Managing Inventory

This section describes how to use Prime Central to manage inventory. It contains the following topics:

What Is Inventory Management?

Managing inventory involves maintaining a record of all of devices installed in the network to support the provisioning of services. It also includes collecting information about the device name, type, operational status, IP address, and so on.

Inventory management is one of the fundamental network management functions. When forecasting service growth or even attempting to provision a new service, it is necessary to know the current network inventory. Can the existing inventory support the forecast growth or new service requests, or must additional equipment be ordered and installed onsite? Can your hardware support a new software release? You will need to check the type and revision of hardware to determine the answer. Has a recall been issued by the vendor for a certain hardware revision of a board? Are you affected? You will need to check the inventory again.

Prime Central can quickly capture, display, and store an inventory of the devices in your network. Prime Central remains automatically synchronized with changes relating to inventory that might occur in the network. All inventory information is stored in the Prime Central database and is available at any time.

Prime Central provides different levels of inventory reports:

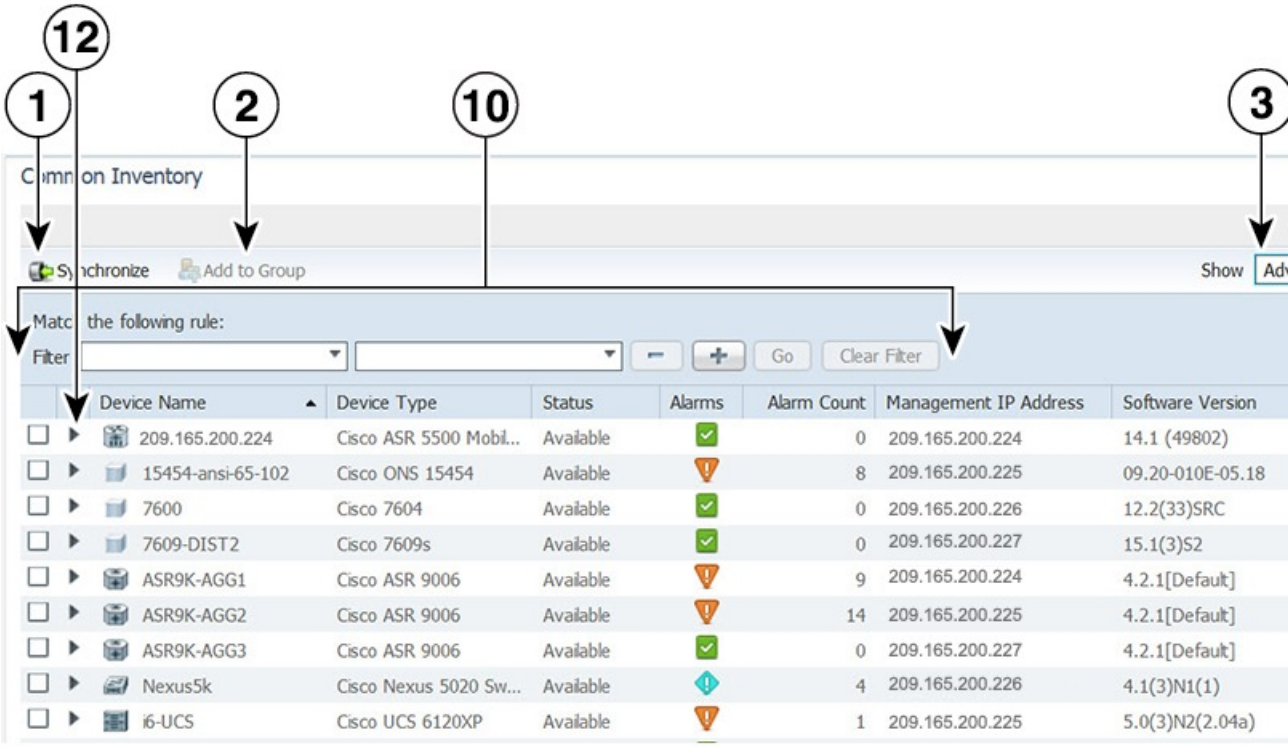
- A complete list of all devices in the network. See Retrieving Common Inventory Data.
- A detailed list of slots, subslots, cards, and modules installed on the devices. See Retrieving Physical Inventory Data.

Common Inventory Portlet

The following figure shows the Common Inventory portlet, where you can view and manage the devices. Device inventory retrieval involves retrieving device and node information from Prime Network, Prime Optical, and Prime Performance Manager.

The Common Inventory portlet does not display device information for Prime Provisioning.

Figure 1: Common Inventory Portlet



1	Synchronize icon	7	Export icon
2	Add to Group icon	8	Settings icon
3	Show drop-down list	9	Filter icon
4	Number of selected table rows	10	Filter parameters area
5	Total table rows	11	Properties pane
6	Refresh icon, with last updated time stamp	12	Expand icon

Retrieving Common Inventory Data

Procedure

Step 1 From the Prime Central menu, choose **Inventory** > **Common Inventory** > **Devices**. The Common Inventory portlet opens. For a description of the information provided here, see Common Inventory Properties Pane.

Note When an application goes down, its inventory data can get out of sync with the network. To ensure that you are viewing the latest inventory data, we recommended that you perform an on-demand synchronization of user device scopes and inventory. Complete the procedure described in the Synchronizing Inventory Data topic, selecting the **Synchronize only data received since last synchronization** radio button. We also recommend that you do this after completing the upgrade to Prime Central 1.5.3.

