CHAPTER 5

Infrastructure Configuration

You can configure Unified Communications Manager, Unified Communications Manager Express, Unity Express, Unity, Unity Connection, and Generic IOS Router using Configuration Templates. Through Infrastructure Configuration page, you can take actions (add, edit, or delete) on the configuration settings of a Call Processor and Unified Message Processor.

Working with Configuration Templates

You can use the Configuration Templates to do the following:

- Configure a new Unified Communications Manager, Unified Communications Manager Express, Unity, Unity Connection, Unity Express, and Generic IOS Router.
- Perform an incremental rollout on an existing Unified Communications Manager, Unified Communications Manager Express, Unity Express, or Generic IOS Router (for example, deploying a new site or location).

To create Configuration Templates, you add infrastructure data objects to the Configuration Template. Table 5-1 through Table 5-3 lists the infrastructure data objects that are available in Provisioning.

Not all fields in an infrastructure configuration template are applicable on all Cisco Unified Communications Manager versions.

You can have up to five levels of nested templates. The nested templates cannot be looped.

Table 5-1 Infrastructure Data Objects (Unified Communications Manager Release)

Infrastructure Data Object	Cisco Unified Communications Manager				
	7.1.x	8.0.x	8.5.x	8.6.x	9.0
Analog Voice Gateway Reference	Y	Y	Y	Y	Y
Cisco Fax Relay	N	N	N	Y	Y
Cisco Unified Communication Manager Group	N	N	N	Y	Y
CTI Route Point	Y	Y	Y	Y	Y
Call Park	Y	Y	Y	Y	Y

Table 5-1 Infrastructure Data Objects (Unified Communications Manager Release) (continued)

Infrastructure Data Object	Cisco Unified Communications Manager				
	7.1.x	8.0.x	8.5.x	8.6.x	9.0
Call Pickup Group	Y	Y	Y	Y	Y
Call Queuing	N	N	N	N	Y
Call Search Space	Y	Y	Y	Y	Y
Common Device Config	Y	Y	Y	Y	Y
Description	N	N	N	Y	Y
Device Pool	Y	Y	Y	Y	Y
Enable Telnet	N	Y	Y	Y	Y
H323 Gateway	Y	Y	Y	Y	Y
Hunt List	Y	Y	Y	Y	Y
Hunt Pilot	Y	Y	Y	Y	Y
Line Group	Y	Y	Y	Y	Y
Location	Y	Y	Y	Y	Y
MAC Address (Last 10 Characters)	N	N	N	Y	Y
Media Resource Group	Y	Y	Y	Y	Y
Media Resource Group List	Y	Y	Y	Y	Y
Meet-Me Conference	N	Y	Y	Y	Y
Modem Passthrough	N	N	N	Y	Y
Module in Slot 0	N	N	N	Y	Y
MT Package Capability	N	N	N	Y	Y
Remote Destination Profile	Y	Y	Y	Y	Y
Remote Destination Profile Line	Y	Y	Y	Y	Y
RES Package Capability	N	N	N	Y	Y
RTP Package Capability	N	N	N	Y	Y

Table 5-1 Infrastructure Data Objects (Unified Communications Manager Release) (continued)

Infrastructure Data Object	Cisco Unified Communications Manager				
	7.1.x	8.0.x	8.5.x	8.6.x	9.0
RTP Report Interval (secs)	N	Y	Y	Y	Y
RTP Unreachable OnOff	N	Y	Y	Y	Y
RTP Unreachable timeout (ms)	N	Y	Y	Y	Y
Route Group	Y	Y	Y	Y	Y
Route List	Y	Y	Y	Y	Y
Route Partition	Y	Y	Y	Y	Y
Route Pattern	Y	Y	Y	Y	Y
Simple SDP	N	Y	Y	Y	Y
SIP Trunk	Y	Y	Y	Y	Y
SIP Profile	Y	Y	Y	Y	Y
SST Package Capability	N	Y	Y	Y	Y
T38 Fax Relay	N	N	N	Y	Y
Translation Pattern	Y	Y	Y	Y	Y
Unified CM Group	Y	Y	Y	Y	Y
VG202	Y	Y	Y	Y	Y
VG204	Y	Y	Y	Y	Y
VG224	Y	Y	Y	Y	Y
Voice Region	Y	Y	Y	Y	Y
Voiceport	Y	Y	Y	Y	Y
Voicemail Pilot	Y	Y	Y	Y	Y
Voicemail Profile	Y	Y	Y	Y	Y

Table 5-2 Infrastructure Data Objects (Cisco Unified Communications Manager - Session Management Edition)

Infrastructure Data Object	Cisco Session Management Edition				
	7.1.x	8.0.x	8.5.x	8.6.x	9.0
SIP Trunk	Y	Y	Y	Y	Y
SIP Profile	Y	Y	N	Y	Y

Table 5-3 Infrastructure Data Objects (Cisco Unified Message Processor)

Infrastructure Data Object	Cisco Unified Message Processor				
	7.1.x	8.0.x	8.5.x	8.6.x	9.0
Distribution List (Cisco Unity Connection)[1]	Y	Y	Y	Y	Y
Distribution List (Cisco Unity)	Y	Y	N	Y	Y

1. Distribution List (Cisco Unity Connection) is supported in Cisco Unified Communications Manager 7.1.3 and later.

Many of the infrastructure data object fields allow you to add items to the lists and let you move the items up and down in the lists. For information on these operations, see the following:

- Adding Items to Lists in Configuration Templates, page 5-43
- Changing the Order of Items in a Configuration Template, page 5-43

Note All the data object fields, where you manually enter text, are case sensitive.

Table 5-4 CTI Route Point Data Object Fields

Field	Description
Name	Object name.
Description	Optional description.
Device Pool	List of available device pools. The device pool specifies a collection of properties for this device, including Unified CM Group, Date/Time Group, Region, and Calling Search Space for auto-registration of devices.
Common Device Config	Configuration of common device settings, such as the softkey template and user locale.
Call Search Space	Specifies the collection of Route Partitions that are searched to determine how a collected (originating) number should be routed.

Table 5-4 CTI Route Point Data Object Fields (continued)

Field	Description
Location	Specifies the total bandwidth that is available for calls to and from this location. A location setting of None means that the location feature does not keep track of the bandwidth that this route point consumes.
Directory Numbers	Enter directory numbers. These directory numbers must not exist on the Cisco Unified Communications Manager.
Route Partition for Directory Numbers	Available route partitions.
Media Resource Group List	Provides a prioritized grouping of media resource groups. An application chooses the required media resource, such as a Music On Hold server, from the available media resources according to the priority order that is defined in a Media Resource Group List. If this field is left blank, the Media Resource Group that is defined in the device pool is used.
User Locale	User location associated with the phone user. The user locale identifies a set of detailed information to support users, including language, font, date and time formatting, and alphanumeric keyboard text information.
User Hold MOH Audio Source	The audio source that plays Music On Hold when the user initiates a hold action.
Network Hold Audio Source	The audio source that plays when the network initiates a hold action.

Table 5-5 Call Park Infrastructure Data Object Fields

Field	Description
Number/Range	Enter the call park extension number or a range of numbers.
Description	Optional description.
Route Partition	List of available route partitions.
Unified CM	List of available Cisco Unified Communications Managers.

Table 5-6 Call Pickup Group Infrastructure Data Object Fields

Field	Description
Name	Object name.
Number	Unique directory number (integers).
Description	Optional description.
Route Partition	List of available route partitions.
Calling Party Information	Enables the visual notification message to the call pickup group to include identification of the calling party. This setting is applicable only when the Call Pickup Group Notification Policy is set to Visual Alert or Audio and Visual Alert.
Available Member Call Pickup Groups	List of available call pickup groups. The Call Pickup Groups are listed by their names, not by directory number and partition.

Table 5-6 Call Pickup Group Infrastructure Data Object Fields (continued)

Field	Description
Call Pickup Group Notification Policy	Sets the notification policy on the call pickup group.
Call Pickup Group Notification Timer (seconds)	Sets the delay between the time that the call first comes into the called party and the time that the notification is sent to the rest of the call pickup group.
Directory Number Info	List of directory numbers with route partition. Only directory numbers that are associated or linked to the subscribers can be added to a call pickup group. **Note** You can add or delete (or a combination of the two) no more than 200 directory numbers at one time.
Called Party Information	Enables the visual notification message to the call pickup group to include identification of the called party. This setting is applicable only when the Call Pickup Group Notification Policy is set to Visual Alert or Audio and Visual Alert.

Table 5-7 Call Search Space Infrastructure Data Object Fields

Field	Description
Name	Object name.
Description	Optional description.
Available Route Partitions	List of available route partitions. The route partitions list is not strictly required, but you should provide at least one value. You must reference a route partition that already exists on the Cisco Unified Communications Manager, or define one in the same Configuration Template before to this call search space.

Table 5-8 Common Device Config Infrastructure Data Object Fields

Field	Description
Name	Object name.
Softkey Template	Softkey template that determines the configuration of the softkeys on Cisco IP Phones.
User Hold MOH Audio Source	The audio source that plays Music On Hold when the user initiates a hold action.
Network Hold Audio Source	The audio source that plays when the network initiates a hold action.
User Locale	User location associated with the phone user. The user locale identifies a set of detailed information to support users, including language, font, date and time formatting, and alphanumeric keyboard text information.
MLPP Indication	Specifies whether devices in the device pool that are capable of playing precedence tones will use the capability when the devices place an MLPP precedence call.

Table 5-8 Common Device Config Infrastructure Data Object Fields (continued)

Field	Description
MLPP Preemption	Specifies whether devices in the device pool that are capable of preempting calls in progress will use the capability when the devices place an MLPP precedence call.
MLPP Domain	Multilevel Precedence and Preemption (MLPP) Domain that is associated with this device.

Table 5-9 Unity Distribution List Infrastructure Data Object Fields

Field	Description
Alias	Alias name of the distribution list.
Display Name	Name of the distribution list.
Extension	Extension that the phone system uses to connect.
Owner	Owner of the Call Handler for any subscriber or distribution list.
Owner Type	Type of the owner.
Show Distribution List in Email Server Address Book	Displays the distribution list name in the email server's address book.
Member List	List of members associated with the distribution list. Use the format Alias/MemberType. **Note** You cannot remove the default system distribution list.

Table 5-10 Unity Connection Distribution List Infrastructure Data Object Fields

Field	Description
Alias	Alias name of the distribution list.
Display Name	Name of the distribution list.
Extension	Extension that the phone system uses to connect.
Partition	Partition that is used to define the scope of the distribution list that a user or outside caller can reach.
Allow Contacts	Specifies whether contacts can be added as members of the distribution list.
Accept Messages from Foreign Systems	Allows users on remote voice messaging systems that are configured as VPIM locations to send messages to this distribution list.
Member List	List of users associated with the distribution list. Use the format Alias/MemberType. You are allowed to add, modify, or delete only 200 members at a time. For better performance, we recommend a maximum of 20 distribution lists, each with 500 members. If you want to manage more than 500 members, you can use a nested distribution list.

Table 5-11 Device Pool Infrastructure Data Object Fields

Field	Description
Name	Object name.
Cisco Unified CM Group	List of available Cisco Unified Communications Manager groups.
Date/Time Group	The date/time group to assign to devices in this device pool.
Region	The Cisco Unified Communications Manager region to assign to devices in this device pool.
Softkey Template	Softkey template that determines the configuration of the softkeys on Cisco IP Phones.
SRST Reference	A survivable remote site telephony (SRST) reference to assign to devices in this device pool.
Calling Search Space for Auto-Generation	The calling search space to assign to devices in this device pool that auto-registers with Cisco Unified Communications Manager.
Media Resource Group List	Provides a prioritized grouping of media resource groups. An application chooses the required media resource, such as a Music On Hold server, from the available media resources according to the priority order that is defined in a Media Resource Group List. If this field is left blank, the Media Resource Group that is defined in the device pool is used.
Network Hold MOH Audio Source	The audio source that plays when the network initiates a hold action.
User Hold MOH Audio Source	The audio source that plays Music On Hold when the user initiates a hold action.
Network Locale	The locale that is associated with phones and gateways.
User Locale	User location associated with the phone user. The user locale identifies a set of detailed information to support users, including language, font, date and time formatting, and alphanumeric keyboard text information.
Connection Monitor Duration	Defines the amount of time that the IP phone monitors its connection to Cisco Unified Communications Manager before it unregisters from SRST and re-registers to Cisco Unified Communications Manager.
MLPP Indication	Specifies whether devices in the device pool that are capable of playing precedence tones will use the capability when the devices place an MLPP precedence call.
MLPP Preemption	Specifies whether devices in the device pool that are capable of preempting calls in progress will use the capability when the devices place an MLPP precedence call.
MLPP Domain	Multilevel Precedence and Preemption (MLPP) Domain that is associated with this device.

