CHAPTER 3

Managing Devices

You can add call processors, unified message processors, and unified presence processors to Provisioning.

To use Provisioning, you must first add the IP communications infrastructure devices that are part of your IP telephony environment.

Call Processors are proxies for each instance of a Cisco Unified Communications Manager or Cisco Unified Communications Manager Express device. Unified Message Processors are proxies for each instance of a Cisco Unity, Cisco Unity Express, or Cisco Unity Connection device. Unified Presence Processors are proxies for each instance of Cisco Unified Presence.

Provisioning also provides support for Cisco IOS routers. When a Cisco IOS router device is added to Provisioning, it appears in Provisioning as a Generic IOS Router. Through the Generic IOS Router capability, Provisioning can configure additional voice functionality on the router.

Note Some devices can have more than one capability. If you are adding a device that has more than one capability, you only need to add the device once. You can add the capabilities during its initial setup, or update the capabilities through the Update Device page (see Viewing/Updating Devices, page 3-5) after the device has been added.

Adding Devices to Provisioning

To add different devices to Provisioning you have to select the appropriate device type and capability for each device.

Note Before you can create call processors in Provisioning, you must make sure the Cisco Unified Communications Manager, Cisco Unified Communications Manager Business Edition, Cisco Unified Communications Manager Express, Cisco Unity, Cisco Unity Connection, Cisco Unity Express devices are configured correctly. For details on configuring these devices, see *Setting Up Devices for Prime Collaboration Provisioning*.

To add devices to Provisioning:

Step 1 Choose **Design > Set Up Devices > Devices Setup**.

Step 2 In the Device Configuration page, click **New Device**.

Step 3 Enter the necessary information such as Name, IP address and so on.

Note For the Name field, valid values are space, alphanumeric characters (A-Z, a-z, 0-9), underscore (_), hyphen (-), period (.), and at sign (@).

Step 4 To select the Device type and Capability/application for each device, see Table 3-1.

Step 5 Click **Save**. A message appears, stating that the device is created.

Table 3-1 provides information on the device type and capability to select for the specific call processors.

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Table 3-1 Adding Devices to Provisioning - Device Type and Capability Fields

Adding	Device Type	Capability/Application	Additional Information
Cisco Unified Communications Manager	Media Server	Unified / CM	To configure the device, a link (Configure Unified CM) appears on the Device Configuration page (for details, see Configuring a Cisco Unified Communications Manager Call Processor, page 3-7).
Cisco Unified Communications Manager Business Edition	Media Server	Unified / CM	To confugire the device, two links (Configure Unified CM and Configure Unity Connection) appear on the Device Configuration page (for details, see Configuring a Cisco Unified Communications Manager Call Processor, page 3-7 and Configuring a Cisco Unity Connection Unified Message Processor, page 3-15)
Cisco Unified Communications Manager Express	Cisco Router	Unified / CME	To configure the device, a link (Configure Unified CME) appears on the Device Configuration page (for details, see Configuring a Cisco Unified Communications Manager Express Call Processor, page 3-8).
Cisco Unity	Media Server	Unity	To configure the device, a link (Configure Unity) appears on the Device Configuration page (for details, see Configuring a Cisco Unity Unified Message Processor, page 3-15)
Cisco Unity Connection	Media Server	Unity Connection	To configure the device, a link (Configure Unity Connection) appears on the Device Configuration page (for details, see Configuring a Cisco Unity Connection Unified Message Processor, page 3-15).

Table 3-1 Adding Devices to Provisioning - Device Type and Capability Fields (continued)

Adding	Device Type	Capability/Application	Additional Information
Cisco Unity Express	Cisco Router	Unity Express	To configure the device, a link (Configure Unity Express) appears on the Device Configuration page (for details, see Configuring a Cisco Unity Express Unified Message Processor, page 3-16)
Cisco Unity Presence	Media Server	Unified Presence	To configure the device, a link (Configure Unified Presence) appears on the Device Configuration page (for details, see Configuring a Cisco Unified Presence Processor, page 3-20) **Note** After the upgrade, new products in Presence will not be displayed as orderable products. You have to associate the new products to the user types. This is applicable for all new orderable products.
Cisco IOS Router	Cisco Router	Generic IOS Router **Note** For Generic IOS Router Fields, see Table 3-2.	You can test the router's connection by clicking the **Test Router Connection** link that appears on the page (see Deleting a Generic IOS Router, page 3-23.)

Working with a Cisco Unified Communications Manager Business Edition Device

Before you can create a Call Processor based on a Cisco Unified Communications Manager Express in Provisioning, you must:

- Disable the auto-allocation of directory numbers. Do this through the Cisco IOS interface.
- Disable the ephone auto-registration for Cisco Unified Communications Manager Express.

When working with Cisco Unified Communications Manager Business Edition, be aware of the following:

- When adding a Cisco Unified Communications Manager and Cisco Unity Connection that are part of a Cisco Unified Communication Management Business Edition device as standalone processors in Provisioning, follow these guidelines:
  - A Cisco Unified Communications Manager that is part of a Cisco Unified Communications Manager Business Edition device can be paired with any other standalone Unified Messaging Processor. However, it must not be a part of the same Cisco Unified Communications Management Business Edition device or the Cisco Unity Connection that is co-resident in the same Cisco Unified Communications Manager Business Edition device.

Note To pair the co-resident Cisco Unified Communications Manager and Cisco Unity Connection, you must associate the co-resident Cisco Unity Connection with the co-resident Cisco Unified Communications Manager on the same server while configuring the Service Area.

  - A Cisco Unity Connection that is part of a Cisco Unified Communications Manager Business Edition cannot be combined with any other Call Processors that are not present in the same Cisco Unified Communications Manager Business Edition device.