Step 2 (Optional) Use the Filter icon to view only those devices that are of interest to you. See Filtering and Searching.

Retrieving Common Inventory Data

Procedure

Step 1 From the Prime Central menu, choose **Inventory** > **Common Inventory** > **Devices**. The Common Inventory portlet opens. For a description of the information provided here, see Common Inventory Properties Pane.

Note When an application goes down, its inventory data can get out of sync with the network. To ensure that you are viewing the latest inventory data, we recommended that you perform an on-demand synchronization of user device scopes and inventory. Complete the procedure described in the Synchronizing Inventory Data topic, selecting the **Synchronize only data received since last synchronization** radio button. We also recommend that you do this after completing the upgrade to Prime Central 1.5.3.

Step 2 (Optional) Use the Filter icon to view only those devices that are of interest to you. See Filtering and Searching.

Common Inventory Properties Pane

The following table describes the information provided in the properties pane of the Common Inventory portlet for the devices in your network.

Table 1: Common Inventory Properties Pane

Field	Description
ID	Numerical identifier assigned to the device. By default, this field is not displayed. For instructions on how to enable it, see Adding or Removing Columns in a Portlet.
Device Name	Icon representing the device, followed by the device name. When the same device is managed by multiple instances of Prime Network, the device name must be unique across all the instances of Prime Network. **Note** When a device name is changed in Prime Network or Prime Optical, the Common Inventory portlet might show two devices with the new and old names. After ten days, a scheduled job deletes the device with the old name.

Field	Description
Device Type	Type of device. **Note** If a CPT device is discovered by both Prime Network and Prime Optical, Prime Optical takes precedence; the Common Inventory portlet reports the physical device details from Prime Optical.
Status	Communication state of the device: • Available—The device is reachable and supported by Prime Central. • Unavailable—Prime Central cannot establish a connection to the device.
Alarms	Highest severity alarm on the selected device. **Note** To view all alarms on the selected device, click the **Expand** icon to the left of the device name.
Alarm Count	Total number of alarms on the selected device.
Management IP Address	IPv4 or IPv6 address of the selected device. **Note** The Quick Filter supports a percentage character (%) as a wildcard in the Management IP Address field. Other fields do not use % as a wildcard. To search on complete octets in this field, the % character is not required. Instead, enter a period; the search returns the complete octet after the period.
Software Version	Version of software that is running on the selected device.
System Name	System name or hostname of the selected device, as defined in the device's MIB.
Vendor	Device vendor name.

Synchronizing Inventory Data

Administrators can perform an on-demand synchronization of user device scopes and inventory.

Procedure

Step 1 From the Prime Central menu, choose **Inventory** > **Common Inventory** > **Devices**. The Common Inventory portlet opens.

Step 2 Click the **Synchronize** icon.

Note Only administrators can see the Synchronize icon, which is hidden for all other users.

Step 3 In the Synchronize dialog box, do the following:

a) Click the appropriate radio button:

- Scopes—Lets you synchronize device scopes for all Prime Central users. The time stamp of the last synchronization is displayed.
- Scopes and Inventory—Lets you synchronize device scopes and inventory. You can synchronize only the data that was received since the last synchronization, or you can synchronize all data. The time stamp of the last synchronization is displayed.

b) Click the **Sync Now** button.

The job status shows "Synchronizing..." until it completes and displays the time stamp of the last synchronization.

Note While a device scope synchronization is taking place:

- The Scopes radio button is grayed out and not available for selection.
- You can select the Scopes and Inventory radio button to synchronize inventory data.

Step 4 In the Common Inventory portlet, click the **Refresh** icon. The synchronized data is displayed.

Note During the sync of large number of devices (for example, more than 5000 devices), inventory may become slow. To overcome this situation, manually perform database optimization tasks called as gatherstats which helps to improve the performance of the inventory sync. This is applicable only when you encounter slowness during inventory sync for the first time. To do gatherstats on database, perform the following:

1. Login as primeusr on linux
2. Navigate to <Install Directory>/install/scripts
3. Run gather_stats.sh

Retrieving Physical Inventory Data

Physical inventory retrieval involves retrieving information about tangible device and node assets, such as chassis, shelf, module, and port information.

Procedure

Step 1 From the Prime Central menu, choose **Inventory** > **Common Inventory** > **Devices**.

The Common Inventory portlet opens.

Step 2 To the left of the device name, click the **Expand** icon to view a detailed dashboard for that device (see the following figure).

Step 3 Expand the chassis to view the physical inventory of the subtending equipment: blades, slots, subslots, cards, and so on.

Note When you click a slot, the Common Inventory portlet shows the information described in Regular Device Attributes for Equipment Holders and Equipment.