Table 5-12 H323 Gateway Infrastructure Data Object Fields

Field	Description
Name	Object name.
Description	Optional description.

Table 5-12 H323 Gateway Infrastructure Data Object Fields (continued)

Field	Description
Device Pool	List of available device pools. The device pool specifies a collection of properties for this device including Unified CM Group, Date/Time Group, Region, and Calling Search Space for auto-registration of devices.
Call Classification	Determines whether an incoming call that is using this gateway is considered off the network (OffNet) or on the network (OnNet).
Media Resource Group List	Provides a prioritized grouping of media resource groups.
Location	Location for this device.
Media Termination Point Required	If Media Termination Point is used to implement features that H.323 does not support (such as hold and transfer), select Yes.
Retry Video Call As Audio	Applies to video endpoints that receive calls.
Wait for Far End H.245 Terminal Capability Set	Specifies that Cisco Unified Communications Manager needs to receive the far-end H.245 Terminal Capability Set before it sends its H.245 Terminal Capability Set.
MLPP Domain	Multilevel Precedence and Preemption (MLPP) Domain to associate with this device.
Significant Digits Value	Represents the number of final digits that are retained on inbound calls.
Calling Search Spaces	Specifies the collection of Route Partitions that are searched to determine how a collected (originating) number should be routed.
AAR Calling Search Space	Specifies the collection of route partitions that are searched to determine how to route a collected (originating) number that is otherwise blocked due to insufficient bandwidth.
Prefix DN	The prefix digits that are appended to the called party number on incoming calls.
Redirecting Number IE Delivery - Inbound	Selecting **Yes** accepts the Redirecting Number IE in the incoming SETUP message to the Cisco Unified Communications Manager.
Calling Party Selection	Any outbound call on a gateway can send directory number information. Choose which directory number is sent.
Calling Party Presentation	Choose whether you want the Cisco Unified Communications Manager to allow or restrict the display of the calling party phone number.
Called Party IE Number Type Unknown	Choose the format for the number type in called party directory numbers.
Calling Party IE Number Type Unknown	Choose the format for the number type in calling party directory numbers.
Called Numbering Plan	Choose the format for the numbering plan in called party directory numbers.
Calling Numbering Plan	Choose the format for the numbering plan in calling party directory numbers.
Caller ID DN	Enter the pattern that you want to use for calling line ID, from 0 to 24 digits.
Display IE Delivery	Enables delivery of the display IE in SETUP, CONNECT, and NOTIFY messages for the calling and called party name delivery service.

Table 5-12 H323 Gateway Infrastructure Data Object Fields (continued)

Field	Description
Redirecting Number IE Delivery - Outbound	Includes the Redirecting Number IE in the outgoing SETUP message from the Cisco Unified Communications Manager to indicate the first redirecting number and the redirecting reason of the call when the call is forwarded.
Packet Capture Mode	Configure this field if you need to troubleshoot encrypted signaling information for the H.323 gateway.
Common Device Config	Configuration of common device settings, such as the softkey template and user locale.
SRTP Allowed	Select **Yes** if you want Cisco Unified Communications Manager to allow secure and nonsecure calls over the gateway.
Trace Flag	Not used.
Version Stamp	Not used.
CTI	Not used.
Enable Outbound FastStart	Select Yes to enable the H323 FastStart feature for outgoing calls.
AAR Group	Select an alternate routing group if there is insufficient bandwidth.
Packet Capture Duration	Configure this field if you need to troubleshoot encrypted signaling information for the H.323 gateway.

Table 5-13 Hunt List Infrastructure Data Object Fields

Field	Description
Name	Object name.
Description	Optional description.
Cisco Unified CM Group	List of available Cisco Unified Communications Manager groups.
Enable this Hunt List	Select Yes to enable the hunt list.
Available Line Group	List of available line groups.

Table 5-14 Hunt Pilot Infrastructure Data Object Fields

Field	Description
Pattern Definition	
Pattern	The hunt pilot, including numbers and wildcards (do not use spaces).
Route Partition	If you want to use a partition to restrict access to the hunt pilot, choose the desired partition.
Description	Optional description.
Numbering Plan	Choose a numbering plan.
Route Filter	If your hunt pilot includes the @ wildcard, you may choose a route filter.
MLPP Precedence	MLPP precedence setting.
Hunt List	Choose the hunt list for which you are adding a hunt pilot.

Table 5-14 Hunt Pilot Infrastructure Data Object Fields (continued)

Field	Description
Urgent Priority	Select Yes to interrupt interdigit timing when Cisco Unified Communications Manager must route a call immediately.
Block Enabled	Enable or disable block.
Release Cause	Dependent on the Block Enabled field. If a release cause is selected, then Block Enabled must be set to True.
Calling Party Transformations	
Use Calling Party's External Phone Number Mask	Select Yes if you want the full, external phone number to be used for calling line identification (CLID) on outgoing calls.
Calling Party Transformation Mask	Enter a transformation mask value.
Calling Party Prefix Digits (Outgoing Calls)	Enter the prefix digits.
Calling Line Presentation	Used as a supplementary service to allow or restrict the originating caller's phone number on a call-by-call basis.
Calling Name Presentation	Used as a supplementary service to allow or restrict the originating caller's name on a call-by-call basis.
Connected Party Transformations	
Connected Line Presentation	Used as a supplementary service to allow or restrict the called party's phone number on a call-by-call basis.
Connected Name Presentation	Used as a supplementary service to allow or restrict the called party's name on a call-by-call basis.
Called Party Transformations	
Called Party Discard Digits	Select the discard digits instructions that you want to associate with this hunt pilot.
Called Party Transformation Mask	Enter a transformation mask value.
Called Party Prefix Digits (Outgoing Calls)	Enter the prefix digits.
Queuing	
Queue Calls	Check this check box to enable Call Queuing.
Network Hold MOH Source and Announcements	Choose the audio source file that contains the music on hold and announcement to be played when a call is held in a queue.
Maximum Number of Callers Allowed in a Queue	Enter a value that specifies the maximum number of callers to be queued per hunt pilot. Call Queuing allows up to 100 callers to be queued per hunt pilot. Once this limit is reached on a particular hunt pilot, subsequent calls can be routed to an alternate number.
Enable This When Queue is Full	Check this check box to route the calls to an alternate number when the queue is full.

Table 5-14 Hunt Pilot Infrastructure Data Object Fields (continued)

Field	Description
Route the Call to This Destination When the Queue is Full	Enter the directory number to which the calls are routed when the queue is full. This field allows the following characters: numerals (0 to 9), uppercase X (X), asterisk (*), and hash symbol (#).
Full Queue Calling Search Space	Specify the calling search space that is used for diverting the calls when the queue is full.
Maximum Wait Time in Queue	Enter a value (in seconds) that specifies the maximum wait time for each call in a queue. Each caller can be queued for up to 3600 seconds per hunt pilot. Once this limit is reached, that caller is routed to an alternate number.
Enable This When Max Wait Time is Met	Check this check box to route the calls to an alternate number when the maximum wait time is reached.
Route the Call to This Destination If Max Wait Time is Met	Enter the directory number to which the calls are routed when the maximum wait time is reached.
Maximum Wait Time Calling Search Space	Specify the calling search space that is used for diverting the calls when the maximum wait time is reached.
Enable This When No Hunt Members are Logged In	Check this check box to route the calls to an alternate number when none of the hunt members are logged in or registered.
Route the Call to This Destination If there is No Agent	Enter the directory number to which the calls are routed when none of the members of the hunt pilot are available or registered at the time of the call. For Call Queuing, a hunt pilot member is considered available if that member has both deactivated do not disturb (DND) and logged into the hunt group. In all other cases, the line member is considered unavailable or logged off.
No Hunt Members Logged In or Registered Calling Search Space	Specify the calling search space that is used for diverting the calls when none of the hunt members are logged in or registered.

Table 5-15 Line Group Infrastructure Data Object Fields

Field	Description
Name	Object name.
RNA Reversion Timeout	Enter a time, in seconds, after which Cisco Unified Communications Manager will distribute a call to the next available or idle member of this line group or to the next line group if the call is not answered and if the first hunt option, “Try next member; then, try next group in Hunt List” is chosen.
Distribution Algorithm	Select a distribution algorithm, which applies at the line group level.
Hunt Algorithm No Answer	For a given distribution algorithm, select a hunt option for Cisco Unified Communications Manager to use if a call is distributed to a member of a line group that does not answer.

Table 5-15 Line Group Infrastructure Data Object Fields (continued)

Field	Description
Hunt Algorithm Busy	For a given distribution algorithm, select a hunt option for Cisco Unified Communications Manager to use if a call is distributed to a member of a line group that is busy.
Hunt Algorithm Not Available	For a given distribution algorithm, select a hunt option for Cisco Unified Communications Manager to use if a call is distributed to a member of a line group that is not available.
Directory Numbers	Enter a directory number that already exists in Cisco Unified Communications Manager.

Table 5-16 Location Infrastructure Data Object Fields

Field	Description
Name	Object name.
Audio Bandwidth	Enter the maximum amount of audio bandwidth (in kbps) that is available for all audio calls on the link between this location and other locations. **Note** This option is available for Cisco Unified Communications Manager 9.0 or higher versions. For Cisco Unified Communications Manager 8.x and earlier verisons, Audio Kilobytes field will be displayed.
Video Bandwidth	Enter the maximum amount of video bandwidth (in kbps) that is available for all video calls on the link between this location and other locations. Use 0 for Unlimited and -1 for None. **Note** This option is available for Cisco Unified Communications Manager 9.0 or higher versions. For Cisco Unified Communications Manager 8.x and earlier verisons, Video Kilobytes field will be displayed.

Table 5-17 Media Resource Group Infrastructure Data Object Fields

Field	Description
Name	Object name.
Description	Optional description.
Available Devices	The available media resources that can be selected.
Is Multicast for MOH Audio	Click Yes to use multicast for Music On Hold Audio.

Table 5-18 Media Resource Group List Infrastructure Data Object Fields

Field	Description
Name	Object name.

Table 5-18 Media Resource Group List Infrastructure Data Object Fields (continued)

Field	Description
Description	Optional description.
Available Media Resource Group Names	The available media resource groups that can be selected.

Table 5-19 Meet-Me Number/Pattern Data Object Fields

Field	Description
Directory Number or Pattern	Enter Meet-Me number/pattern or a range of numbers. To configure a range, the dash must appear within brackets and follow a digit; for example, to configure the range 1000 to 1050, enter 10[0-5]0. This field allows up to 24 characters.
Description	The description can include up to 50 characters. The following characters are not allowed: double-quotes ("), backslash (\), dash (-), percentage sign (%), ampersand (&), or angle brackets (<>).
Partition	To use a partition to restrict access to the Meet-Me number/pattern, choose the desired partition from the drop-down list.
Minimum Security Level	Choose the minimum security level for this Meet-Me number/pattern from the drop-down list. • Choose Authenticated to block participants with nonsecure phones from joining the conference. • Choose Encrypted to block participants with nonsecure phones from joining the conference. • Choose Non Secure to allow all participants to join the conference.

Table 5-20 Route Group Infrastructure Data Object Fields

Field	Description
Name	Object name.
Available Members	The available devices that can be chosen.
Ports	If the device supports individually configurable ports, choose the port.

Table 5-21 Route List Infrastructure Data Object Fields

Field	Description
Name	Object name.
Description	Optional description.
Cisco Unified CM Group	List of available Cisco Unified Communications Manager groups.
Enable this Route List	Select **Yes** to enable the route list.