- There are restriction for some subscriber products in Cisco Unified Communications Manager Business Edition.
  - A Cisco Unified Communications Manager Business Edition user can have only one voicemail and email in the same device.

A Pseudo user in Provisioning cannot have a voicemail in a Cisco Unified Communications Manager Business Edition device.

Working with Cisco Unity Connection Device

For Cisco Unity Connection clustering and failover support, be aware of the following:

- When adding a Cisco Unity Connection that includes a Cisco Unity Connection cluster server pair, add only the publisher server of the pair.
- If the primary Cisco Unity Connection fails over to a secondary Cisco Unity Connection, you can change the IP address to the secondary device, and Provisioning will communicate with the secondary device before failback occurs.
- If Cisco Unity is used in the configuration, configure the Cisco Unified Communications Manager voicemail ports.

If a network has more than one location, individually add all of the locations for either the Cisco Unity Connection server or Cisco Unity Connection cluster to Provisioning. Provisioning manages only local subscribers and public distribution lists; it does not manage remote locations.

For more information on these devices, see *Setting Up Devices for Prime Collaboration Provisioning*.

Table 3-2 describes the fields for adding a generic IOS router.

Table 3-2 Generic IOS Router Fields

Field	Description
Name	Cisco IOS router name. Valid values are space, alphanumeric characters (A-Z, a-z, 0-9), underscore (_), hyphen (-), period (.), and at sign (@).
IP Address	Router's IP address.
Device Type	The type of hardware that the application is installed on. Select Cisco Router.
Username	Username for the router.
Password (and confirm)	Password for the router.
Device Protocol	Protocol used to connect to the device.

Table 3-2 Generic IOS Router Fields (continued)

Field	Description
Enable Password (and confirm)	Enable password for the router.
Capability/Application	The capability of the device or the application installed on the device.

Viewing/Updating Devices

After a device is added to Provisioning, you can view its information and make changes to it.

Step 1 Choose **Design > Set Up Devices > Devices Setup**.

Step 2 In the Device Configuration page, click **View Device**.

Step 3 From the search page, select the device that you require from the listing available.

Step 4 If you want to update the information, in the Options pane, click **Update**.

Step 5 In the Update Device page, edit the fields as required. (For explanations of the fields, see Table 3-2, Table 3-3, or Table 3-6.)

Note You cannot change a device's device type, but you can change a device's capability.

Step 6 After you make your changes, click **Save**.

Step 7 If you want to change the device's configuration, click **Configure** (the capability/application of the device appears next to Configure).

Step 8 Make your changes and click **Save**.

Deleting Devices

To completely remove a device from Provisioning, you must delete it through the Device Configuration page. If you just delete the existing Processor from Provisioning, only the capability is removed.

Step 1 Put Provisioning in maintenance mode.

Step 2 Choose **Design > Set Up Devices > Devices Setup**.

Step 3 In the Device Configuration page, click **View Device**.

Step 4 From the search page, select the device that you require from the listing available.

Step 5 In the Options pane, click **Delete Device**.

Note The system must be in maintenance mode for the Delete command to appear in the Options pane.

Step 6 In the confirmation dialog box, click **OK** to confirm deletion.

The device deletion begins, with a progress bar displaying the status of the deletion in the Options pane.

Configuring Processors

This section provides information on how to configure and synchronize Call Processors and Unified Message Processors.

Synchronizing the data in the Cisco Unified Communications Manager and Cisco Unity systems with the Call Processors and Unified Message Processors, and then synchronizing with the Domains, populates Provisioning with the existing active users and services, and provides a consolidated view of all of the infrastructure and subscriber information.

After a Domain synchronization, you can use Provisioning to directly manage the individual user account. You no longer have to use the underlying Cisco Unified Communications Manager or Cisco Unity systems.

After a Call Processor or Unified Message Processor is created and synchronized, do not change the type of device for the processor. For example, if you create a Call Processor for Cisco Unified Communications Manager, do not change the Call Processor type to Cisco Unified Communications Manager Express.

Any out-of-band configurations (meaning configurations that are performed directly on the processor but not synchronized with Provisioning) can result in failed orders. You must always keep Provisioning synchronized with the processors that it is provisioning.

Configuring Call Processors

After a device is added to Provisioning, to complete the setup of the device, it must be configured to Provisioning.

Table 3-3 describes the fields for configuring a Call Processor.

Note The fields that are displayed in the Configure a New Call Processor page depend on the device type and version that you select. Not all fields will appear.

Table 3-3 Call Processor Fields

Field	Description
Name	Call Processor name. Valid values are space, alphanumeric characters (A-Z, a-z, 0-9), underscore (_), hyphen (-), period (.), and at sign (@).
Device Name	Name of the device.
Associated CUP Name	Name of the associated Cisco Unified Presence processor.
Type	The type of device (Cisco Unified Communications Manager or Cisco Unified Communications Manager Express). You cannot edit this field.
IP Address	IP address of the Cisco Unified Communications Manager or Cisco Unified Communications Manager Express.