Figure 2: Device Dashboard Window

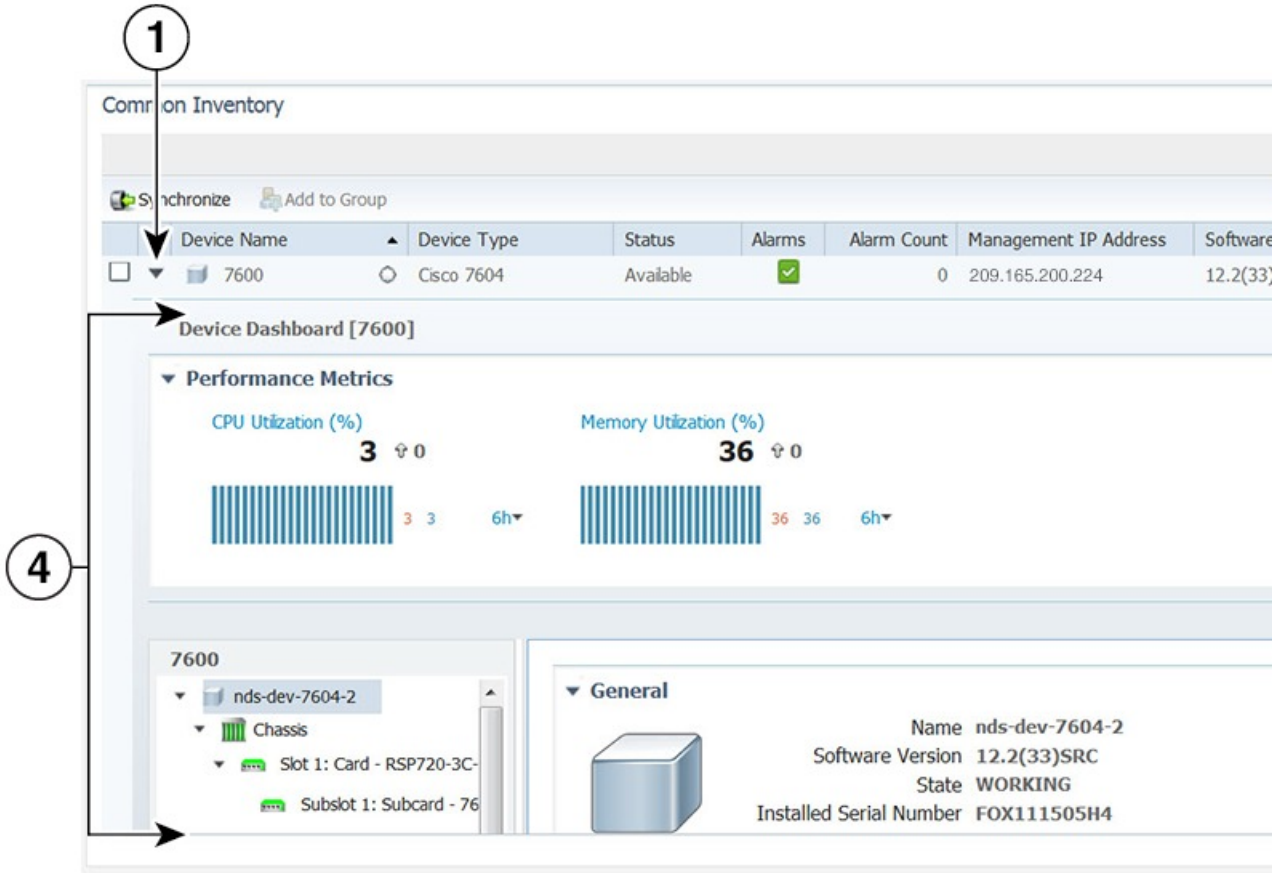


Figure 3: Retrieving Physical Inventory Window

1	Expand icon	3	Icon to cross-launch Prime Performance Manager
2	Icon to cross-launch Prime Network	4	Device dashboard

Regular Device Attributes for Equipment Holders and Equipment

The following table lists the regular device attributes for equipment holders and equipment.

Equipment Holder Attributes	Equipment Attributes
Operational Status	Description
Hardware Type	Installed Serial Number
Model Type	Installed Version
Location	Protection Role

Equipment Holder Attributes	Equipment Attributes
—	Protection Scheme State
—	Resource Fulfillment State
—	Last Modified Time

Retrieving Service Inventory Data

Service Inventory retrieval involves retrieving information on services running on the selected device. All the services in Service Inventory are grouped according to Context.

Procedure

Step 1 From the Prime Central menu, choose **Inventory > Common Inventory > Devices**.
The Common Inventory portlet opens.

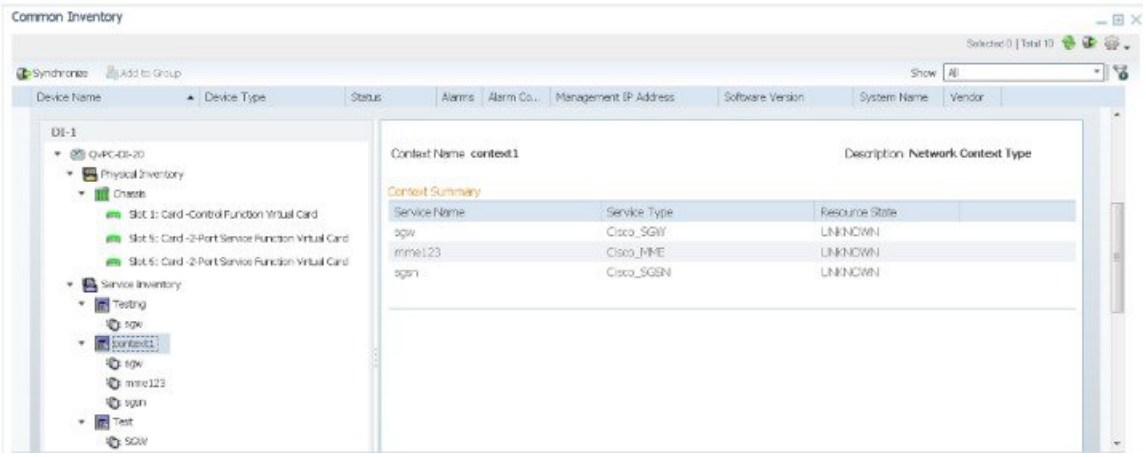
Step 2 To the left of the device name, click the **Expand** icon to view the detailed dashboard for that device (see the following figure)