Table 5-21 Route List Infrastructure Data Object Fields (continued)

Field	Description
Available Member Route Group	List of available route groups.
Available Member Use Fully Qualified Calling Party Number	Determines if the available route groups must use fully qualified calling party numbers.
Member Calling Party Transformation Mask	Transformation mask value.
Member Calling Party Prefix Digits	Prefix digits.
Available Member Discard Digits Instruction	Determines the discard digits instructions that you want to associate with this route list.
Member Called Party Transformation Mask	Transformation mask value.
Member Called Party Prefix Digits	Prefix digits.

Table 5-22 Route Partition Infrastructure Data Object Fields

Field	Description
Name	Object name.
Description	Optional description.

Table 5-23 Route Pattern Infrastructure Data Object Fields

Field	Description
Pattern	A valid route pattern, including numbers and wildcards.
Route Partition	If you want to use a partition to restrict access to the route pattern, select the desired partition.
Description	Optional description.
Numbering Plan	Numbering plan. The default setting is NANP (North American Numbering Plan).
Route Filter	If your route pattern includes the @ wildcard, you may choose a route filter.
MLPP Precedence	MLPP precedence setting.

Table 5-23 Route Pattern Infrastructure Data Object Fields (continued)

Field	Description
Gateway, Route List, or SIP Trunk	Choose the gateway or route list for which you are adding a route pattern. You can also enter a value that does not appear in the list. If you enter a custom value, make sure to specify whether it is a gateway, route list, or SIP trunk. After the name, add one of the following: • [GW]—Gateway • [RL]—Route list • [ST]—SIP trunk For example, gatewayname[GW].
Is Gateway Destination Type Gateway	Indicates whether the destination device is a gateway.
Urgent Priority	If Yes is selected, the interdigit timing is interrupted when Cisco Unified Communications Manager must route a call immediately.
Block Enabled	Enables or disables block.
Release Cause	Dependent on the Block Enabled field. If a release cause is selected, then Block Enabled must be set to True.
Call Classification	Indicates whether the call that is routed through this route pattern is considered either off (OffNet) or on (OnNet) the local network.
Allow Device Override	If Yes is selected, the system uses the Call Classification setting that is configured on the associated gateway or trunk to consider the outgoing call as OffNet or OnNet.
Provide Outside Dial Tone	If Yes is selected, an outside dial tone is provided.
Use Calling Party's External Phone Number Mask	Select Yes if you want the full, external phone number to be used for calling line identification (CLID) on outgoing calls.
Calling Party Transformation Mask	Transformation mask value.
Calling Party Prefix Digits (Outgoing Calls)	Prefix digits.
Calling Line ID Presentation	Determines whether you want Cisco Unified Communications Manager to allow or restrict the display of the calling party's phone number on the called party's phone display for this route pattern.
Calling Name Presentation	Determines whether you want the Cisco Unified Communications Manager to allow or restrict the display of the calling party's name on the called party's phone display for this route pattern.
Connected Line ID Presentation	Determines whether you want Cisco Unified Communications Manager to allow or restrict the display of the connected party's phone number on the calling party's phone display for this route pattern.
Connected Name Presentation	Determines whether you want Cisco Unified Communications Manager to allow or restrict the display of the connected party's name on the calling party's phone display for this route pattern.
Called Party Discard Digits (Outgoing Calls)	Determines the discard digits instructions that you want to associate with this route pattern.

Table 5-23 Route Pattern Infrastructure Data Object Fields (continued)

Field	Description
Called Party Transformation Mask	Transformation mask value.
Called Party Prefix Digits (Outgoing Calls)	Prefix digits.

Table 5-24 SIP Trunk Infrastructure Data Object Fields

Field	Description
AAR Group	The AAR group (Automated Alternate Routing) provides the prefix digits that are used to route calls that are otherwise blockedbecause of insufficient bandwidth. An AAR group setting of None specifies that no rerouting of blocked calls will be attempted.
Call Classification	Determines whether an incoming call that is using this trunk is considered off the network (OffNet) or on the network (OnNet), or should use the system default setting.
Common Device Config	Choose the common device configuration for which you want this trunk assigned. The common device configuration includes the attributes (services or features) that are associated with a particular user. Common device configurations are configured in the Common Device Configuration page.
Connected Party Transformation CSS	Choose to transform the connected party number on the device in order to display the connected number in another format, such as a DID or E164 number. Cisco Unified Communications Manager includes the transformed number in the headers of various SIP messages, including 200 OK and mid-call update/reinvite messages. Make sure that the Connected Party Transformation CSS that you choose contains the connected party transformation pattern that you want to assign to this device. If you configure the Connected Party Transformation CSS as None, the transformation does not match and is not applied. Ensure that you configure the Connected Party Transformation CSS in a non-null partition that is not used for routing.
Device Name	Object name.
Description	Optional description.

Table 5-24 SIP Trunk Infrastructure Data Object Fields (continued)

Field	Description
Device Pool	List of available device pools. The device pool specifies a collection of properties for this device, including Unified CM Group, Date/Time Group, Region, and Calling Search Space for auto-registration of devices.
Location	Specifies the total bandwidth that is available for calls between this location and the central location (or hub). A location setting of Hub_None specifies unlimited available bandwidth.
Media Resource Group List	Provides a prioritized grouping of media resource groups. An application chooses the required media resource, such as a Music On Hold server, from the available media resources according to the priority order that is defined in a Media Resource Group List.
Media Termination Point Required	Used to indicate whether a media termination point (MTP) is used to implement features that H.323 does not support (such as hold and transfer). Check the Media Termination Point Required check box if you want to use a media termination point to implement features. Deselect the Media Termination Point Required check box if you do not want to use a media termination point to implement features. Check this check box only for H.323 clients and those H.323 devices that do not support the H.245 Empty Capabilities Set, or if you want media streaming to terminate through a single source. If you check this check box to require an MTP, and either device is a video endpoint, the call operates as audio only.
Retry Video Call as Audio	Applies to video endpoints that receive calls. For trunks, it pertains to calls that are received from Cisco Unified Communications Manager but not to calls that are received from the wide area network (WAN). By default, the system checks this check box to specify that this device should immediately retry a video call as an audio call (if it cannot connect as a video call) prior to sending the call to call control for rerouting. If you uncheck this check box, a video call that fails to connect as video will not try to establish an audio call. The call then fails to call control, and call control routes the call via Automatic Alternate Routing (AAR) and (or) route/hunt list.
Unattended Port	If selected, calls can be redirected, transferred, or forwarded to an unattended port, such as a voice mail port. The default value is deselected.

Table 5-24 SIP Trunk Infrastructure Data Object Fields (continued)

Field	Description
SRTP Allowed	Select if you want Cisco Unified Communications Manager to allow secure and nonsecure calls over the trunk. If you do not check this check box, Cisco Unified Communications Manager prevents SRTP negotiation with the trunk and uses RTP. If you check this check box, it is recommended that you configure IPSec, so you do not expose keys and other security-related information during call negotiations. If you do not configure IPSec correctly, you must consider signaling between Cisco Unified Communications Manager and the gateway as nonsecure.
Use Trusted Relay Point	From the list, enable or disable whether Cisco Unified Communications Manager inserts a Trusted Relay Point (TRP) device with this media endpoint. Choose one of the following values: • Default—The device uses the Use Trusted Relay Point setting from the common device configuration with which this device associates. • Off—Disables the use of a TRP with this device. This setting overrides the Use Trusted Relay Point setting in the common device configuration with which this device associates. • On—Enables the use of a TRP with this device. This setting overrides the Use Trusted Relay Point setting in the common device configuration with which this device associates. A TRP device designates an MTP or transcoder device that is labeled as a TRP. Cisco Unified Communications Manager places the TRP closest to the associated endpoint device if more than one resource is needed for the endpoint (for example, a transcoder or RSVPAgent). If both TRP and MTP are required for the endpoint, TRP is used as the required MTP. If both TRP and RSVPAgent are needed for the endpoint, Cisco Unified Communications Manager first tries to find an RSVPAgent that can also be used as a TRP. If both TRP and transcoder are needed for the endpoint, Cisco Unified Communications Manager first tries to find a transcoder that is also designated as a TRP.
Incoming Calling Party Unknown Number Prefix	If this is set to Default, the Call Processor uses the prefix at the next level setting (Device Pool/Service Parameter). Otherwise, the value configured is used as the prefix unless the field is empty, in which case no prefix is assigned.

Table 5-24 SIP Trunk Infrastructure Data Object Fields (continued)

Field	Description
MLPP Domain	Choose an MLPP Domain to associate with this device. If you leave this field empty, the device inherits its MLPP Domain from the value that was set for the device pool. If the device pool 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.
Remote-Party-Id	Allows the SIP Trunk to send the Remote-Party-ID (RPID) header in outgoing SIP messages from Cisco Unified Communications Manager to the remote destination. If you select Yes, the SIP Trunk always sends the RPID header.
Asserted-Identity	Allows the SIP Trunk to send the Asserted-Type and SIP Privacy headers in SIP messages. If you select Yes, the SIP Trunk always sends the Asserted-Type header. Whether the SIP Trunk sends the SIP Privacy header depends on the SIP Privacy configuration. If you select No, the SIP Trunk does not include any Asserted-Type or SIP Privacy headers in its SIP messages. For more information, see the descriptions of Asserted-Type and SIP Privacy in this table.
Asserted-Type	Specifies the type of Asserted Identity header that SIP Trunk messages should include. Select one of the following values: • Default—Represents the default value. Screening indication information that the SIP Trunk receives from Cisco Unified Communications Manager Call Control determines the type of header the SIP Trunk sends. • PAI—The Privacy-Asserted Identity (PAI) header is sent in outgoing SIP Trunk messages. This value overrides the screening indication value that comes from Cisco Unified Communications Manager. • PPI—The Privacy Preferred Identity (PPI) header is sent in outgoing SIP Trunk messages. This value overrides the screening indication value that comes from Cisco Unified Communications Manager. **Note** These headers are sent only if the Asserted Identity check box is checked.

Table 5-24 SIP Trunk Infrastructure Data Object Fields (continued)

Field	Description
SIP Privacy	Specifies the type of SIP privacy header for SIP Trunk messages to include. Select one of the following values: • Default—Represents the default value. Name and number presentation values that the SIP Trunk receives from the Cisco Unified Communications Manager Call Control compose the SIP Privacy header. For example: – If the name and number presentation is restricted, the SIP Trunk sends the SIP Privacy header. – If the name and number presentation is allowed, the SIP Trunk does not send the Privacy header. • None—The SIP Trunk includes the header Privacy:none, which means that presentation is allowed. This value overrides the Presentation information that comes from Cisco Unified Communications Manager. • ID—The SIP Trunk includes the header Privacy:id, which means that the presentation is restricted for both name and number. This value overrides the presentation information that comes from Cisco Unified Communications Manager. • ID Critical—The SIP Trunk includes the header Privacy:id;critical, which means that presentation is restricted for both name and number. The critical label means that privacy services that are requested for this message are critical, and if the network cannot provide these privacy services, this request should be rejected. This value overrides the presentation information that comes from Cisco Unified Communications Manager. **Note** These headers are sent only if the Asserted Identity check box is checked.
Significant Digits	Represents the number of final digits that are retained on inbound calls. It is used for the processing of incoming calls and to indicate the number of digits that are used to route calls that are coming in to the H.323 device. Select the number of significant digits to collect (0 to 32). Cisco Unified Communications Manager counts significant digits from the right (last digit) of the number that is called.

Table 5-24 SIP Trunk Infrastructure Data Object Fields (continued)

Field	Description
Connected Party ID Presentation	Cisco Unified Communications Manager uses connected line ID presentation (COLP) as a supplementary service to provide the calling party with the connected party number. The SIP Trunk level configuration takes precedence over the call-by-call configuration. The default value is Default, which translates to Allowed. Select Default if you want Cisco Unified Communications Manager to send connected line information. Select Restricted if you do not want Cisco Unified Communications Manager to send connected line information.
Connected Name Presentation	Cisco Unified Communications Manager uses connected name ID presentation (CONP) as a supplementary service to provide the calling party with the connected party name. The SIP Trunk level configuration takes precedence over the call-by-call configuration. The default value is Default, which translates to Allowed. Select Default if you want Cisco Unified Communications Manager to send connected name information. Select Restricted if you do not want Cisco Unified Communications Manager to send connected name information.
Calling Search Space	Available calling search spaces.
AAR Calling Search Space	Automated alternate routing (AAR) calling search space. Specifies the collection of route partitions that are searched to determine how to route a collected (originating) number that is otherwise blocked due to insufficient bandwidth.
Prefix DN	The prefix digits that are appended to the called party number on incoming calls.
Redirecting Diversion Header Delivery - Inbound	Select **Yes** (the default) to accept the Redirecting Number in the incoming invite message to the Cisco Unified Communications Manager. Select **No** to exclude the Redirecting Number in the incoming invite message to the Cisco Unified Communications Manager. You use Redirecting Number for voice messaging integration only. If your configured voice messaging system supports Redirecting Number, you should select Yes.

