, choose one of the following settings to specify whether a device that is capable of playing precedence tones will use the capability when it places an MLPP precedence call:
- **Default**—This device inherits its MLPP indication setting from its device pool.
  - **Off**—This device does not handle nor process indication of an MLPP precedence call.
  - **On**—This device does handle and process indication of an MLPP precedence call.
- Step 5** From the **MLPP Preemption** drop-down list, choose one of the following settings to specify whether a device that is capable of preempting calls in progress will use the capability when it places an MLPP precedence call:
- **Default**—This device inherits its MLPP preemption setting from its device pool.
  - **Disabled**—This device does not allow preemption of lower precedence calls to take place when necessary for completion of higher precedence calls.
  - **Forceful**—This device allows preemption of lower precedence calls to take place when necessary for completion of higher precedence calls.
- Step 6** Click **Save**.

## Multilevel Precedence and Preemption Interactions

*Table 5: Multilevel Precedence and Preemption Interactions*

Feature	Interaction
729 Annex A	729 Annex A is supported.
Cisco Extension Mobility	The MLPP service domain remains associated with a user device profile when a user logs in to a device by using extension mobility. The MLPP Indication and Preemption settings also propagate with extension mobility. If either the device or the device profile do not support MLPP, these settings do not propagate.
Cisco Unified Communications Manager Assistant	MLPP interacts with Cisco Unified Communications Manager Assistant as follows: <ul style="list-style-type: none"> <li>• When Cisco Unified Communications Manager Assistant handles an MLPP precedence call, Cisco Unified Communications Manager Assistant preserves call precedence.</li> <li>• Cisco Unified Communications Manager Assistant filters MLPP precedence calls in the same manner as it filters all other calls. The precedence of a call does not affect whether the call is filtered.</li> <li>• Because Cisco Unified Communications Manager Assistant does not register the precedence of a call, it does not provide any additional indication of the precedence of a call on the assistant console.</li> </ul>



Feature	Interaction
Immediate Divert	Immediate Divert diverts calls to voice-messaging mail boxes regardless of the type of call (for example, a precedence call). When Alternate Party Diversion (call precedence) is activated, Call Forward No Answer (CFNA) is also deactivated.
Resource Reservation Protocol (RSVP)	RSVP supports MLPP inherently. The Cisco Unified Communications Manager System Guide explains how MLPP functions when RSVP is activated.
Supplementary Services	MLPP interacts with multiple line appearances, call transfer, call forwarding, three-way calling, call pickup, and hunt pilots as documented in the and the subsections that describe the interaction with each service.

## Multilevel Precedence and Preemption Restrictions

**Table 6: Multilevel Precedence and Preemption Restrictions**

Restriction	Description
Bandwidth	Cisco Unified Communications Manager preempts lower precedence calls when adjusting video bandwidth for high priority calls. If the bandwidth is not sufficient to preempt, Cisco Unified Communications Manager instructs endpoints to use previously reserved lower video bandwidth. When Cisco Unified Communications Manager preempts a video call, the preempted party receives a preemption tone and the call gets cleared.
Call Detail Records	For the DRSN, CDRs represent precedence levels with values 0, 1, 2, 3, and 4 where 0 specifies Executive Override and 4 specifies Routine, as used in DSN. CDRs thus do not use the DRSN format.
Common Network Facility Preemption	Common Network Facility Preemption support exists only for T1-CAS and T1-PRI (North American) interfaces on targeted Voice over IP gateways that Cisco Unified Communications Manager controls by using MGCP protocol and that have been configured as MLPP Preemption Enabled.
Intercluster trunks	Intercluster trunk MLPP carries precedence information through dialed digits. Domain information does not get preserved and must be configured per trunk for incoming calls.