Step 3 In the SI Device panel, click on the required context under **Service Inventory**.
The Context information opens in the right side panel with Context Name, Context Description and Context Summary.

Step 4 In the SI Device panel, expand the required context, to view the services grouped under it.

Step 5 Click on the required service, to view the inventory details in the right side panel: Service Name, Service Type, Resource State and Last Modified Time.

Figure 4: Retrieving Service Inventory Data Window



Cross-Launching an Application to Retrieve Inventory Details

From Prime Central, you can cross-launch Prime Network, Prime Optical, or Prime Performance Manager and retrieve detailed inventory information. Use the application to retrieve logical inventory information; for example, information about logical resources used for service activation.

Note

- You can have up to ten cross-launched application windows open simultaneously. You cannot cross-launch an eleventh application until you close one of the open windows.
- You cannot cross-launch Prime Provisioning from anywhere within the Common Inventory portlet.

Procedure

Step 1 From the Prime Central menu, choose **Inventory** > **Common Inventory** > **Devices**.

The Common Inventory portlet opens.

Step 2 To the left of the device name, click the **Expand** icon for the desired application.

Step 3 In the top-right corner of the device dashboard, click the source icon to cross-launch the application. The following table lists the source icons.

If a device is managed by multiple instances of an application, you cross-launch to the instance that has priority (as specified in the Suite Monitoring portlet; see *Prioritizing Applications Instances*).

Table 2: Source Icons

Click this source icon...	To cross-launch:
	Prime Network
	Prime Optical
	Prime Performance Manager

Performing a Contextual Cross-Launch to the Data Center Hypervisor Pane

While managing the devices in your network, you can perform a contextual cross-launch to the Data Center's Hypervisor pane and view detailed inventory information for a particular hypervisor.

Procedure

Step 1 From the Prime Central menu, choose **Inventory** > **Common Inventory** > **Devices**.

The Common Inventory portlet opens.

Step 2 To the left of the device on which a particular hypervisor resides, click the **Expand** icon to open the corresponding dashboard.

Step 3 From the object selector pane, click the name of the blade server associated with the hypervisor.

The right-hand pane updates, displaying information for that blade server.

Step 4 From the Equipment section, click the hypervisor's link.

The Hypervisor pane (Assure > Data Center > Compute > Hypervisor) opens, displaying detailed inventory information for the selected hypervisor.

Device Information in the Device 360° View

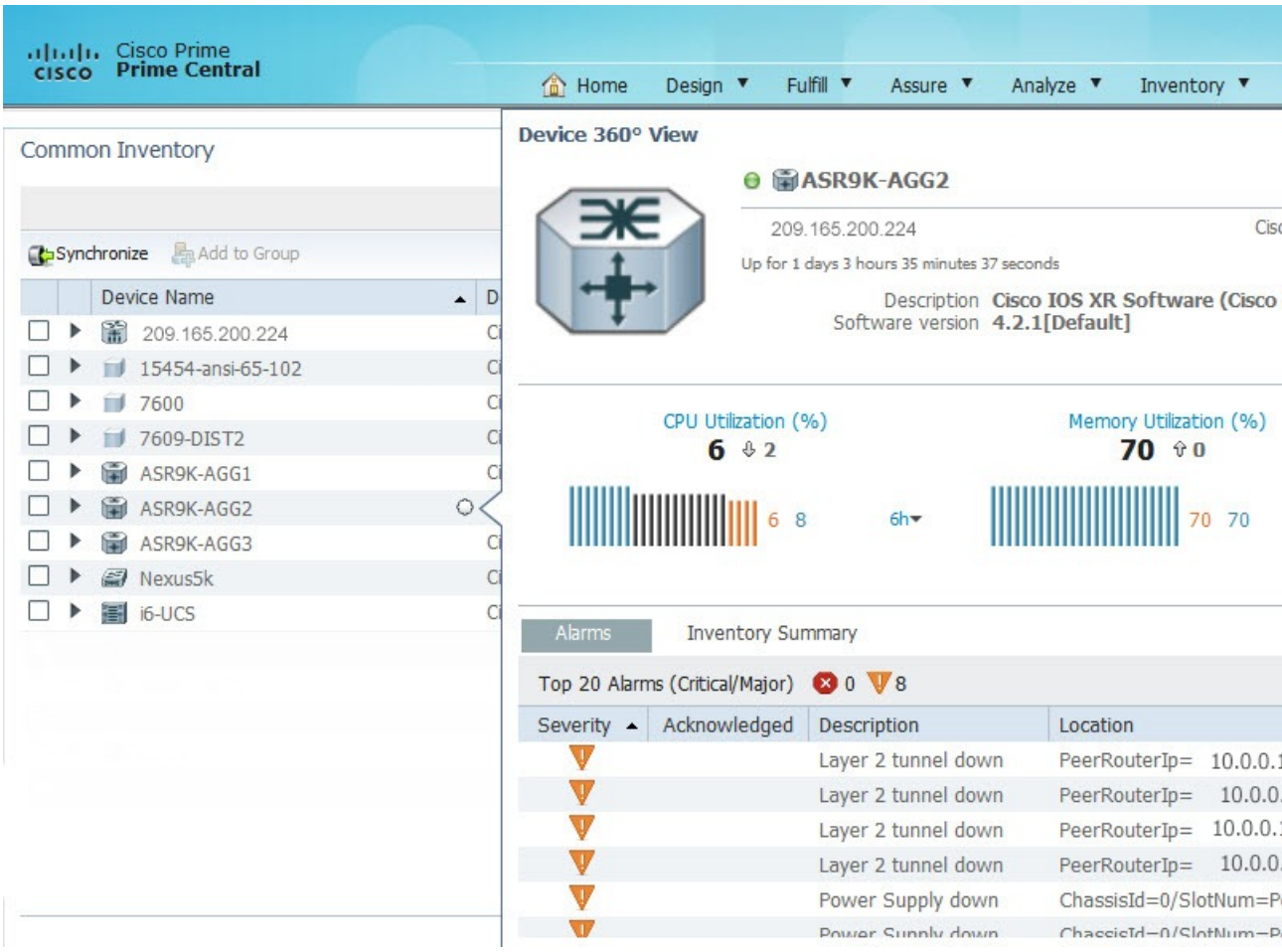
In the Common Inventory portlet, you can access additional information for a particular device by launching its 360° view . To do so, place your cursor over the device's table entry and then click the radio button in the Device Name column.