Table 5-24 SIP Trunk Infrastructure Data Object Fields (continued)

Field	Description
Called Party Transformation CSS	Allows you to localize the called party number on the device. The Called Party Transformation CSS that you choose must contain the called party transformation pattern that you want to assign to this device. If you configure the Called Party Transformation CSS as None, the transformation does not match and is not applied. Make sure that you configure the Called Party Transformation CSS in a non-null partition that is not used for routing.
Use Device Pool Called Party Transformation CSS	Select **Yes** to use the Called Party Transformation CSS that is configured in the device pool that is assigned to this device. If you select **No**, the device uses the Called Party Transformation CSS that was configured for the device in the Trunk Configuration page.
Calling Party Transformation CSS	Enables you to localize the calling party number on the device. Make sure that the Calling Party Transformation CSS that you choose contains the calling party transformation pattern that you want to assign to this device. Before the call occurs, the device must apply the transformation by using digit analysis. If you configure the Calling Party Transformation CSS as None, the transformation will not match and will not be applied. Make sure that you configure the Calling Party Transformation Pattern in a non-null partition that is not used for routing.
Calling Party Selection	Select the directory number that is sent on an outbound call on a gateway. The following options specify which directory number is sent: • Originator—Send the directory number of the calling device. • First Redirect Number—Sends the directory number of the redirecting device. • Last Redirect Number—Sends the directory number of the last device to redirect the call. • First Redirect Number (External)—Sends the external directory number of the redirecting device. • Last Redirect Number (External)—Sends the external directory number of the last device to redirect the call.

Table 5-24 SIP Trunk Infrastructure Data Object Fields (continued)

Field	Description
Calling Line ID Presentation	Cisco Unified Communications Manager uses calling line ID presentation (CLIP) as a supplementary service to control the display of the calling party number on the called party phone display screen. Select one of the following options: • Default—If you do not want to change the presentation setting. • Allowed—If you want the calling number information to be displayed. • Restricted—If you do not want the calling number information to be displayed.
Calling Name Presentation	Cisco Unified Communications Manager uses calling name ID presentation (CNIP) as a supplementary service to provide the calling party name. The SIP Trunk level configuration takes precedence over the call-by-call configuration. Select one of the following options: • Default—If you do not want to change the presentation setting. • Allowed—If you want Cisco Unified Communications Manager to send calling name information. • Restricted—If you do not want Cisco Unified Communications Manager to send the calling name information.
Caller ID DN	Enter the pattern (0 to 24 digits) that you want to use to format the caller ID on outbound calls from the trunk. For example (in North America): • 555XXXX—Variable Caller ID, where X represents an extension number. The central office appends the number with the area code if it is not specified. • 5555000—Fixed Caller ID. Use this form when you want the corporate number to be sent instead of the exact extension from which the call is placed. The central office appends the number with the area code if it is not specified.
Caller Name	Enter a caller name to override the caller name that is received from the originating SIP device.

Table 5-24 SIP Trunk Infrastructure Data Object Fields (continued)

Field	Description
Redirecting Diversion Header Delivery - Outbound	If Yes is selected, the redirecting number is included in the outgoing invite message from Cisco Unified Communications Manager to indicate the original called party number and the redirecting reason for the call when the call is forwarded. If No is selected, the first redirecting number and the redirecting reason are excluded from the outgoing invite message. The redirecting number is used for voice messaging integration only. If your configured voice messaging system supports redirecting Number, you should select Yes.
Destination Address	The remote SIP peer with which this trunk will communicate. The allowed values for this field are a valid V4 IP address, a fully qualified Domain name, or a DNS SRV record (applies only if *yes* is selected in the Destination Address is an SRV field). SIP trunks only accept incoming requests from the configured destination address and the incoming port that is specified in the SIP Trunk Security Profile that is associated with this trunk. If the remote end is a Cisco Unified Communications Manager cluster, DNS SRV represents the recommended choice for this field. The DNS SRV record should include all Cisco Unified Communications Managers within the cluster.
Destination Address is an SRV	Specifies that the configured Destination Address is an SRV record.
Destination Port	Enter the destination port. Make sure that the value you enter specifies a port between 1024 and 65535 (the default value is 5060). You can specify the same port number for multiple trunks. Do not enter a value if the destination address is a DNS SRV port. The default port number 5060 indicates a SIP port.
Geolocation	An unspecified geolocation, which designates that this device does not associate with a geolocation. You can also select a geolocation that has been configured.
Geolocation Filter	Specifies the geolocation filter for the device.
Incoming Port	Incoming port number.
Outgoing Transport Type	Outgoing transport type (TCP or UDP).
MTP Preferred Originating Codec	Indicates the preferred outgoing codec. To configure G.79 codecs for use with a SIP Trunk, you must use a hardware MTP or transcoder that supports the G.79 codec.

Table 5-24 SIP Trunk Infrastructure Data Object Fields (continued)

Field	Description
Send Geolocation Information	Sends the geolocation information for the associated device.
SIP Trunk Security Profile	Select the security profile to apply to the SIP Trunk. You must apply a security profile to all SIP trunks that are configured in Cisco Unified Communications Manager Administration. Installing Cisco Unified Communications Manager provides a predefined, nonsecure SIP Trunk security profile for autoregistration. To enable security features for a SIP Trunk, configure a new security profile and apply it to the SIP Trunk. If the trunk does not support security, choose a nonsecure profile. To identify the settings that the profile contains, on Cisco Unified Communications Manager choose **System > Security Profile > SIP Trunk Security Profile**. For information on how to configure security profiles, see *Cisco Unified Communications Manager Security Guide*.
Rerouting Calling Search Space	Determines where a SIP user (A) can refer another user (B) to a third party (C). After the referral is completed, B and C connect. In this case, the rerouting calling search space that is used is that of the initial SIP user (A).
Out-Of-Dialog Refer Calling Search Space	Used when a Cisco Unified Communications Manager refers a call (B) coming in to a SIP user (A) to a third party (C) when there is no involvement of a SIP user (A). In this case, the system uses the out-of-dialog calling search space of the SIP user (A).

Table 5-24 SIP Trunk Infrastructure Data Object Fields (continued)

Field	Description
Packet Capture Mode	Exists only for troubleshooting encryption. Packet capturing may cause high CPU usage or call-processing interruptions. Select one of the following options: • None—This option, which is the default setting, indicates that no packet capturing is occurring. After you complete packet capturing, configure this setting. • Batch Processing Mode—Cisco Unified Communications Manager writes the decrypted or non encrypted messages to a file, and the system encrypts each file. On a daily basis, the system creates a new file with a new encryption key. Cisco Unified Communications Manager, which stores the file for seven days, also stores the keys that encrypt the file in a secure location. Cisco Unified Communications Manager stores the file in the PktCap virtual directory. A single file contains the time stamp, source IP address, source IP port, destination IP address, packet protocol, message length, and message. The IREC tool uses HTTPS, administrator username and password, and the specified day to request a single encrypted file that contains the captured packets. Likewise, the tool requests the key information to decrypt the encrypted file. You do not have to reset the trunk after enabling/disabling Packet Capture.
Packet Capture Duration	Exists only for troubleshooting encryption. Packet capturing may cause high CPU usage or call-processing interruptions. This field specifies the maximum number of minutes allotted for one session of packet capturing. The default setting is 0, and the range is from 0 to 300 minutes. To initiate packet capturing, enter a value other than 0 in the field. After packet capturing completes, the value “0” is displayed.

Table 5-24 SIP Trunk Infrastructure Data Object Fields (continued)

Field	Description
Presence Group	Configures the Unified Presence features. Select a Presence group for the SIP trunk. The selected group specifies the destinations that the device/application/server that is connected to the SIP trunk can monitor. The default value for Presence Group specifies Standard Presence group, which is configured with installation. Presence groups that are configured in Cisco Unified Communications Manager Administration also appear in the drop-down list box. Presence authorization works with presence groups to allow or block presence requests between groups.
PSTN Access	Indicates that the calls made through this trunk might reach the PSTN. Check this check box even if all calls through this trunk device do not reach the PSTN. For example, check this check box for tandem trunks or an H.323 gatekeeper-routed trunk if calls might go to the PSTN. When checked, this check box causes the system to create upload voice call records (VCRs) to validate calls made through this trunk device. By default, this check box remains checked.
Route Class Signaling Enabled	From the drop-down list, enable or disable route class signaling for the port. Select one of the following values: • Default—If you choose this value, the device uses the setting from the Route Class Signaling service parameter. • Off—Choose this value to enable route class signaling. This setting overrides the Route Class Signaling service parameter. • On—Choose this value to disable route class signaling. This setting overrides the Route Class Signaling service parameter. Route class signaling communicates special routing or termination requirements to receiving devices. It must be enabled for the port to support the Hotline feature.

Table 5-24 SIP Trunk Infrastructure Data Object Fields (continued)

Field	Description
SUBSCRIBE Calling Search Space	Determines how Cisco Unified Communications Manager routes presence requests from the device, server, or application that connects to the SIP Trunk. This setting allows you to apply a calling search space separate from the call-processing search space for presence (SUBSCRIBE) requests for the SIP Trunk. Select a SUBSCRIBE calling search space to use for presence requests for the SIP Trunk. All calling search spaces that you configure in Cisco Unified Communications Manager Administration appear in the SUBSCRIBE Calling Search Space drop-down list box. If you do not select a different calling search space for the SIP Trunk from the drop-down list, the SUBSCRIBE calling search space defaults to None. To configure a SUBSCRIBE calling search space specifically for this purpose, you can configure a calling search space as you do all calling search spaces.
SIP Profile	Select the SIP profile that is to be used for this SIP Trunk.
Trunk Service Type	Specifies the type of the Trunk Service. Select one of the following options: • None—Select this option if the trunk will not be used for call control discovery, Extension Mobility Cross Cluster, or Cisco Intercompany Media Engine. • Call Control Discovery—Selecting this option enables the trunk to support call control discovery. If you assign this trunk to the CCD advertising service in the Advertising Service window, the trunk handles inbound calls from remote call-control entities that use the SAF network. If you assign this trunk to the CCD requesting service in the Requesting Service window, the trunk handles outgoing calls to learned patterns. • Extension Mobility Cross Cluster—Select this option to enable the trunk to support the Extension Mobility Cross Cluster (EMCC) feature. Choosing this option causes the following settings to remain blank or unchecked and become unavailable for configuration, thus retaining their default values: Media Termination Point Required, Unattended Port, Destination Address, Destination Address IPv6, and Destination Address is an SRV. • Cisco Intercompany Media Engine—Ensure that the Cisco IME server is installed and available before you configure this field.

Table 5-24 SIP Trunk Infrastructure Data Object Fields (continued)

Field	Description
Transmit UTF-8 for Calling Party Name	Specifies the user locale setting of the device pool to determine whether to send unicode and whether to translate received Unicode information. For the sending device, if you check this check box and the user locale setting in the device pool matches the terminating phone user locale, the device sends unicode. If the user locale settings do not match, the device sends ASCII. The receiving device translates incoming unicode characters based on the user locale setting of the sending device pool. If the user locale setting matches the terminating phone user locale, the phone displays the characters. The default value for Transmit UTF-8 for Calling Party Name leaves the check box unchecked.
Use Device Pool Connected Party Transformation CSS	Enables you to use the Connected Party Transformation CSS that is configured in the device pool that is assigned to this device. If you do not check this check box, the device uses the Connected Party Transformation CSS that you configured for this device in the Trunk Configuration window.
DTMF Signaling Method	Select one of the following options: • No Preference (default)—Cisco Unified Communications Manager will pick the DTMF method to negotiate DTMF, so an MTP is not required for the call. If Cisco Unified Communications Manager does not have a choice but to allocate an MTP (if the Media Termination Point Required check box is checked), SIP Trunk will negotiate DTMF to RFC 2833. • RFC 2833—Select this configuration if the preferred DTMF method to be used across the trunk is RFC 2833. Cisco Unified Communications Manager makes every effort to negotiate RFC 2833 regardless of MTP usage. Out-of-band provides the fallback method if the peer endpoint supports it. • OOB and RFC 2833—Select this configuration if both out-of-band and RFC 2833 should be used for DTMF. If the peer endpoint supports both out-of-band and RFC 2833, Cisco Unified Communications Manager will negotiate both out-of-band and RFC 2833 DTMF methods. As a result, two DTMF events are sent for the same DTMF keypress (one out-of-band and the other RFC 2833).