Table 3-3 Call Processor Fields (continued)

Field	Description
Device Type	The type of hardware that the application is installed on: either a Media Server or a Cisco Router.
Version	Cisco Unified Communications Manager or Cisco Unified Communications Manager Express version number.
Device Protocol	Protocol used to communicate with the device.
LDAP Directory Integration	This value must exactly match the value configured in Cisco Unified Communications Manager. If Cisco Unified Communications Manager is integrated with an external LDAP, subscribers are not created through Provisioning; instead they are synchronized through Cisco Unified Communications Manager. While placing an order, if a subscriber is not available on Cisco Unified Communications Manager, the workflow subsystem waits for a predefined period of time (24 hours by default) for the subscriber to be available on Cisco Unified Communications Manager and then continues processing the order. The 24-hour period can be configured on Provisioning in the ipt.properties file. Change the following settings: • dfc.oem.extdir.retries: 24 • dfc.oem.extdir.retry_interval: 3600 **Note** LDAP directory integration is available only for Cisco Unified Communications Manager versions 5.0 and later.
User Name	Username based on the protocol selected.
Password (and confirm)	Password for the Cisco Unified Communications Manager or Cisco Unified Communications Manager Express username.
Enable Password (and confirm)	The enable password configured on Cisco Unified Communications Manager Express.
Capability/Application	The capability of the device or the application installed on the device.
Extension Mobility Details (Optional)	
Service Name	The name of the Extension Mobility Service configured on a Call Processor.
Service URL	The URL of the Extension Mobility Service configured on the Call Processor: http://*IPAddress*/emapp/EMAppServlet?device=#DEVICENAME# Where *IPAddress* is the name or the IP address of the server where Extension Mobility is installed.

Configuring a Cisco Unified Communications Manager Call Processor

This section describes the procedure for configuring a Call Processor based on Cisco Unified Communications Manager. After the device is configured, it will appear as a Call Processor in Provisioning.

Step 1 Choose **Design > Set Up Devices > Devices Setup**.

Step 2 In the Device Configuration page, click **View Device**.

Step 3 In the search page, click the desired Cisco Unified Communications Manager Device.

Step 4 In the View Device page, click **Update**.

Step 5 In the Update Device page that appears, click **Configure Unified CM**.

Step 6 Enter the necessary field information for the Call Processor (for explanations of the fields, see Table 3-3).

Step 7 Click **Save**.

Configuring a Cisco Unified Communications Manager Express Call Processor

This section describes the procedure for configuring a Call Processor based on Cisco Unified Communications Manager Express. After the device is configured, it will appear as a Call Processor in Provisioning.

Step 1 Choose **Design > Set Up Devices > Devices**.

Step 2 In the Device Configuration page, click **View Device**.

Step 3 In the search page, click the desired Cisco Unified Communications Manager Express device from the listing of processors available.

Step 4 In the View Device page, click **Update**.

Step 5 In the Update Device page that appears, click **Configure Unified CME**.

Step 6 Enter the version for the Cisco Unified Communications Manager Express device and click **Save.**

Changing Call Processor Information

After a Call Processor is created and configured, you can view its information and make changes to its configuration.

Note Once a Call Processor is created and synchronized, do not change the type of device for the processor. For example, if you create a Call Processor for Cisco Unified Communications Manager, do not change the Call Processor type to Cisco Unified Communications Manager Express.

Step 1 Choose **Design > Set Up Devices > Device Setup > Call Processors**.

Step 2 In the Call Processor Configuration page, click **View Call Processor**.

Step 3 In the search page, select the Call Processor that you require.

Step 4 In the Options pane, click **Update**.

Step 5 In the Update Call Processor page that appears, edit the fields as required and click **Save** (For explanations of the fields, see Table 3-3.)

Synchronizing Call Processors

To synchronize a Call Processor, you synchronize the infrastructure and subscribers. The infrastructure data are the configurations that are required to exist on Call Processor before Provisioning can configure subscriber services.

You use the infrastructure synchronization to synchronize the infrastructure data with the Call Processor infrastructure data. The infrastructure synchronization retrieves Call Processor information that is used across multiple subscribers.

Note The infrastructure and subscriber synchronization process is a one-directional process. Provisioning only gets data from the device, it does not push data to the device. For a list of the objects that Provisioning obtains the information for, see Cisco Unified Communications Manager Objects that Are Synchronized, page 3-11.

You can execute the synchronizations independently and in any order. However, to preserve the integrity of the data, it is recommended that you run the synchronizations consecutively, and in the following order:

1. Infrastructure synchronization.
2. Subscriber synchronization.

Note After a new Provisioning installation, run an infrastructure and a subscriber synchronization before performing any other tasks. You should not run more than one synchronization at a time (Processor or Domain synchronization). Run all synchronizations sequentially.

Step 1 Choose **Design > Set Up Devices > Devices Setup > Call Processors**.

Step 2 In the Call Processor Configuration page, click **View Call Processor**.

Step 3 In the search page that appears, select the Call Processor that you require from the listing of Call Processors available.

Note If the Call Processor was synchronized previously, the details are displayed in the Synchronization section.

Step 4 In the Options pane, click **Synchronize**.

Step 5 You can run an infrastructure or subscriber synchronization. Click **Start** under the synchronization that you desire.

After the synchronization has completed, the Synchronization section displays the synchronization information.

Step 6 Click **Done**.

After the Call Processor synchronization completes, a log is created, listing the objects that could not be assigned. It also shows a warning message if an unknown element is received from the Call Processor. This log is replaced each time a Call Processor synchronization occurs.

Note If you see the warning message "Skipped unexpected element," you can ignore it. The message indicates that Provisioning does not support the item that was sent back from Cisco Unified Communications Manager.

Step 7 In the right pane, click **View Detailed Synchronization Log**.

The View Detailed Synchronization Log link appears only if a warning or error occurs during synchronization. If there are no warnings or errors, it will not appear.

If the status of an infrastructure or subscriber synchronization does not change for an extended period of time, verify that the Nice service is running. If the Nice service is stopped, restart the service and restart the infrastructure or subscriber synchronization.

If you wish to manage the Analog Phones, you have to update the ipt.properties file. In this file, update the dfc.ipt.cisco.callmanager.analog_phone_support to Y and then do the subscriber synchronization. Please restart the Provisioning.