The Device 360° view (see the following figure) shows device-specific alarms from the Prime Central Fault Management database, as well as performance charts from Prime Performance Manager.

Click the Alarms or Inventory Summary tabs to see detailed alarm and inventory information. (The features that appear in the Device 360° view differ depending on the device type.)

From the Device 360° view, you can cross-launch the application that manages the device and retrieve detailed inventory information. In the top-right corner, click the source icon listed in the Table 2: Source Icons.

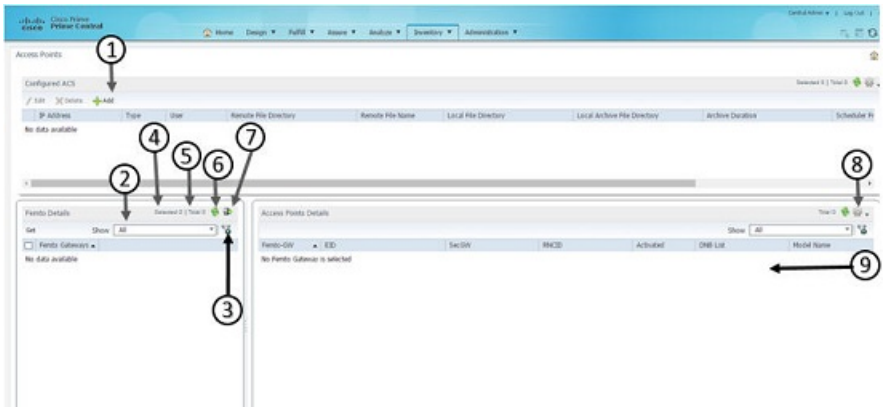
Figure 5: Device 360° View



Access Points Portlet

The Access Points portlet in Inventory helps the operator to view access points information in a Femto Gateway service. Access Points provide the capability to amplify network performance, grow revenue, and reduce costs. It combines massive performance and scale with flexibility, virtualization, and intelligence.

Figure 6: Access Points Portlet



1	Configures ACS details panel
2	Show drop-down list
3	Filter icon
4	Number of selected table rows
5	Total table rows
6	Refresh icon with last updated time stamp
7	Export icon
8	Settings icon
9	Properties pane

Access Points Details Panel

The following table describes different field information in Access Point Details panel and other Access Points related information.

Example: EID, Femto-GW, Latitude, Longitude, Class of Service, Manufacturer, DNB List.

Field	Description
Femto-GW	Used to denote both the HNB gateway and HeNB Gateway that manages different access points.
EID	Numerical identifier assigned to the Access point.
SecGW	Used to secure backhaul traffic between the Radio Access Network (RAN) and the operator core network.
RNCID	Radio Network Controller ID. RNC is responsible for controlling the Node BS that are connected to it.

Field	Description
Expected latitude	Latitude where the Access Point is located.
Expected Longitude	Longitude where the Access Point is located.
DNB list	List of the Access Point neighbors.
RF Transmitter State	Displays the state of the RF Transmitter. The state can be either True or False, else 0 or 1. **Note** The **RF Transmitter State** field is available only if the .csv file has the column name as RFTx State. For more information about the csv file format and its configuration information, see Setting up the getDeviceData Cron section.
Model Name	Model of the Access Point.
Software Version	Version of software that is running on the selected device.

Note You can add different columns in Access Points portlet, through the **Settings** button at the top right corner.