Note You can provision SIP Trunk infrastructure data objects in Session Management Edition (SME) devices if you add the SME device as a Call Processor in Provisioning.

Table 5-25 SIP Profile Infrastructure Data Object Fields

Field	Description
Name	Name of the SIP profile.
Description	Description of the SIP profile.
Default MTP Telephony Event Payload Type	Specifies the default payload type for RFC2833 telephony event.
Resource Priority Namespace List	Select a configured Resource Priority Namespace Network Domain list.
Early Offer for G Clear Calls	It supports both standards-based G.Clear (CLEARMODE) and proprietary Cisco Session Description Protocols (SDP).
Redirect by Application	Check this check box to configure this SIP Profile on the SIP trunk, which allows the Cisco Unified Communications Manager administrator to: • Apply a specific calling search space to redirected contacts that are received in the 3xx response. • Apply digit analysis to the redirected contacts to make sure that the call is routed correctly. • Prevent DOS attack by limiting the number of redirections (recursive redirections) that a service parameter can set. • Allow other features to be invoked while the redirection is taking place.
Disable Early Media on 180	Check this check box to play local ringback on the calling phone and connect the media upon receipt of the 2000K response.
Outgoing T.38 INVITE include audio mline	Allows the system to accept a signal from Microsoft Exchange that causes it to switch the call from audio to T.38 fax. To use this feature, you must configure a SIP trunk with this SIP profile.
Enable ANAT	This option allows a dual-stack SIP trunk to offer both IPv4 and IPv6 media.
Timer Invite Expires	The time, in seconds, after which a SIP INVITE expires.
Timer Register Delta	Specifies the parameter is in conjunction with the Timer Register Expires setting. The phone re-reregisters Timer Register Delta seconds before the registration period ends. The registration period is determined by the value of the SIP Station KeepAlive Interval service parameter.

Table 5-25 SIP Profile Infrastructure Data Object Fields (continued)

Field	Description
Timer Register Expires	The value that the phone that is running SIP sends in the Expires header of the REGISTER message. Valid values include any positive number; however, 3600 (1 hour) is the default value. In the 200OK response to REGISTER, Cisco Unified Communications Manager will include an Expires header with the configured value of the SIP Station KeepAlive Interval service parameter. This value in the 2000K determines the time, in seconds, after which the registration expires. The phone refreshes the registration Timer Register Delta seconds before the end of this interval.
Timer T1	The lowest value, in milliseconds, of the retransmission timer for SIP messages. Valid values include any positive number.
Timer T2	The highest value, in milliseconds, of the retransmission timer for SIP messages. Valid values include any positive number.
Retry INVITE	The maximum number of times that an INVITE request will be transmitted. Valid values include any positive number.
Retry Non-INVITE	The maximum number of times that an INVITE request will be retransmitted. Valid values include any positive number.
Start Media Port	The start real-time protocol (RTP) port for media. The ranges is from 16384 to 32767.
Stop Media Port	The stop real-time protocol (RTP) port for media. The ranges is from 16384 to 32767.
Call Pickup URL	Specifies a unique address that the phone that is running SIP will send to Cisco Unified Communications Manager to invoke the call pickup feature.
Call Pickup Group Other URI	Specifies a unique address that the phone that is running SIP will send to Cisco Unified Communications Manager to invoke the call pickup group other feature.
Call Pickup Group URI	Specifies a unique address that the phone that is running SIP will send to Cisco Unified Communications Manager to invoke the call pickup group feature.
Meet Me Service URI	Specifies a unique address that the phone that is running SIP will send to Cisco Unified Communications Manager to invoke the meet me conference feature.
User Info	Configures the user = parameter in the REGISTER message.
DTMF DB Level	Specifies in-band DTMF digit tone level.
Call Hold Ring Back	Allows the system to ring to let you know that you still have another party on hold.
Anonymous Call Block	Configures anonymous call block.
Caller ID Blocking	Configures the caller ID blocking.
Do No Disturb Control	Enables the Do Not Disturb feature.
Telnet Level for 7940 and 7960	Controls the telnet level configuration parameter for phones that support Telnet.

Table 5-25 SIP Profile Infrastructure Data Object Fields (continued)

Field	Description
Timer Keep Alive Expires	Specifies the interval between keepalive messages that are sent to the backup Cisco Unified Communications Manager to ensure that it is available in the event that a failover is required.
Timer Subscribe Expires	Specifies the time, in seconds, after which a subscription expires. This value is inserted into the Expires header field.
Timer Subscribe Delta	Resubscribes Timer Subscribe Delta seconds before the subscription period ends, as governed by Timer Subscribe Expires.
Maximum Redirections	Specifies the maximum number of times that the phone will allow a call to be redirected before dropping the call.
Off Hook To First Digit Timer	Specifies the time, in microseconds, that passes when the phone goes off hook and the first digit timer is set. The range is from 0 - 150,000 microseconds.
Call Forward URI	Specifies a unique address that the phone that is running SIP will send to Cisco Unified Communications Manager to invoke the call forward feature.
Abbreviated Dial URI	Specifies a unique address that the phone that is running SIP will send to Cisco Unified Communications Manager to invoke the abbreviated dial feature.
Conference Join Enabled	Specifies whether the Cisco Unified IP Phones 7940 or 7960, when the conference initiator that is using that phone hangs up, should attempt to join the remaining conference attendees.
RFC 2543 Hold	Specifies whether to enable setting connection address to 0.0.0.0 per RFC2543 when call hold is signaled to Cisco Unified Communications Manager. This allows backward compatibility with endpoints that do not support RFC3264.
Semi Attended Transfer	Specifies whether the Cisco Unified IP Phones 7940 or 7960 caller can transfer the second leg of an attended transfer while the call is ringing. Check the check box if you want semi attended transfer enabled; leave it unchecked if you want semi attended transfer disabled.
Enable VAD	Specifies whether you want voice activation detection (VAD) enabled; leave it unchecked if you want VAD disabled. When VAD is enabled, no media are transmitted when voice is detected.
Stutter Message Waiting	Specifies whether you want stutter dial tone when the phone goes off hook and a message is waiting; leave unchecked if you do not want a stutter dial tone when a message is waiting.
Reroute Incoming Request to new Trunk based on	Specifies the method that Cisco Unified Communications Manager uses to identify the SIP trunk where the call is rerouted.
RSVP Over SIP	Specifies the method that Cisco Unified Communications Manager uses to configure RSVP over SIP trunks.
Fall back to local RSVP	Allows failed end-to-end RSVP calls to fall back to local RSVP to establish the call.
SIP Rel1XX Options	Configures SIP Rel1XX, which determines whether all SIP provisional responses (other than 100 Trying messages) are sent reliably to the remote SIP endpoint.

Table 5-26 Translation Pattern Infrastructure Data Object Fields

Field	Description
Translation Pattern	Translation pattern, including numbers and wildcards.
Route Partition	Available route partitions.
Description	Optional description.
Dial Plan	Numbering plan.
Route Filter	Optional route filter.
MLPP Precedence	Multilevel Precedence and Preemption (MLPP) precedence settings.
Call Search Space	Available calling search spaces.
Block Enabled	Enables or disables block.
Release Cause	Dependent on the Block Enabled field. If a release cause is selected, then Block Enabled must be set to True.
Use Calling Party's External Phone Number Mask	Determines whether or not to use the calling party's external phone number mask.
Calling Party Transform Mask	Transformation mask value.
Calling Party Prefix Digits (Outgoing Calls)	Prefix digits.
Calling Line ID Presentation	Determines whether you want Cisco Unified Communications Manager to allow or restrict the display of the calling party's phone number on the called party's phone display for this translation pattern.
Calling Name Presentation	Determines whether you want Cisco Unified Communications Manager to allow or restrict the display of the calling party's name on the called party's phone display for this translation pattern.
Connected Line ID Presentation	Determines whether you want Cisco Unified Communications Manager to allow or restrict the display of the connected party's phone number on the calling party's phone display for this translation pattern.
Connected Name Presentation	Determines whether you want Cisco Unified Communications Manager to allow or restrict the display of the connected party's name on the calling party's phone display for this translation pattern.
Called Party Discard Digits	The discard digits instructions that you want to be associated with this translation pattern.
Called Party Transform Mask	Transformation mask value.

Table 5-27 Unified Call Manager Group Infrastructure Data Object Fields

Field	Description
Name	Object name.
Unified CMs	List of available Cisco Unified Communications Managers.
Auto-Registration Unified CM Group	Select Yes if you want this Cisco Unified Communications Manager group to be the default Cisco Unified Communications Manager group when auto-registration is enabled.

Table 5-28 Voice Region Infrastructure Data Object Fields

Field	Description
Name	Object name.
Audio Codec	Codec setting. For Cisco Unified Communications Manager higher versions (4.1 and above) , the Default Codec field is set to the option selected.

Table 5-29 Voicemail Pilot Infrastructure Data Object Fields

Field	Description
Number	Voicemail pilot number.
Description	Optional description.
Calling Search Space	Available calling search spaces.
Is Default	Indicates whether this pilot number is the default Voice Mail Pilot for the system.

Table 5-30 Voicemail Profile Infrastructure Data Object Fields

Field	Description
Name	Object name.
Description	Optional description.
Voicemail Pilot	Available voicemail pilots.
Voicemail Box Mask	The mask that is used to format the voice mailbox number for auto-registered phones.
Is Default	Indicates whether this voicemail profile is the default for the system.

Table 5-31 VG202, VG204, and VG 224 Infrastructure Data Object Fields

Field	Description
Gateway Name	Name of the gateway.
Protocol	Protocol associated with the gateway.
MAC Address (Last 10 Characters)	MAC address of the selected device. Updating the MAC Address field will update all associated phones' MAC addresses. However, to update MAC addresses in the subscriber records, you must perform a Domain synchronization.
Description	Description of the device.
Cisco Unified Communications Manager Group	The group of the Cisco Unified Communications Manager.
Module in Slot <Number>	Module that is in the slot number.
Subunit <Number>	Subunit's number.

Table 5-31 VG202, VG204, and VG 224 Infrastructure Data Object Fields (continued)

Field	Description
Modem Passthrough	Enables or disables the modem passthrough.
Cisco Fax Relay	Enables and disables the Cisco fax relay.
T38 Fax Relay	Enables and disables the T-38 fax relay.
RTP Package Capability	Enables or disables RTP Package Capability.
MT Package Capability	Enables or disables MT Package Capability.
RES Package Capability	Enables or disables RES Package Capability.
PRE Package Capability	Enables or disables PRE Package Capability.
SST Package Capability	Enables or disables SST Package Capability.
RTP Unreachable OnOff	Enables or disables RTP unreachable timeout.
RTP Unreachable timeout (ms)	RTP unreachable timeout in milliseconds.
RTP Report Interval (secs)	RTP Report Interval in seconds.
Simple SDP	Enables or disables simple SDP.

Creating Configuration Templates

Step 1 Choose **Design > Provisioning Template**.

Step 2 In the Set Up Configuration Template page, click the New icon ( ).

Step 3 Enter a name for the Configuration Template in the prompt that appears, then click **OK**.

Now you can add items to the template (see Adding Items to a Configuration Template, page 5-36).

Adding Items to a Configuration Template

This section describes how to add items to a Configuration Template. The items that you add can be either individual objects or existing Configuration Templates.

You can specify unique names for these infrastructure objects based on the Domain and/or Service Area that they belong to by incorporating the variables *DOMAIN* and *SERVICEAREA* in the infrastructure object names.

When the Configuration Template is pushed, Provisioning replaces *DOMAIN* and *SERVICEAREA* with the name of the Domain and Service Area, respectively, so that new objects are automatically assigned unique names. This provides the infrastructure elements required for Provisioning partitioning on Cisco Unified Communications Manager, Cisco Unified Communications Manager Express, or Cisco Unity Express.