Cisco Unified Communications Manager Objects that Are Synchronized

Table 3-4 and Table 3-5 list the Cisco Unified Communications Manager objects that are synchronized during an infrastructure and subscriber synchronization in Provisioning.

Table 3-4 Cisco Unified Communications Manager Objects Synchronized During an Infrastructure Synchronization

• AAR Group	• Meet-Me Number/Pattern
• Call Park	• Message Waiting
• Calling Search Space	• MOH Audio Source
• Unified CM Group	• Phone Profile
• Call Pickup Group	• Phone Template
• Common Device Config	• Presence Group
• Conference Bridge	• Region
• Date Time Setting	• Remote Destination Profile
• Device Pool	• Resource Priority Namespace List
• Device Profile	• Route Filter
• Dial Plan	• Route Group
• Dial Plan Tag	• Route List
• Digit Discard Instruction	• Route Partition
• Enable Password Router	• Route Pattern
• Gatekeeper	• SIP Trunk
• Geo Location	• SIP Profile
• Geo Location Filter	• Softkey Template
• Hunt Group	• SRST
• Hunt List	• Translation Pattern
• Hunt Pilot	• UC Service Profile
• H323 Gateway	• VG202
• H323 Trunk	• VG204
• Line Group	• VG224
• Location	• VGVoicemail Pilot
• Media Resource Group	• Voicemail Port
• Media Resource List	• Voicemail Profile

Table 3-5 Cisco Unified Communications Manager Objects Synchronized During a Subscriber Synchronization

• Calling Search Space • Device Pool • Directory Number • IP Phone • License Capabilities	• Line • Location • Phone • Remote Destination Profile • Remote Destination Profile Line • User

Troubleshooting Synchronization

If you encounter problems when synchronizing Call Processors, you can troubleshoot synchronization.

The Call Processor Configuration page lists items that could not be synchronized from the Cisco Unified Communications Manager device. For example, on the page, you might see the following message:

```
Completed. But the following objects could not be synchronized: [SecurityProfile,
DialPlanTag, SIPTrunk, PhoneTemplate, DigitDiscardInstruction]
```

Incomplete synchronization can occur because of the following:

- Network problems that did not allow the items to be properly synchronized. To determine if this is the cause, analyze the nice.log file. A network problem might be the cause if the file displays the following information:

  ```
  java.security.PrivilegedActionException:com.sun.xml.messaging.saaj.SOAPExceptionImpl:M
  essage send failed.
  ```

- Configuration issues with the items. In this case, copy the nice.log file and contact the Cisco Technical Assistance Center (TAC).

Scheduling Synchronization

Provisioning provides a command line script utility that can be used to schedule periodic processor and Domain synchronizations. The synchronization script enables you to regularly schedule a subset of the synchronization operations at different periodic intervals and across multiple time zones. You should use the sync.sh file available in the /opt/cupm/sep/build/bin/ folder.

Deleting a Call Processor

Before a Call Processor can be deleted, the following conditions must be met:

- No active released orders, including unrecoverable or recoverable errors.
- No active batch projects.
- No synchronizations in progress.
- No associated Unified Presence Processors.

If these conditions are not met, a message appears on the page when you attempt to delete a Call Processor, telling you the operation will not start. The system must be in maintenance mode before the delete option is available.

While the Call Processor deletion is in progress, avoid performing any activities until the deletion is complete.

Note To completely remove a device from Provisioning, you must delete it through the Device Configuration page. If you just delete the existing Call Processor from Provisioning, only the capability is removed (see Deleting Devices, page 3-5).

Step 1 Put Provisioning in maintenance mode (see Maintenance Mode, page 2-8).

Step 2 Choose **Design > Set Up Devices > Call Processor**.

Step 3 In the Call Processor Configuration page, click **View Call Processor**.

Step 4 In the search page, select the Call Processor that you require.

Step 5 In the Options pane, click **Delete Call Processor**.

Note The system must be in maintenance mode for the Delete command to appear in the Options pane.

Step 6 In the confirmation dialog box that appears, click **OK** to confirm deletion. The Call Processor deletion begins, with a progress bar displaying the status of the deletion in the Options pane.

Setting Throttling Values for Cisco Unified Communications Managers

The throttling setting values in Provisioning must be equal to or less than the values set in Cisco Unified Communications Manager. If you change the throttling settings in Cisco Unified Communications Manager, you must also change the same settings in Provisioning.

The throttling settings in Provisioning are set in the ipt.properties file (located at /opt/cupm/sep folder).

Note If you accepted the default location during installation, the installation directory is /opt/cupm.

The following properties (in the ipt.properties file) are used to control the write request sent to Cisco Unified Communications Manager:

- dfc.ipt.axl.soap.MaxAXLWritesPerMinute: 20

  This property specifies the default number of write requests per minute. Its value is used if there is no version or device specific value specified.

- dfc.ipt.axl.soap.MaxAXLWritesPerMinute.ccm501: 50

  This property specifies the number of write requests per minute for Cisco Unified Communications Manager version 5.0(1). Its value is used if there is no device specific value specified.

- dfc.ipt.axl.soap.MaxAXLWritesPerMinute.<IP address>: 20

  This property specifies the number of write requests per minute for a specific Cisco Unified Communications Manager indicated by the IP address.

  For example, dfc.ipt.axl.soap.MaxAXLWritesPerMinute.1.2.3.4: 20 sets the value to 20 for Cisco Unified Communications Manager with the IP address of 1.2.3.4.

Configuring Unified Message Processors

After a device is added to Provisioning, to complete the set up of the device, it must be configured to Provisioning.

Table 3-6 describes the fields for configuring a Unified Message Processor.

Note The fields that are displayed in the Configure a New Unified Message Processor page depend on the device type and version that you select. Not all fields will appear.