Navigating to Access Points Portlet

You can navigate to the **Access Points** portlet in Prime Central through:

- Inventory Menu
- Add Portlet button

Navigating through Inventory Menu

Procedure

Step 1 From the Prime Central menu, choose **Inventory > Common Inventory > Access Points.**
The **Access Points** Portlet appears that displays the following panels:

- **Femto Gateways**: Lists all the Access Points in the Femto Gateway Service
- **Access Point Details**: Lists Access Points information for the Access Points

Step 2 From the **Femto Gateways** panel, select the required Femto Gateway or select all.

Step 3 Click the **'>>'** button beside the **Show** option and click **Get** button.
The Access Point details for the selected Femto Gateway are displayed in the **Access Points Details** panel.

Navigating through Add Portlet button

Procedure

Step 1 From the top right corner of the Prime Central portlet, under the **logout** button, click the **Add Portlets** button.

Step 2 Choose **Cisco Prime > Access Points> Add**.
The Access Points Portlet opens.

Configuring Access Points

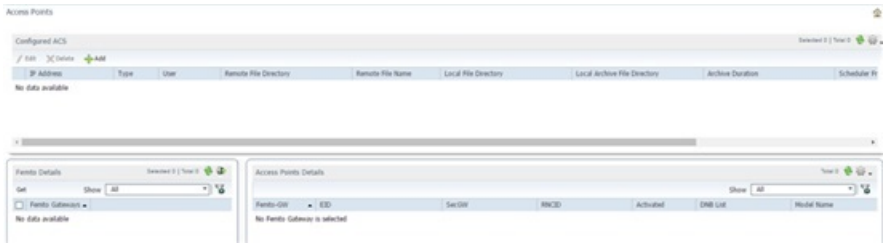
To view the list of access points available in Access Point portlet, operator should initially provide the configuration details of either RMS/ Spiderweb or Both the servers. You can add, edit or delete RMS or Spiderweb details from the Configured ACS details panel. For more information about the csv file format and its configuration information, see the Setting up the getDeviceData Cron section.

Note After saving the configuration from Configuration GUI, the configuration data is stored and scheduler is triggered based on the value of **Scheduler Frequency** time. If Scheduler Frequency time or any other value needs modification, operator needs to update and save the respective configuration fields. The scheduler will be re-triggered at the Scheduled Time.

Procedure

Step 1 From the Prime Central menu, choose **Inventory** > **Common Inventory** >**Access Points**. The Access Points portlet appears.

Figure 7: Access Points



Step 2 In the **Access Points** Portlet, on the Configured ACS details panel, click **Add** to add RMS and Spiderweb server details. The **Access Points - Configuration** window appears.