Configuration is performed in the order that is defined in the Configuration Template. The same dependencies exist for configuring these objects automatically that exist for configuring them manually. Therefore you must ensure that objects are defined in the Configuration Template in the appropriate order.

For more information regarding these dependencies and other requirements, refer to the appropriate Cisco Unified Communications Manager, Cisco Unified Communications Manager Express, or Cisco Unity Express documentation.

Many of the infrastructure data object fields allow you to add items to the lists and let you move the items up and down in the lists. For information on these operations, see the following:

- Adding Items to Lists in Configuration Templates, page 5-43
- Changing the Order of Items in a Configuration Template, page 5-43

Step 1 Open the Set Up Configuration Template page (see Creating Configuration Templates, page 5-36).

Step 2 Click the Choose an Existing Configuration Template icon ( ).

Step 3 Click the desired Configuration Template.

Step 4 Click **Add a New Item**.

Step 5 In the Add field, do one of the following:

- To create a new item, click **New Item** and go to Step 6.
- To add an existing configuration template, click **Name** and then do the following:
  a. In the page that appears, select the desired configuration template name.
  b. Click **Save**. The Configuration Template is added.
  c. Go to Step 7.

Step 6 In the Device Type field, select a device type. Your options are Generic IOS Router, Unified CM, Unified CME, Unity, Unity Connection, or Unity Express.

- If you select either Unified CME with Unified CME IOS Template as the item type, or Unity Express with Unified CME IOS Template as the item type, the Commands field appears. Do the following:
- Do the following:
  a. Enter the appropriate Cisco IOS commands.

     Cisco IOS commands are applied to the device in Configuration Terminal mode for Cisco Unified Communications Manager Express and Generic IOS Router. The Cisco IOS commands ***configure terminal*** and ***exit*** are added to the command internally.

     For Cisco Unity Express, if you want to execute commands in Configuration Terminal mode, you must first add the **configure terminal** command to the template.

     Note If your device requires you to input any submodule mode commands, you must input the commands to enter and exit the submodule modes. Provisioning does not check the syntax of your commands.

  b. Click **Save**.

     The item is added to the Configuration Template.
- If you select Generic IOS Router, and then select Generic IOS Router Template, the page refreshes and the Commands field appears.
  a. Enter the appropriate Cisco IOS commands.

Cisco IOS commands are applied to the device in Configuration Terminal mode for Cisco Unified Communications Manager Express and Generic IOS Router. The Cisco IOS commands ***configure terminal*** and ***exit*** are added to the command internally.

Note If your device requires you to input any submodule mode commands, you must input the commands to enter and exit the submodule modes. Provisioning does not check the syntax of your commands.

b. Click **Save**.

The item is added to the Configuration Template.

- If you select **Generic IOS Router**, and then select Generic IOS Router Pre-Built as Item Type, the page refreshes and the Directory Name field appears.

  If the directory is not listed in the drop-down list, download the generic Cisco IOS prebuilt templates from Cisco.com available at: http://www.cisco.com/cisco/software/cart.html?mdfid=&flowid=28441&treeMdfId=268439477&isLatestRel=Y&imageGuId=4B0DA57133B20054BE589851239F4D61B73E16FD&addoption=DN

  Generic Cisco IOS prebuilt templates consist of a pair of files with the following naming convention:

  <*Name*>-swconfig.txt—This file contains the Cisco IOS commands.

  Config-UserGuide-<*Name*>.txt—This file contains information about the keywords used in the swconfig file.

  If you have not already done so, access your Provisioning system and go to the subdirectory ${*CUPM-INSTALLED*}\sep\ipt\ios-pre-built. Copy the downloaded files into your Provisioning platform's subdirectory. There you will find a directory called Sample. Create a new directory and give a descriptive name for the type of generic Cisco IOS prebuilt templates.

  If you have not already done so, copy the pair of files for your prebuilt template into one of the subdirectories you have created under ios-pre-built.

  a. Select the directory that contains your prebuilt template.

  A prompt for a filename appears.

  Note Select Analog Voice Gateway Configurations as the directory to set the configurations for the Analog Voice Gateway.

  b. Select the filename of the prebuilt template you wish to use for auto-configuration.

  A set of keyword list entries appears for all keywords used in your template, and a read-only Commands field appears.

c. Set the keywords to the values to be substituted in the CLI.

   You must enter at least one keyword in this list, or you may use a keyword list that you have already created.

d. Click **Save**.

   The item is added to the Configuration Template.

- If you select **Unified CM**, do the following:
  a. In the Item Type list, select an infrastructure data object. The screen refreshes, displaying the options for the selected objects. The options will vary depending on the selected objects (for descriptions of the fields for each infrastructure data object, see Table 5-4 through Table 5-30).
  b. Complete the fields as required. If any drop-down list does not contain an item that you require, see Adding Items to Lists in Configuration Templates, page 5-43.
  c. Click **Save**.

     The item is added to the Configuration Template.
- If you select **Unity Connection**, do the following:
  a. In the Item Type list, select an infrastructure data object. The screen refreshes, displaying the options for the selected objects. The options will vary depending on the selected objects (for descriptions of the fields for each infrastructure data object, see Table 5-9).
  b. Complete the fields as required. If any drop-down list does not contain an item that you require, see Adding Items to Lists in Configuration Templates, page 5-43.
  c. Click **Save**.

     The item is added to the Configuration Template.
- If you select **Unity**, do the following:
  a. In the Item Type list, select an infrastructure data object. The screen refreshes, displaying the options for the selected objects. The options will vary depending on the selected objects (for descriptions of the fields for each infrastructure data object, see Table 5-9).
  b. Complete the fields as required. If any drop-down list does not contain an item that you require, see Adding Items to Lists in Configuration Templates, page 5-43.
  c. Click **Save**.

     The item is added to the Configuration Template.
- If you select **Unity**, do the following:
  a. In the Item Type list, select an infrastructure data object. The screen refreshes, displaying the options for the selected objects. The options will vary depending on the selected objects (for descriptions of the fields for each infrastructure data object, see Table 5-9).
  b. Complete the fields as required. If any drop-down list does not contain an item that you require, see Adding Items to Lists in Configuration Templates, page 5-43.
  c. Click **Save**.

     The item is added to the Configuration Template.

Step 7 You can do one or more of the following:

- Add another item to the Configuration Template; go to Step 4 of this procedure.
- Change the order of the items in the Configuration Template (see Changing the Order of Items in a Configuration Template, page 5-43).
- Create a copy of an item in the Configuration Template (see Creating Copies of Items in a Configuration Template, page 5-44).
- Exit the Configuration Template; click **Exit**.

Working with Keyword Substitution

If you are creating Configuration Templates that use the same defined parameter multiple times, you can set up a keyword substitution to simplify the process. Keyword substitution allows you to create a string, and wherever that string appears in a Configuration Template, it is replaced by the value that is associated with it.

Adding a Keyword

Step 1 Open the Set Up Configuration Template page (see Creating Configuration Templates, page 5-36).

Step 2 Do one of the following:

- To add a keyword to a new list, click the New icon ( ) next to Keyword Substitution List.

  A new, empty keyword list is created.
- To add a keyword to an existing list, select the list, then click the Edit icon ( ).
- To create a new keyword list and add all the keywords and their values to the local keyword list, click the New Import icon.
- To merge all the keywords and their values to the local keyword list and all generic Cisco IOS prebuilt items into an existing Keyword List, click the Merge/Edit icon.

  The Keyword List page appears.

  To change the keyword list name, click the name of the list and enter a new name in the dialog box that opens.

  Click **OK**.

Step 3 Enter a string in the Keyword field. The string must start with a dollar sign ($).

Caution You must place ${} around all keywords. Also, keyword replacement fails if additional characters are added to the end of the keyword.

The string should look like the following:

```
${Region}
```

Step 4 Enter a corresponding value in the Value field. For example, enter San Jose.

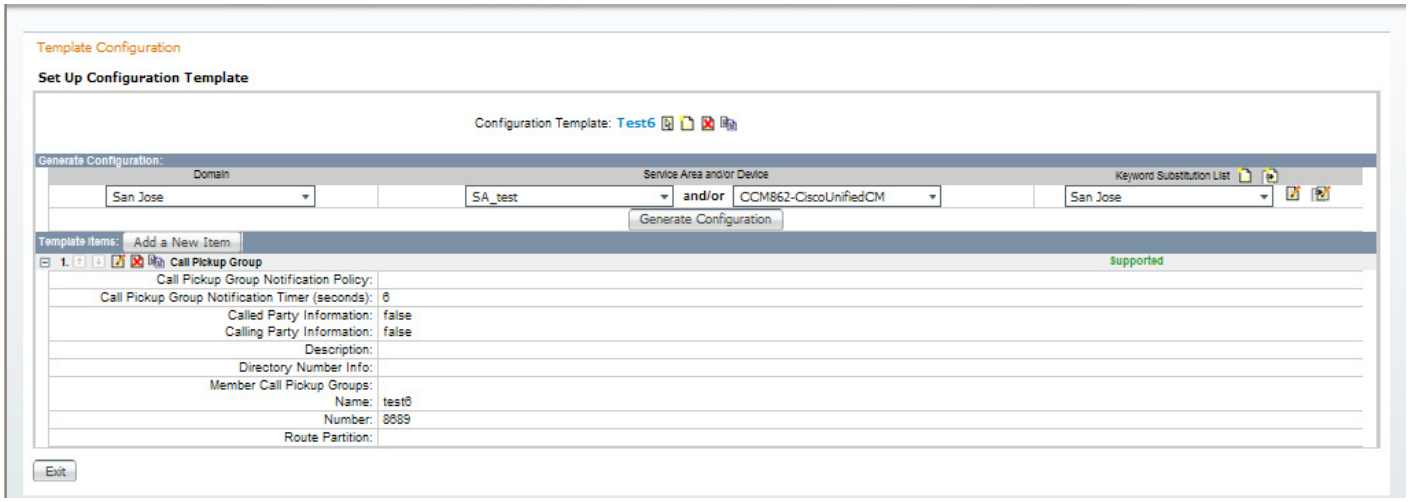
Step 5 Click **Update**.

Step 6 Click **Done**.

Now, in this example, whenever you enter the string ${Region}, the value San Jose will be substituted for the string.

Figure 5-1 shows an example of a Configuration Template that uses keyword substitution. This example creates route partitions and call search spaces with keywords, with a keyword list named *San Jose* that has one keyword (Site = SJ).

Figure 5-1 Configuration Template Using Keyword Substitution



Editing a Keyword

Step 1 Open the Set Up Configuration Template page (see Creating Configuration Templates, page 5-36).

Step 2 In the Keyword Substitution List field, select the keyword list that contains the keyword that you want to edit.

Step 3 Click the Edit icon ( ).

Step 4 In the Keyword List page , change the value as needed.

Step 5 Click **Update**.

Step 6 Click **Done**.

Deleting a Keyword

Step 1 Open the Set Up Configuration Template page (see Creating Configuration Templates, page 5-36).

Step 2 In the Keyword Substitution List field, select the keyword list that contains the keyword that you want to delete.

Step 3 Click the Edit icon ( ).

Step 4 In the Keyword List page, select the box in the Remove column for the keyword you want to delete.

Step 5 Click **Update**.

Step 6 Click **Done**.

Deleting a Keyword List

Step 1 Open the Set Up Configuration Template page (see Creating Configuration Templates, page 5-36).

Step 2 In the Keyword Substitution List field, select the keyword list that you want to delete.

Step 3 Click the Edit icon ( ).

Step 4 In the Keyword List page, click the Delete icon ( ).

Step 5 In the confirmation box, click **OK**.

Updating an Existing Configuration Template

Step 1 Choose **Design > Provisioning Template**.

Step 2 In the Set Up Configuration Template page, click the Chooser icon ( ).

Step 3 Select the Configuration Template that you require.

Step 4 In the Set Up Configuration Template page, update the information as required.

Changing the Order of Items in a Configuration Template

The order of items in a Configuration Template defines the order in which they will be auto-configured when the template is pushed. By clicking the up and down arrows beside the item number, you can change the order of the following:

- Template items.
- Items in infrastructure data object fields—Not all items can be reordered. If the items in a field can be reordered, up and down arrows appear next to the field.