Table 3-6 Unified Message Processor Fields

Field	Description
Name	Unified Message Processor name. Valid values are space, alphanumeric characters (A-Z, a-z, 0-9), underscore (_), hyphen (-), period (.), and at sign (@).
Type	The type of Cisco Unity device (Cisco Unity, Cisco Unity Connection, or Cisco Unity Express).
IP Address	Cisco Unity, Cisco Unity Connection, or IOS Router IP Address (where Cisco Unity Express is installed).
Device Type	The type of hardware that the application is installed on. Either a Media Server or a Cisco Router.
Version	The version of the device.
LDAP Directory Integration **Note** This option is available only for Cisco Unity Connection.	Specifies whether Cisco Unity Connection is integrated with an external LDAP. If you select Yes, while provisioning voicemail account, Provisioning will search the LDAP users list in Cisco Unity Connection. If the user name is found in the list, it will import the user details and provision a voicemail account. If you select No, Provisioning will not search the LDAP users list and will follow the normal process for provisioning voicemail account.
Username	This field is case sensitive. The username supplied in this field should match the following: • Cisco Unity—Database password. • Cisco Unity Connection—Any user with Cisco Unity Connection administrator privileges. • Cisco Unity Express—Username of the router where Cisco Unity Express is installed.
Password (and confirm)	This field is case sensitive. The password supplied in this field should match the following: • Cisco Unity—Database password. • Cisco Unity Connection—Administrator password. • Cisco Unity Express—Password for the router where Cisco Unity Express is installed.

Table 3-6 Unified Message Processor Fields (continued)

Field	Description
Create by Import	Indicates whether a new account should be created on an Exchange server for new voicemail accounts created in Cisco Unity. If selected, creating user accounts on the Exchange server is prevented. User accounts are associated only if they already exist on the Exchange server.
Port	Port used for connecting to the Cisco Unity database.
Protocol	Protocol used to connect to the device.
Enable Password (and confirm)	Enable password for the router where Cisco Unity Express is installed.
Capability/Application	The capability of the device or the application installed on the device.
(Optional) CUE Line User Name	Username for the Cisco Unity Express module.
(Optional) CUE Line Password (and confirm)	Password for the Cisco Unity Express module.
Service Engine Interface Number	The interface number of the Cisco Unity Express service engine on the router.

Configuring a Cisco Unity Unified Message Processor

This section describes the procedure for configuring a Unified Message Processor based on Cisco Unity. After the device is configured, it will appear as a Unified Message Processor in Provisioning.

Step 1 Choose **Design > Set Up Devices > Devices Setup**.

Step 2 In the Device Configuration page, click **View Device**.

Step 3 In the search page, click the desired Cisco Unity device.

Step 4 In the View Device page, click **Update**.

Step 5 In the Update Device page that appears, click the **Configure Unity** link.

Step 6 Enter necessary information in the field provided (for explanations of the fields, see Table 3-6).

Step 7 Click **Save**.

Configuring a Cisco Unity Connection Unified Message Processor

This section describes the procedure for configuring a Unified Message Processor based on Cisco Unity Connection. After the device is configured, it will appear as a Unified Message Processor in Provisioning.

Step 1 Choose **Design > Set Up Devices > Devices Setup**.

Step 2 In the Device Configuration page, click **View Device**.

Step 3 In the search page, click the desired Cisco Unity Connection device.

Step 4 In the View Device page, click **Update**.

Step 5 In the Update Device page, click the **Configure Unity Connection** link.

Step 6 Enter the necessary field information (for explanations of the fields, see Table 3-6).

Step 7 Click **Save**.

Configuring a Cisco Unity Express Unified Message Processor

This section describes the procedure for configuring a Unified Message Processor based on Cisco Unity Express. After the device is configured, it will appear as a Unified Message Processor in Provisioning.

Step 1 Choose **Design > Set Up Devices > Devices Setup**.

Step 2 Click **View Device**.

Step 3 In the search page, click the desired Cisco Unity Express device.

Step 4 In the View Device page, click **Update**.

Step 5 In the Update Device page, click the **Configure Unity Express** link.

Step 6 In the Configure a New Unified Message Processor page, enter the necessary field information (for explanations of the fields, see Table 3-6).

Step 7 Click **Save**.

Changing Unified Message Processor Information

After a Unified Message Processor is created and configured, you can view its information and make changes to its configuration.

Note Once a Unified Message Processor is created and synchronized, do not change the type of device for the Unified Message Processor. For example, if you create a Unified Message Processor for a Cisco Unity, do not change the Unified Message Processor type to a Cisco Unity Connection.

Step 1 Choose **Design > Set Up Devices > Unified Message Processor**.

Step 2 In the Configure a Unified Message Processor page, click **View Unified Message Processors**.

Step 3 In the search page, select the Unified Message Processor that you require.

Step 4 In the Options pane, click **Update**.

Step 5 In the Update Unified Message Processor page, edit the fields as required. (For explanations of the fields, see Table 3-6.)

Step 6 Click **Save**.

Synchronizing Unified Message Processors

To synchronize a Unified Message Processor, you synchronize the infrastructure and subscribers. The infrastructure data are the configurations that are required to exist on Unified Message Processors before Provisioning can configure subscriber services.

You use the infrastructure synchronization to synchronize the unified messaging infrastructure data in Provisioning with the Unified Message Processor.

Note The infrastructure and subscriber synchronization process is a one-directional process. Provisioning only gets data from the device, it does not push data to the device.

The infrastructure data consists of the following:

- SubscriberTemplate—A Subscriber Template in Cisco Unity, Cisco Unity Connection, and the email message processor.
- UnifiedMessagingFeatureSpecification—A class of service in Cisco Unity, Cisco Unity Connection, and the email message processor.