Figure 8: Access Points - Configuration

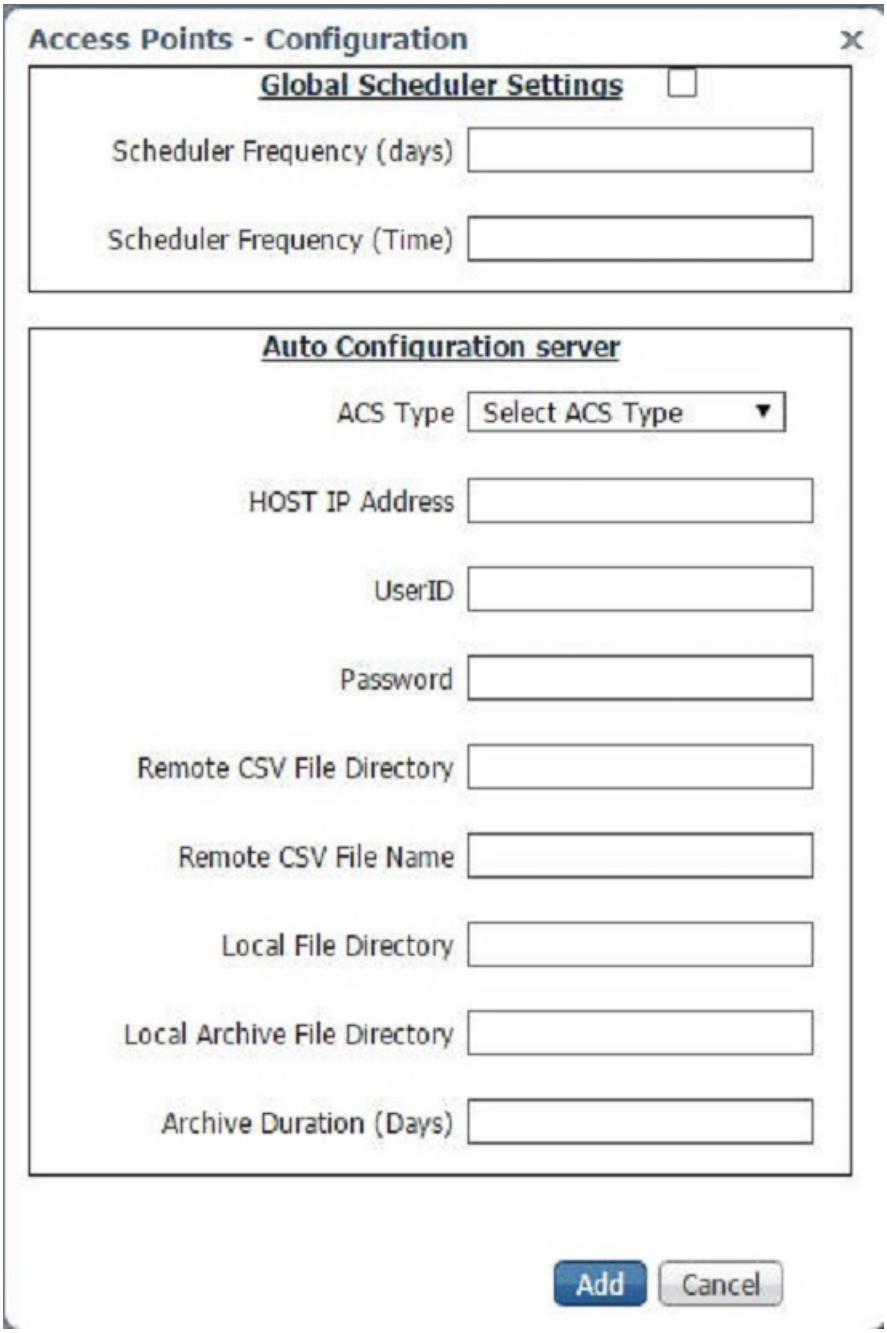


Table 3: Global Scheduler Settings

Fields	Description

Global Scheduler Settings	To modify the scheduler settings again check the **Global Scheduler Settings** check box. **Note** Global Scheduler Settings are common for all RMS or Spiderweb configurations, modifying them will affect all configured RMS or Spiderweb details.
Scheduler Frequency (days)	Enter the days at which the scheduler frequency is triggered to collect Access Points' data.
Scheduler Frequency (Time)	Enter the time at which the scheduler frequency is triggered to collect Access Points' data.

Table 4: Auto Configuration server

Fields	Description
ACS Type	From the drop-down list, choose an ACS type for which you want to enter configuration details. The options available are RMS or UCS 8050. **Note** For the selected USC 8050 ACS type, you cannot edit the **Remote CSV File Directory**, **Remote CSV File Name**, **Local File Directory**, **Local Archive File Directory**, and **Archive Duration (Days)** fields.
Host/IP Address	Enter the IP address of the host.
UserID	Enter the User ID of the Spiderweb server or RMS SFTP host.
Password	Enter the password for the Spiderweb server or RMS SFTP host. **Note** In Prime Central **1.5.2**, configured Access Control System (ACS) doesn't allow the passwords with a special character "@". You can create passwords of any combination of upper and lowercase characters, numbers, and only special characters that include “!”, “#”, “$”, “%”,“^”, “&”, “*”, “(“, and “)”.
Remote CSV File Directory	Enter the location of the CSV file on the RMS Server.
Remote CSV File Name	Enter the name of the CSV file on the RMS Server.
Local File Directory	Enter the location on the local server where the CSV file is downloaded from the RMS server.
Local Archive File Directory	Enter the location on the local server where the archived CSV file is copied to.
Archive Duration (Days)	Enter the duration after which the archived CSV file will be deleted.

Step 3 Click **Add** to add the configuration details of the access points.

Step 4 In the **Access Points** Portlet, to edit the RMS or Spiderweb server detail, select a RMS or Spiderweb server, and then click **Edit**. The **Edit** dialog box appears. Enter new values.

By default, the **Global Scheduler Settings**, **ACS Type** and **Host IP Address** fields will be disabled. To modify the scheduler Settings again, check the **Global Scheduler Settings** check box.

Step 5 Select a RMS or Spiderweb IP address that you want to delete, and then click **Delete**. Click **Yes** in the Confirmation dialog box to delete the selected RMs or Spiderweb configuration detail. If you want to delete multiple RMS or Spiderweb IP addresses select multiple instances of RMS or Spiderweb IP Addresses, and then click **Delete**.

Access Points Fault Management

Fault Management helps the operator to view and administrate issues that affect the network. Prime Central raises a BAC alarm when the CSV file download from the RMS server to the local server fails, due to reasons such as file does not exist on the RMS Server, insufficient privileges or invalid file path.

Procedure

Step 1 From the Prime Central menu, choose **Assure > Prime Central Fault Management**.

Step 2 Click **Alarm Browser**.
The Alarm browser opens that shows the BAC alarms raised while downloading the CSV file from RMS server to the local server.

Exporting Inventory Data

Prime Central allows you to export inventory data to Microsoft Excel. Opening the exported file with any program other than Excel is not recommended.

If you sort or filter the data before exporting it, the exported data is likewise sorted or filtered.

Procedure

Step 1 From the Prime Central menu, choose **Inventory** > **Common Inventory** > **Devices**.

Step 2 In the Common Inventory portlet, click the **Export to Excel** icon.

Step 3 At the prompt to open or save the Excel file, click **Open**.

Note By default, browser caching is enabled. If you disable caching, you might receive the following errors when you try to export inventory data:

```
"Browser" cannot download file from server.
"Browser" was not able to open this Internet site. The requested site is either
unavailable or cannot be found. Please try again later.
```

Step 4 Click **Yes** at the following prompt:

```
The file you are trying to open, "filename", is in a different format than specified by the
 file extension.
```

```
Verify that the file is not corrupted and is from trusted source before opening the file.
Do you want to open the file now?
```

Grouping Network Devices and Services

In the Group Management portlet (see the following figure), you can logically group network devices and services by certain criteria. This allows you to organize network elements as you see fit and quickly determine the members of a particular group when necessary.