Changing the Order of Template Items

In the Set Up Configuration Template page (see Updating an Existing Configuration Template, page 5-42), click the Up or Down arrow beside the appropriate item. The item is moved.

Changing the Order of Items in the Infrastructure Data Object Fields

Step 1 On the Add a Configuration Template page (see Updating an Existing Configuration Template, page 5-42), select the item to move.

Note The item must reside in a reorderable infrastructure data object field.

Step 2 Click the up or down arrow beside the field. The item is moved.

Editing Items in a Configuration Template

You can edit an item after it is added to a Configuration Template.

Step 1 In the Set Up Configuration Template page (see Updating an Existing Configuration Template, page 5-42), click the Edit icon ( ) for the item you want to edit. The Edit a Configuration Template Item page appears.

Step 2 Make the appropriate changes.

Step 3 Click **Update**.

Adding Items to Lists in Configuration Templates

The lists in the infrastructure data object fields display the items that already exist on the Cisco Unified Communications Managers only. You can also define items in a Configuration Template that are created when the Configuration Template is pushed. The new items will only exist once the Configuration Template is pushed. These items may be requirements for other items in the same Configuration Template.

For this reason, Provisioning allows you to manually add options to the lists. For example, you can define a route partition and a call search space in the same Configuration Template. To define the call search space item in the Configuration Template, you must specify a route partition, but the route partition will not appear as an option in the Configuration Template because it has not been created.

This procedure demonstrates how you could add the name of the route partition to the list in the Configuration Template for the call search space.

Step 1 On the Edit a Configuration Template Item page (see Editing Items in a Configuration Template, page 5-43), click the plus symbol (**+**) beside the list. A prompt appears.

Step 2 Enter a name for the option, then click **OK**.

The option appears in the list.

Creating Copies of Items in a Configuration Template

You can create a duplicate of a template item on a Configuration Template and then edit it. This allows you to create multiple versions of the same item.

In the Set Up Configuration Template page (see Updating an Existing Configuration Template, page 5-42), click the Copy icon ( ) for the item you want to copy.

A copy of the item is added to the Configuration Template. You can edit the copy as required.

Deleting Items in a Configuration Template

Step 1 In the Set Up Configuration Template page (see Updating an Existing Configuration Template, page 5-42), click the Delete icon ( ) beside the item that you want to delete.

Step 2 Click **OK**. The item is deleted.

Renaming Configuration Templates

Step 1 In the Set Up Configuration Template page (see Updating an Existing Configuration Template, page 5-42), click the Configuration Template name.

Step 2 Enter the new name and then click **OK**.

Creating Copies of Configuration Templates

You can create a copy of an entire Configuration Template and then edit it as required.

Step 1 In the Set Up Configuration Template page (see Updating an Existing Configuration Template, page 5-42), click the Copy icon () beside the Configuration Template name.

A copy of the Configuration Template is created with *_copy* added to the name.

Step 2 Rename and edit the Configuration Template as required.

Deleting Configuration Templates

Step 1 In the Set Up Configuration Template page (see Updating an Existing Configuration Template, page 5-42), click the Delete icon () beside the Configuration Template name. A message appears, asking you to confirm.

Step 2 Click **OK**. The Configuration Template is deleted.

Generating a Configuration Using a Template

You apply Configuration Templates by pushing them to the appropriate Domain, Service Area, and/or device.

Step 1 Open the Set Up Configuration Template page (see Updating an Existing Configuration Template, page 5-42) for the template.

Step 2 (Optional) Select a Domain. The Service Areas and device lists are populated with the Service Areas and devices that belong to the selected Domain.

Note If a Domain is not selected, all the devices in Provisioning are listed.

Step 3 Select a Service Area and/or device. Selecting a Service Area updates the device list, showing only devices that belong to the selected Service Area.

Note After selecting a Service Area or device, each template item displays Supported or Unsupported. If an item is unsupported, it is not a valid template item for the device selected or devices in the Service Area. The template item will not be added to the generated template.

Step 4 (Optional) Select Keyword List. This is required only if the template contains keywords.

Step 5 Click **Generate Configuration**.

Step 6 Click **OK**.

The configuration is generated and the Batch Project page appears. For information on scheduling the provisioning of the configuration, see Working with Batch Projects, page 6-14.

Prebuilt Cisco IOS Templates

Prebuilt Cisco IOS Templates are distributed by Cisco for many applications and are supported by multiple administration products within Cisco.

A prebuilt Cisco IOS Template is defined by two files:

- <*Name*>-swconfig.txt—This file contains the Cisco IOS commands. It is different from the Commands attribute for generic Cisco IOS commands in one aspect: the keywords are delimited with the “at” symbol (@).
- Config-UserGuide-<*Name*>.txt—This file lists all the keywords that are used in the swconfig.txt file. The keywords must include the leading @ character. If the first character of a line is not the @ character, it is treated as a comment.

If you are using **C2851_GigE-ASSTwOSPF-DMVPN-CME-H323-FaxRelay** in <*Name*>, the following would be the text files:

- C2851_GigE-ASSTwOSPF-DMVPN-CME-H323-FaxRelay-swconfig.txt
- Config-UserGuide-C2851_GigE-ASSTwOSPF-DMVPN-CME-H323-FaxRelay.txt

If one file is missing or the naming convention is not followed, the name will not appear in the list of prebuilt template filenames in Provisioning.

If an error is detected in the text files, an error message is displayed. If you get an error message, you must cancel the creation of the template item and correct the problem. One of the most common errors is that a keyword used in the swconfig.txt file is not cross-referenced in the Config-UserGuide-<*Name*>.txt file.

Noncomment lines in the Config-UserGuide-<*Name*>.txt file are comment delimited and have three required columns. They are:

- Keyword Name—The full name of the keyword, including the leading @ character. Valid characters for a keyword name are alphanumeric characters, underscore, left bracket ([), and right bracket (]).
- Keyword Description—A free-text field that provides a description of what the keyword value represents in the Cisco IOS commands.
- Keyword Label—A shorter description of the purpose of the keyword.

Provisioning Prebuilt Functionality

Provisioning provides additional functionality for the prebuilt template files:

- Allows the keywords in the swconfig.txt file to be specified using the generic Cisco IOS template format for keywords.

  The format of generic Cisco IOS templates; is:

  ${*KEY_WORDNAME*}

  Note Provisioning allows keyword names to contain additional characters supported for Generic Cisco IOS Templates, in particular, the dash (-).

  Prebuilt Cisco IOS format is:

  @KEYWORD_NAME

- Allows three additional, optional columns to be added to the Config-UserGuide-<*Name*>.txt file, for setting keywords to default values and for validation of keyword values:
  - Type—One of the four types that determine the keyword validation. The types are STRING, NUMERIC, IPV4, and IPV6. When you enter a value for the local keyword list that is associated with the prebuilt template, it is validated and an error message is displayed if the validation fails. You must correct any errors before saving the template item.
  - Default Value—Value that is used initially while creating a local keyword list.
  - Length—Length of the type STRING must not exceed this value.

  Though you can use the value CUPM_SKIP for any keyword, any line that has this value is not included in the Cisco IOS commands sent to the device.

Provisioning Unsupported Prebuilt Functionality

If a keyword name ends with empty brackets ([]), it means that this keyword can be assigned one or more values. Provisioning allows you to set only one value.

Importing and Exporting Configuration Templates

Through the template import/export tool (configtemplate.sh), you can either import or export configuration templates into your Provisioning server.

The configtemplate.sh file is located in the /opt/cupm/sep/ipt/bin folder.

When using the template import/export tool, be aware of the following:

- When importing templates into a different Provisioning server, if the template which is to be imported contains attributes that are specific to a Call Processor, the Call Processor must be added and synchronized in the Provisioning server in which the templates will be imported.
- Do not modify the exported configuration template files.
- Nested templates should not be imported/exported separately.
- When you use the *all* option, all the files must be in the same directory. If they are not, then the import will fail.

- When a nested template is specified, the dependent templates of the nested template are not import/export. The dependent templates must be imported/exported individually, or they can be imported/exported together if you use the *all* option, and if all the dependent files are located in the specified directory.

Note Prebuilt Cisco IOS templates cannot be exported in this manner. The prebuilt templates are never stored in the Provisioning database. They are implicitly imported when they are copied into the subdirectory under the ios-pre-built directory.

Importing a Configuration Template

Step 1 On the Provisioning system, open a command prompt.

Step 2 At the command prompt, navigate to the /opt/cupm/sep/ipt/bin folder and run the following command:

```
./configtemplate.sh -import <XML file name> -d <directory>
```

Where:

- <*XML file name*>—The name of the template to import.

Note Alternatively, you can replace <*XML file name*> with *all*. This imports all templates (xml files) that are present in the directory.

- <*directory*>—The directory location from which to import the files. This is optional. If this argument is not included, it will default to the current directory.

For example: **./configtemplate.sh -import RoutePattern.xml -d /opt/cupm/templates**

Note Ensure that you have only .xml files in the folder before importing the commands.

Exporting a Configuration Template

Step 1 On the Provisioning system, open a command prompt.

Step 2 At the command prompt, navigate to the /opt/cupm/sep/ipt/bin folder and run the following command:

```
./configtemplate.sh -export <template name> -d <directory>
```

Where:

- <*template name*>—The name of the template to export.

  Note Alternatively, you can replace <*template name*> with *all*. This exports all templates that are present.

- <*directory*>—The directory location to which to export the files. This is optional. If this argument is not included, it will default to the current directory.

For example: `./configtemplate.sh -export RoutePattern -d /opt/cupm/templates`

Note Always use new directory names when you are exporting the templates. If you use an existing directory name, the new templates will not be exported correctly.

Working with Infrastructure Configuration

The Infrastructure Configuration page of Provisioning enables you to browse the infrastructure configuration settings of a Call Processor and Unified Message Processor. Through this page, you can take actions (add, edit, or delete) on the configuration settings of a Call Processor and Unified Message Processor. Also, you can view pending operations and schedule operations (see Working with Infrastructure Configuration Scheduling, page 5-55).

To work with infrastructure configuration, you must be assigned the Infrastructure Configuration Management authorization role and be assigned permissions to the corresponding infrastructure products (see Managing Infrastructure Configuration Permissions, page 8-19).

For descriptions of the fields for the infrastructure data objects (products), see Table 5-4 through Table 5-30.

Note The Infrastructure Configuration feature applies to Call Processors that are based on Cisco Unified Communications Manager devices and Unified Message Processors that are based on Cisco Unity or Cisco Unity Connection only.

Adding an Infrastructure Configuration Instance

Step 1 Choose **Deploy > Infrastructure Configuration**.

Step 2 In the Infrastructure Configuration page, click the Chooser icon ( ) to select a processor.

Step 3 Click the desired Processor.

Step 4 In the Products pane, click the product for which you want to add an instance.

All configured instances for the product appear in the Configured Instances pane. If you click Show Filter, a search pane appears. You can enter search criteria to filter the list of configured instances.

Step 5 In the Configured Instances pane, click **Add New**.

Step 6 In the Infrastructure Configuration - Configure Product Instance page, enter the necessary information. An asterisk (*) next to a field indicates a required field.

For specific information on how to enter information, see the following sections:

- Working with Complex Attributes, page 5-50
- Selecting Items in Infrastructure Configuration, page 5-52
- Changing the Order of Items in Infrastructure Configuration, page 5-52

Note For descriptions of the infrastructure data object (product) fields, see Table 5-4 through Table 5-30.

Step 7 Click **Submit** or **Save local copy**.

Submit sends the order immediately to the processor. *Save local copy* saves the configured instance locally only. At a later time, the order can be pushed to the processor either by clicking Submit or by using infrastructure configuration scheduling (see Working with Infrastructure Configuration Scheduling, page 5-55).

Also, when you choose *Save local copy*, the provisioning state of the object becomes Uncommitted Add (for details on provisioning states, see Infrastructure Provisioning States, page 5-57). The operational status is inactive, meaning the object has not been pushed to the device.

Working with Complex Attributes

Certain attributes can consist of child attributes. The configuration for these child attributes can repeat, resulting in a table-like structure. These attributes are called complex attributes. In infrastructure configuration, complex attributes exist in the following products; CTI Route Point, Route Group, and Route List. Complex attributes also exist in subscriber products.