You use the subscriber synchronization to synchronize the unified messaging subscriber data in Provisioning with the Unified Message Processor.

The subscriber data consists of the following:

- UMInfo—A subscriber in Cisco Unity, Cisco Unity Connection, and Cisco Unity Express in conjunction with their subscriber's voicemail and email information.
- VoiceMailInfo—A subscriber in Cisco Unity, Cisco Unity Connection, and Cisco Unity Express in conjunction with UMInfo and EmailInfo.
- EmailInfo—A subscriber in Cisco Unity and Cisco Unity Connection in conjunction with VoiceMailInfo and UMInfo.

To preserve the integrity of the data, it is recommended that you run the synchronizations together, and in the following order:

1. Infrastructure synchronization.
2. Subscriber synchronization.

Note After a new Provisioning installation, the infrastructure synchronization must be executed first. You should not run more than one synchronization at a time (Processor or Domain synchronization). Run all synchronizations sequentially.

Step 1 Choose **Design > Set Up Devices > Unified Message Processor**.

Step 2 In the Unified Message Processor Configuration page, click **View Unified Message Processor**.

Step 3 In the search page, select the Unified Message Processor that you require.

The View Unified Message Processor page appears. If the Unified Message Processor was synchronized previously, the details will be displayed in the Synchronization sections.

Step 4 In the Options pane, click **Synchronize**.

Step 5 You can run an infrastructure or subscriber synchronization.

Step 6 Click **Start** under the synchronization that you desire.

After the synchronization has completed, the Synchronization section displays the synchronization information.

Note If during the synchronization of Cisco Unity Express you encounter device connection errors, close all Telnet sessions on the Cisco Unity Express system and restart the synchronization. Cisco Unity Express only allows one Telnet session at a time. Provisioning cannot synchronize with a Cisco Unity Express device that has another telnet session open.

Step 7 Click **Done**.

After the Unified Message Processor synchronization completes, a log is created, listing the objects that could not be assigned. It also shows a warning message if an unknown element is received from the Unified Message Processor. This log is replaced each time a Unified Message Processor synchronization occurs.

Step 8 In the right pane, click **View Detailed Synchronization Log**.

The log appears. The View Detailed Synchronization Log link appears only if a warning or error occurs during synchronization. If there are no warnings or errors, it will not appear.

Note If you see the warning message "Skipped unexpected element," you can ignore it. The message indicates that Provisioning does not support the item that was sent back from Cisco Unified Communications Manager.

Deleting a Unified Message Processor

Before a Unified Message processor can be deleted, the following conditions must be met:

- No active released orders, including unrecoverable or recoverable errors.
- No active batch projects.
- No synchronizations in progress.

If these conditions are not met, a message appears on the page when you attempt to delete a Unified Message Processor, telling you the operation will not start. The system must be in maintenance mode before the delete option is available.

While the Unified Message Processor deletion is in progress, avoid performing any activities until the deletion is complete.

Note To completely remove a device from Provisioning, you must delete it through the Device Configuration page. If you just delete the existing Unified Message Processor from Provisioning, only the capability is removed (see Deleting Devices, page 3-5).

Step 1 Put Provisioning in maintenance mode (see Maintenance Mode, page 2-8).

Step 2 Choose **Design > Set Up Devices > Unified Message Processor**.

Step 3 In the Unified Message Processor Configuration page, click **View Unified Message Processor**.

Step 4 In the search page, select the Unified Message Processor that you require.

Step 5 In the Options pane, click **Delete Unified Message Processor**.

Note The system must be in maintenance mode for the Delete command to appear in the Options pane.

Step 6 In the confirmation box, Click **OK** to confirm the Unified Message processor deletion.

The Unified Message processor deletion begins, with a progress bar displaying the status of the deletion in the Options pane.

Configuring Unified Presence Processors

Table 3-7 describes the fields for configuring a Unified Presence Processor.

Note The fields that are displayed in the Configure a New Presence Processor page depend on the device type and version that you select. Not all fields will appear.

Configuring a Cisco Unified Presence Processor

Table 3-7 Unified Presence Processor Fields

Field	Description
Name	Unified Presence Processor name. Valid values are space, alphanumeric characters (A-Z, a-z, 0-9), underscore (_), hyphen (-), period (.), and at sign (@).
Device Name	Name of the associated device.
Associated CUCM Name	Name of the associated Cisco Unified Communications Manager.
IP Address	IP address of the Cisco Unified Presence Processor.
Type	Type of the device. You cannot edit this field.
Version	Unified Presence Processor version number.
Device Protocol	Protocol used to communicate with the device.
User Name	Username based on the protocol selected.
Password (and confirm)	Password for the Cisco Unified Presence username.

This section describes the procedure for configuring a Unified Presence Processor based on Cisco Unified Presence. After the device is configured, it will appear as a Unified Presence Processor in Provisioning.

Step 1 Choose **Design > Set Up Devices > Devices Setup**.

Step 2 In the Device Configuration page, click **View Device**.

Step 3 In the search page, click the desired Cisco Unified Presence device.

Step 4 In the Options pane, click **Update**.

Step 5 In the Update Device page, click **Configure Unified Presence**.

Step 6 Enter the necessary field information for the Unified Presence Processor (for explanations of the fields, see Table 3-7)

Step 7 Click **Save**.

Changing Unified Presence Processor Information

After a Unified Presence Processor is created and configured, you can view its information and make changes to its configuration.

Note Once a Unified Presence Processor is created and synchronized, do not change the type of device for the processor.

Step 1 Choose **Design > Set Up Devices > Unified Presence Processor**.

Step 2 In the Presence Processor Configuration page, click **View Presence Processor**.