Restriction	Description
Line Groups	<p>MLPP-enabled devices are not supported in line groups. We recommend the following guidelines:</p> <ul style="list-style-type: none"> <li>• MLPP-enabled devices should not be configured in a line group. Route groups, however, are supported. Both trunk selection and hunting methods are supported.</li> <li>• If an MLPP-enabled device is configured in a line group or route group, in the event of preemption, if the route list does not lock onto the device, the preempted call may be rerouted to other devices in the route/hunt list and preemption indication may be returned only after no devices are able to receive the call.</li> <li>• Route lists can be configured to support either of two algorithms of trunk selection and hunting for precedence calls. In method 1, perform a preemptive search directly. In method 2, first perform a friendly search. If this search is not successful, perform a preemptive search. Method 2 requires two iterations through devices in a route list. If route lists are configured for method 2, in certain scenarios involving line groups, route lists may seem to iterate through the devices twice for precedence calls.</li> </ul>
Look Ahead For Busy	Cisco Unified Communications Manager does not support the Look Ahead for Busy (LFB) option.
MLPP Notification	Only MLPP Indication Enabled devices generate MLPP-related notifications, such as tones and ringers. If a precedence call terminates at a device that is not MLPP Indication Enabled, no precedence ringer gets applied. If a precedence call originates from a device that is not MLPP Indication Enabled, no precedence ringback tone gets applied. If a device that is not MLPP Indication Enabled is involved in a call that is preempted (that is, the other side of the call initiated preemption), no preemption tone gets applied to the device.
Phones and trunks	For phones, devices that are MLPP indication disabled (that is, MLPP Indication is set to Off) cannot be preempted. For trunks, MLPP indication and preemption function independently.
Ring Setting Behavior	Turning on MLPP Indication (at the enterprise parameter, common device configuration, or device level) disables normal Ring Setting behavior for the lines on a device, unless MLPP Indication is turned off (overridden) for the device.
SCCP	IOS gateways support the SCCP interface to Cisco Unified Communications Manager. They support BRI and analog phones which appear on Cisco Unified Communications Manager as supported phone models. SCCP phones support the MLPP feature, and so do some phones with specific SIP loads. See the relevant phone administration and user guides for Cisco IP phone support information.

Restriction	Description
Supplementary Services	<p>MLPP support for supplementary services specifies the following restrictions:</p> <ul style="list-style-type: none"> <li>• MLPP addresses only the basic Call Pickup feature and Group Call Pickup feature, not Other Group Pickup.</li> <li>• Call Forward All (CFA) support for inbound MLPP calls always forwards the call to the MLPP Alternate Party (MAP) target of the called party, if the MAP target is configured. In the event of an incorrect configuration (that is, if no MAP target is specified), the call is rejected, and the calling party receives a reorder tone.</li> <li>• Call Forward No Answer (CFNA) support for inbound MLPP calls forwards the call once to a CFNA target. After the first hop, if the call is unanswered, the call is sent to the MAP target of the original called party, if the MAP target has been configured. In the event of an incorrect configuration (that is, if no MAP target is specified), the call gets rejected, and the calling party receives reorder tone.</li> <li>• Call Forward Busy (CFB) support for inbound MLPP calls forwards the call up to the maximum number that has been configured for forwarding hops. If the maximum hop count gets reached, the call gets sent to the MAP target of the original called party, if the MAP target has been configured. In the event of an incorrect configuration (that is, no MAP target is specified), the call gets rejected, and the calling party receives reorder tone.</li> <li>• For hunt pilot support, the hunt group algorithm must specify Longest Idle Time, Top Down, or Circular. Ensure the hunt group options for busy treatment, no answer treatment, and unregistered treatment are set to Try next member, but do not go to next group. Preemption only occurs across a single hunt group.</li> </ul>
User Access Channel	<p>User Access Channel support exists only for the following Cisco Unified IP Phone models, which must be configured as MLPP Preemption Enabled:</p> <ul style="list-style-type: none"> <li>• Cisco Unified IP Phone 7960, 7962, 7965</li> <li>• Cisco Unified IP Phone 7940, 7942, 7945</li> </ul>