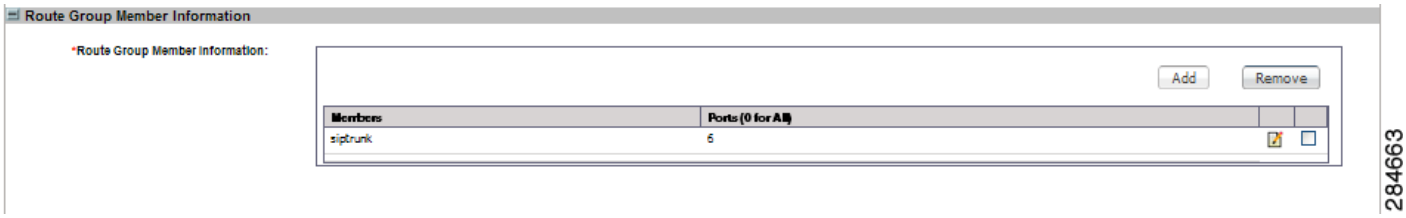
For example, the Phone product has Speed Dial, the Line product has all the call forward settings, and the Voicemail product has Unity Alternate extensions.

Complex attributes are settings on certain products. Values for these attributes, like other attributes, are entered in the Infrastructure Configuration - Configure Product Instance page after processor selection, product selection, and instance selection.

Figure 5-2 and Figure 5-3 show examples of complex attributes.

Configuring Complex Attributes

Figure 5-2 Example 1: Complex Attribute



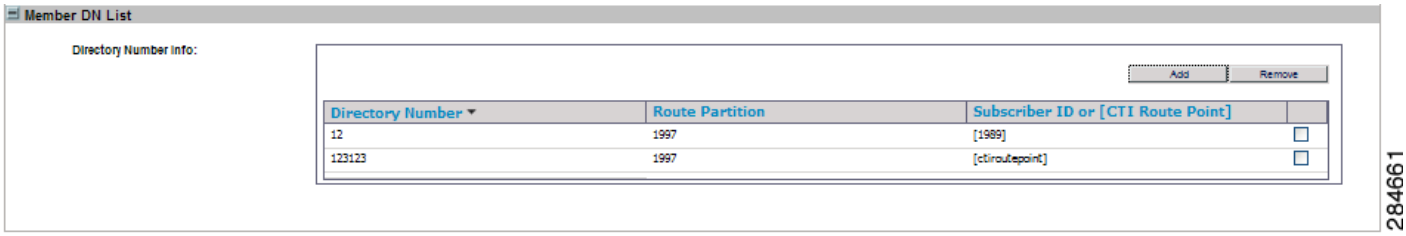
Step 1 In the Infrastructure Configuration - Configure Product Instance page (see Adding an Infrastructure Configuration Instance, page 5-50), click **Add** in the table.

Step 2 Enter the desired information into the fields.

Step 3 Click **OK**.

The new information appears in the table. More rows can be added by repeating the above steps. To edit a previously added entry (row), click the edit ( ) icon next to the row. The editing panel opens. Make the desired changes and then click **OK**. The row in the complex attribute table is updated. To remove an entry (row), check the check box next to the row and click **Remove**.

Figure 5-3 Example 2: Complex Attribute



Step 1 In the Infrastructure Configuration - Configure Product Instance page (see Adding an Infrastructure Configuration Instance, page 5-50), click **Add** in the table.

Step 2 In the Available Values pane, click the option that you want to add.

The selected object appears in the Selected Values pane. You can use the search fields at the top of the search page to narrow the number of objects listed.

Step 3 After you have selected all the desired objects, click **Select**.

The selected objects now appear in the table. To remove an entry (row), check the check box next to the row and click **Remove**.

Selecting Items in Infrastructure Configuration

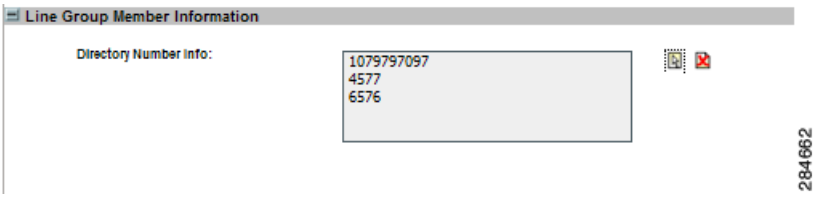
You can select an item by clicking it in a drop-down list. You may also see a chooser ( ) icon next to a field. Clicking the chooser icon opens a search page that provides a list of items to choose from.

If the field allows multiple items, after you double-click the items in the search page, click **Select**.

Note To delete an item from this field, click the item and then click the ( ) icon.

Figure 5-4 shows an example of this type of field.

Figure 5-4 Example: Directory Number Info Field



Changing the Order of Items in Infrastructure Configuration

You can reorder the items in certain infrastructure configuration setting fields.

Step 1 In the Processor Configuration - Configure Product Instance page (see Adding an Infrastructure Configuration Instance, page 5-50), select the item to move.

Note The item must reside in a reorderable infrastructure configuration setting field.

Step 2 Click the up or down arrow beside the field. The item is moved.

Figure 5-5 shows an example of this type of field.

Figure 5-5 Example, Member Call Pickup Groups Field

Editing an Infrastructure Configuration Instance

Note The Associated Products button that appears when you click a configured instance displays relationships it has with other product instances.

Step 1 Choose **Deploy > Infrastructure Configuration**.

Step 2 In the Infrastructure Configuration page, click the Chooser icon ( ).

Step 3 Click the desired Processor.

Step 4 In the Products pane, click the product that contains the desired instance.

Step 5 Click the instance for which you want to change the settings.

Step 6 In the Processor Configuration - Configure Product Instances page, click **Modify**.

The appears with editable settings.

Step 7 In the Local Configuration tab, make the desired changes. An asterisk ( ) next to a field indicates a required field.

Note To unset the value of a setting that has a numeric value in Cisco Unified Communications Manager, you must enter a zero for the value.If you just clear the value, the setting does not get unset in Cisco Unified Communications Manager.

Step 8 For specific information on how to enter information, see the following sections:

- Working with Complex Attributes, page 5-50
- Selecting Items in Infrastructure Configuration, page 5-52
- Changing the Order of Items in Infrastructure Configuration, page 5-52

Note For descriptions of the infrastructure data object (product) fields, see Table 5-4 through Table 5-30.

Step 9 Click **Submit** or **Save local copy**.

Submit sends the order immediately to the processor. *Save local copy* saves the configured instance locally only. At a later time, the order can be pushed to the processor either by clicking Submit or by using infrastructure configuration scheduling (see Working with Infrastructure Configuration Scheduling, page 5-55).

Also, when you choose *Save local copy*, the provisioning state of the object becomes Uncommitted Update (for details on provisioning states, see Infrastructure Provisioning States, page 5-57). The operational status is active.

Deleting an Infrastructure Configuration Instance

Step 1 Choose **Deploy > Infrastructure Configuration**.

The appears.

Step 2 In the Infrastructure Configuration page, click the Chooser icon ( ).

Step 3 Click the desired Call Processor.

Step 4 In the Products pane, click the product that contains the desired instance.

Step 5 In the Configured Instances pane, click the instance that you want to delete.

The appears.

Step 6 In the Processor Configuration - Configure Product Instance page, click either **Delete from processor** or **Mark for deletion**.

Delete from processor immediately submits a delete order to the processor. *Mark for deletion* deletes the configured instance locally only. At a later time, the order can be pushed to the processor by either clicking Delete from processor or by using infrastructure configuration scheduling (see Working with Infrastructure Configuration Scheduling, page 5-55).

Also, when you choose Mark for deletion, the provisioning state of the object becomes Uncommitted Delete (for details on provisioning states, see Infrastructure Provisioning States, page 5-57). The operational status is active.

Marking an instance for deletion does not make that instance unavailable for selection in other infrastructure products or subscriber products. For example, if a route partition is marked for deletion, it is still available for selection in a Line or Phone product, as well as Calling Search Space.

Step 7 In the confirmation box, click **OK**.

Working with Infrastructure Configuration Scheduling

The infrastructure configuration scheduling feature enables you to group and schedule instances with pending operations to be provisioned.

Infrastructure configuration scheduling requires you to create tasks. In a task you can add pending configurations and they can be either add, modify or delete operations. You can have pending items from more than one Processor in the same task, and you can schedule this task to run at a fixed time or schedule it to run after successful completion of another task.

Viewing Infrastructure Configuration Scheduled Tasks

Step 1 Choose **Deploy > Infrastructure Configuration**.

Step 2 In the Infrastructure Configuration page, click **Schedule Configuration** (top right corner).

A list of tasks appear. In this page, you can view the tasks for the Processor.

Tip You can narrow your results by using the search function. To access the search function, in the results page, click **Show Filter**, and the search criteria appear.

Scheduling an Infrastructure Configuration Task

Note After a task is created, it cannot be updated if it is in progress, completed, or failed. Before the task begins, you can change the schedule date or time and add or remove pending items that should be pushed as part of the task.

Step 1 Choose **Deploy > Infrastructure Configuration**.

Step 2 In the Infrastructure Configuration page, click **Schedule Configuration** (top right corner).

Step 3 Click **Add New**.

The appears.

Step 4 In the Schedule Pending Configuration - Configure Task page, enter the necessary information.

- Name.
- Description.
- Initiation—What triggers the task to start (only one can be selected):

  - None.
  - Date—Click the chooser icon () that appears when selected. In the calender box that appears, click the desired date and click **Select**.
  - Task—Select a task from the list.
- Operation Type—You can add, modify, or delete infrastructure configuration instances. A task can not perform more than one operation. You can select only one operation type.

Step 5 Select task details:

a. Click the chooser icon () next to Task Details. A search page appears.

b. Select the desired values.

c. Click **Select**. The values appear in the Schedule Pending Configuration - Configure Task page.

Step 6 In the Schedule Pending Configuration - Configure Task page, click **Save**.

Once a task is saved, actions are taken on the details in the task, based on its initiation type.

If the task's initiation type is date/time, when the date/time arrives, the execution of the task begins. An order is created with all items in the task. The task status changes to in progress and it can no longer be modified or deleted. If all items in the task are completed successfully, the task's status changes to complete. If any one detail fails, then none of the rest of the items are executed, and the task status changes to aborted. An aborted or failed task cannot be rerun. You will need to create a new task.

If the initiation type is another task, then the task begins after the successful completion of the initiating task. If the initiating task fails, this task will never begin, which will be indicated in the List of Tasks page.

Deleting a Scheduled Infrastructure Configuration Task

Step 1 Choose **Deploy > Infrastructure Configuration**.

Step 2 In the Infrastructure Configuration page, click **Schedule Configuration** (top right corner).

Step 3 Click the task that you want to delete.

Step 4 In the Schedule Pending Configuration - Configure Task page, click **Delete**.

Purging an Infrastructure Configuration Task

The infrastructure configuration scheduling tasks (Completed, Failed, and Aborted) are stored on your system. You may want to periodically purge them.

All data purging activities are performed through the Data Maintenance Configuration page. For more information on data purging, see Enabling Data Purging for Provisioning, page 2-7.

Infrastructure Provisioning States

This section explains the states that an infrastructure configuration request goes through when you perform infrastructure configuration activities.

Following are the infrastructure configuration process states:

- Uncommitted Add—Configuration created locally but does not exist on the processor.
- Add in Progress—A pending configuration is in progress and being configured through an order. No changes are allowed in this state.
- Add Failed—An operation on this object failed.
- Add Scheduled—A pending configured object is scheduled in one of the tasks waiting to be executed. No changes are allowed in this state.
- Uncommitted Update—An object that exists on the processor has been modified locally but has not been submitted to the processor.
- Update in progress—Modify operation is in progress as part of an order. No changes are allowed in this state.
- Updated Failed—Modify operation failed.
- Update Scheduled—A pending configuration to change an object on the processor is scheduled as part of a task. No changes are allowed in this state.
- Uncommitted Delete—An object that exists on the processor has been marked for deletion. The request to delete the object has not been made to the processor.
- Delete in progress—Delete operation is in progress as part of an order. No changes are allowed in this state.
- Delete Failed—Delete operation failed.
- Delete Scheduled—A pending configuration to delete an object from the processor is scheduled as part of a task. No changes are allowed in this state.