Step 3 In the search page, select the Unified Presence Processor that you require.

Step 4 In the Options pane, click **Update**.

appears.

Step 5 In the Update Presence Processor page, edit the fields as required. (For explanations of the fields, see Table 3-3.)

Step 6 Click **Save**.

Synchronizing Unified Presence Processors

Use the Infrastructure synchronization to synchronize the User Settings Infrastructure data in Provisioning with the Unified Presence Processor.

Note Add Cisco Unified Communications Manager, integrated with Unified Presence Processor to Provisioning before running the synchronization.

The infrastructure synchronization process is a one-directional process. Provisioning only gets data from the device; it does not push data to the device.

You should not run more than one synchronization at a time (Processor or Domain synchronization).

To perform Infrastructure sychronization:

Step 1 Choose **Design > Set Up Devices > Unified Presence Processor**.

Step 2 In the Presence Processor Configuration page, click **View Presence Processor**.

Step 3 Select the Unified Presence Processor that you require.

The View Presence Processor page appears. If the Unified Presence Processor was synchronized previously, the details will be displayed in the Synchronization section.

Step 4 In the Options pane, click **Synchronize**.

Step 5 Click **Start** to run infrastructure synchronization.

Note Subscriber synchronization will be disabled for Cisco Unified Presence 9.0 and higher.

Step 6 Click **Done**.

After the Presence Processor synchronization has completed, a log is created, listing the objects that could not be assigned.

After the Unified Presence Processor synchronization completes, a log is created, listing the objects that could not be assigned. It also shows a warning message if an unknown element is received from the Unified Presence Processor. This log is replaced each time a Unified Presence Processor synchronization occurs.

Step 7 In the right pane, click **View Detailed Synchronization Log**.

The log appears. The View Detailed Synchronization Log link appears only if a warning or error occurs during synchronization. If there are no warnings or errors, it will not appear.

Note If you see the warning message "Skipped unexpected element," you can ignore it. The message indicates that Provisioning does not support the item that was sent back from Cisco Unified Communications Manager.

Deleting a Unified Presence Processor

Before a Unified Presence Processor can be deleted, the following conditions must be met:

- No active released orders, including unrecoverable or recoverable errors.
- No active batch projects.
- No synchronizations in progress.

If these conditions are not met, a message appears on the page when you attempt to delete a Unified Presence Processor, telling you the operation will not start. The system must be in maintenance mode before the delete option is available.

While the Unified Presence Processor deletion is in progress, avoid performing any activities until the deletion is complete.

Note To completely remove a device from Provisioning, you must delete it through the Device Configuration page. If you just delete the existing Unified Presence Processor from Provisioning, only the capability is removed (see Deleting Devices, page 3-5).

Step 1 Put Provisioning in maintenance mode (see Maintenance Mode, page 2-8).

Step 2 Choose **Design > Set Up Devices > Unified Presence Processor**.

Step 3 In the Presence Processor Configuration page, click **View Presence Processor**.

Step 4 In the search page, select the Unified Presence Processor that you require.

Step 5 In the Options pane, click **Delete Presence Processor**.

Note The system must be in maintenance mode for the Delete command to appear in the Options pane.

Step 6 In the confirmation dialog box, click **OK** to confirm the deletion. The Unified Presence Processor deletion begins, with a progress bar displaying the status of the deletion in the Options pane.

Configuring Cisco IOS Routers in Provisioning

Provisioning provides support for Cisco IOS routers. Through the Generic IOS Router capability Provisioning can configure additional voice functionality on a router.

Note There are some significant differences in how a Generic IOS Router is set up in Provisioning in comparison to a Call Processor and a Unified Message Processor. Most notably, Generic IOS Routers are not synchronized and they are not associated to a Domain or a Service Area.

Changing/Testing Generic IOS Router Information

Provisioning provides support for Cisco IOS routers. Through the Generic IOS Router capability Provisioning can configure additional voice functionality on a router.

After a Generic IOS Router is added to Provisioning (see Table 3-2 describes the fields for adding a generic IOS router., page 3-4), you can view its information, make changes and test its connection. Provisioning checks the router connectivity based on the IP address and credentials provided for the router when it was added to Provisioning.

Note There are some significant differences in how a Generic IOS Router is set up in Provisioning in comparison to a Call Processor and a Unified Message Processor. Most notably, Generic IOS Routers are not synchronized and they are not associated to a Domain or a Service Area.

To update a generic IOS Router:

Step 1 Choose **Design > Set Up Devices > Devices Setup**.

Step 2 In the Device Configuration page, click **View Device**.

Step 3 In the search page, select the device that you require.

Step 4 If you want to update the information, in the Options pane, click **Update**.

Step 5 In the Update Device page, edit the fields as required. (For explanations of the fields, see Table 3-2.), and click **Save**.

Step 6 To test the router connection, click **Test Router Connection.** Provisioning tests the routers connectivity. A message appears on the page stating whether or not the test was successful.

Deleting a Generic IOS Router

To delete a Generic IOS Router, there must not be any pending orders on it.

You do not need to be in maintenance mode to delete the Generic IOS Router capability.

Note If another capability (other than Generic IOS Router) is already configured on the router, you must be in maintenance mode to remove the other capability. (For details, see Deleting a Call Processor, page 3-12, or Deleting a Unified Message Processor, page 3-18.)

This section describes the procedure for deleting a Generic IOS Router device from Provisioning.

Step 1 Choose **Design > Set Up Devices > Devices Setup**.

Step 2 In the Device Configuration page, click **View Device**.

Step 3 In the search page, select the device that you want to delete.

Step 4 In the Options pane, click **Delete Device**.

Note The system must be in maintenance mode for the Delete command to appear in the Options pane.

Step 5 In the confirmation box, click **OK** to confirm the device deletion. The device deletion begins, with a progress bar displaying the status of the deletion in the Options pane.

Configuring Provisioning to Use AAA Servers

You can configure Provisioning to use AAA servers for authentication when users log into Provisioning. Provisioning does not retrieve authorization or accounting information, and it does not write information to the AAA server.

Note Provisioning allows you to add either Lightweight Directory Access Protocol (LDAP) or Access Control Server (ACS) servers.

AAA servers are enabled on a per Domain basis. After adding a AAA server, you then assign it to a Domain. Then all the users in that Domain will be authenticated against that AAA server. If a AAA server is not associated to a Domain, all the Domain's users are authenticated locally.

Note The administrator account (globaladmin) is always authenticated locally.

When configuring Provisioning to use Cisco Secure Access Control Server, be aware of the following:

- When you click the Test Connection button, only the connectivity of the IP address is checked.
- The Shared Secret Key is used only for authentication.
- If you entered an incorrect Shared Secret Key, when you try to log into Provisioning, you will get an incorrect secret key error.
- ACS server is used only for authentication. ACS does not support synchronization with Provisioning.
- Provisioning supports only Access Control Server (ACS) 4.2.

Adding a AAA Server

Before you Begin

If you are adding an ACS server, you must go to the ACS Admin page, and in the Network Configuration tab, add the Provisioning server as a AAA client (with TACACS).

Table 3-8 describes the fields for adding a AAA server.

Note The fields that are displayed in the AAA Server Configuration page depend on the AAA server you select in the Server Type field. Not all fields will appear.

Table 3-8 AAA Server Configuration Fields

Field	Description
AAA Server Name	AAA server name.
Server Type	Type of AAA server. Either ACS or LDAP.
LDAP Server Type	Type of LDAP server. **Note** Provisioning supports only Microsoft AD 2000, 2003, and 2008.
AAA Server IP Address	IP address of the AAA server.
Server Port	Port number for the AAA server.
Backup Server IP Address	IP address of the backup AAA server.
Backup Server Port	Port number for the backup AAA server.
Admin Distinguished Name	The administrative user ID of the LDAP manager that has access rights to the LDAP directory.
Admin Password	The administrative users password (LDAP manager).
Confirm Admin Password	Reenter the administrative users password for confirmation.
LDAP User Search Base	The user search base. Provisioning searches for users under the base, CN=Users, DC=Cisco,DC=com.
Use SSL	You should check this check box if Provisioning should use Secure Socket Layer (SSL) encryption for the transmission channel between Provisioning the AAA server.
ACS Authentication Protocol	Protocol used by the ACS server for authentication.
Enable Data Encryption	Enables data encryption between Provisioning and the ACS server.

Step 1 Choose **Design > Set Up Devices > AAA Servers**.

Step 2 In the AAA Server Configuration page, click **New AAA Server**.

Step 3 Enter the required information for the AAA server (for descriptions of the fields, see Table 3-8.

Step 4 Click **Save**.

Enabling SSL Support for a AAA Server

Note SSL is supported only for LDAP servers.

To enable SSL for a AAA server, you must import the SSL certificate for the LDAP server into Provisioning. Provisioning provides a command line script to import the SSL certificate.

Step 1 Log into the server using SSH.

Step 2 Go to /opt/cupm/sep/build/bin directory.

Note If you accepted the default location during installation, the installation directory is /opt/cupm.

Step 3 At the command prompt, run the following command:

```
./ImportSSLCertificate.sh <operation> <alias> [path]
```

Following are descriptions for the fields:

- operation—The action that the command is performing. You can enter either *import* or *delete*.
- alias—The string under which the certificate will be stored in the Provisioning key store.
- path—The path where the certificate is stored (for example, /opt/cupm/servercert.cer). This is required only if you are importing a certificate.

Step 4 Restart Provisioning.

Step 5 Go to the AAA Server Configuration page and check the Use SSL check box.

Note To delete an SSL certificate in Provisioning, run the same script, making sure to enter *delete* for the operation.

Changing AAA Server Information

After a AAA server is added, you can update its information.

Step 1 Choose **Design > Set Up Devices > AAA Servers**.

Step 2 In the AAA Server Configuration page, click **View AAA Server**.

Step 3 Select the AAA Server that you require.

Step 4 In the Options pane, click **Update**.

Step 5 In the Update a AAA Server page, edit the fields as required. (For explanations of the fields, see Adding a AAA Server, page 3-25.)

Step 6 Click **Save**.

Deleting a AAA Server

Before deleting a AAA server, make sure it is not assigned to a Domain.

Step 1 Put Provisioning in maintenance mode (see Maintenance Mode, page 2-8).

Step 2 Choose **Design > Set Up Devices > AAA Servers**.

Step 3 In the AAA Server Configuration page, click **View AAA Server**.

Step 4 Select the AAA Server that you require.

Step 5 In the Options pane, click **Delete AAA Server**.

Note The system must be in maintenance mode for the Delete command to appear in the Options pane.

Step 6 In the confirmation dialog box, click **OK** to confirm the deletion. The AAA Server deletion begins, with a progress bar displaying the status of the deletion in the Options pane.

Testing the Connection to a AAA Server

After a AAA server is added to Provisioning, you can test the connection to the server at any time.

Note When a AAA server is added, a test of the connection to both the main and the backup AAA server is automatically performed.

Step 1 Choose **Design > Set Up Devices > AAA Servers**.

Step 2 In the AAA Server Configuration page, click **View AAA Server**.

Step 3 Select the AAA Server that you require.

Step 4 In the Options pane, click **Test Connection**. A message appears, stating whether or not the test was successful.