To view the Group Management portlet, do one of the following:

- Choose **Administration** > **Group Management** > **Groups**.
- Add it to the Prime Central home page. See Adding a Portletfor instructions.

Groups are of two types:

- User Defined Groups: This group is further divided into Static and User Defined Dynamic Groups.
  - Static Groups: These groups are created under Regions and User Defined-Static Groups. Here the Network Devices are manually populated from Compute, Network, or Storage in the Data Center or from Common Inventory portlet.
  - User Defined Dynamic Groups: In this group, the Network Devices are populated into their respective groups based on certain filters given by the user.
- Prime Central Groups: They are dynamic groups in which the devices are automatically populated by Prime Central, based on the rules configured for those groups, such as Devices, Storage, Compute Services, and Network Services.

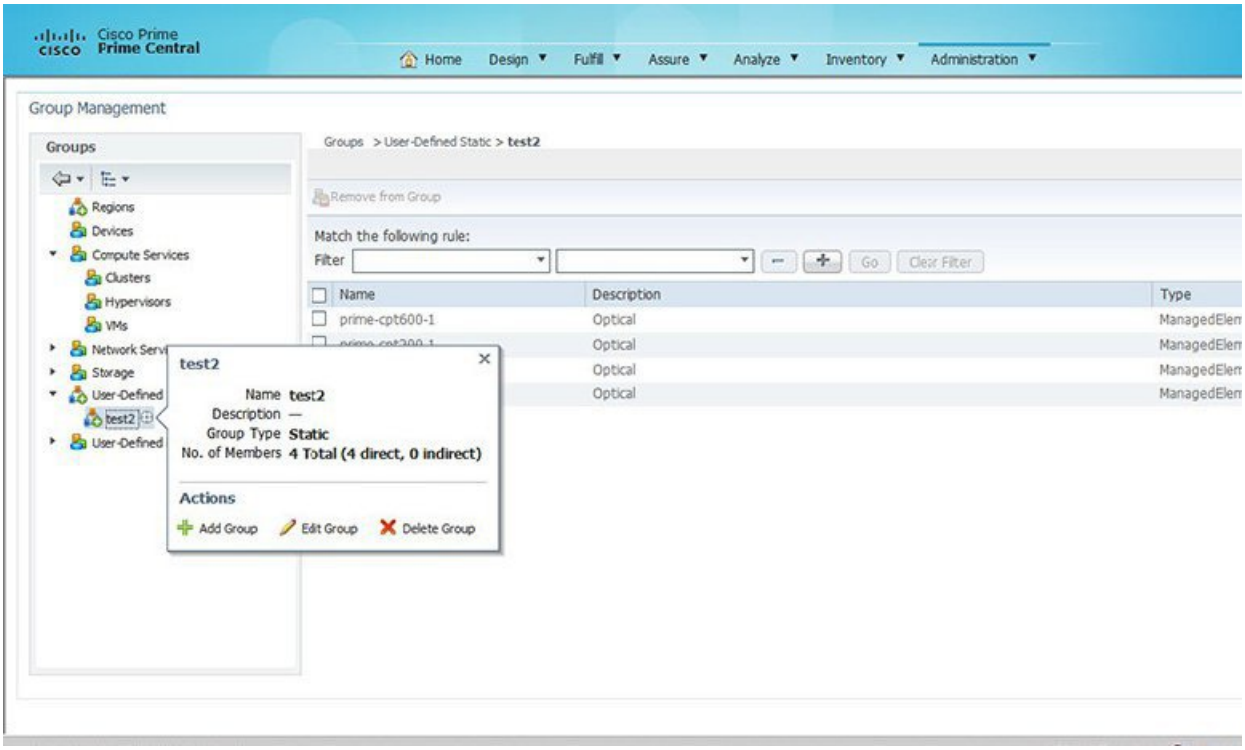
See Adding a Group Member for more information.

Note the following:

- You cannot manually add members to or delete members from a dynamic group.
- You can only edit or delete user-created groups.
- Of the groups listed in this portlet, you can only create subgroups for the following:
  - Regions
  - User-Defined Static
  - User-Defined Dynamic

Tip To view the information in the Group Management portlet as a Microsoft Excel spreadsheet, click the **Export** icon in the top-right corner of the portlet.

Figure 9: Group Management Portlet



Adding a Group

Procedure

Step 1 In the Group Management portlet, open the popup for the relevant parent group and click **Add Group**.

If this option is not available, you cannot create a group within the selected parent group.

Step 2 In the Add Group dialog box:

a) Enter the group's name, which must contain only alphanumeric characters (A-Z, a-z, 0-9) or any of the following special characters: , - . _ @

b) Select the appropriate parent group (if necessary).

c) (Optional) Enter a brief description of the group.

If you are configuring a dynamic group, proceed to Step 2d. Otherwise, skip ahead to Step 3.

d) Define the rules that Prime Central will use to filter the network elements associated with the group. See Configuring Group Rules for more information.

Step 3 Click **Save**.

Configuring Group Rules

When configuring a new dynamic group in the Group Management portlet, you need to specify the rules Prime Central will use to populate the group.

Procedure

Step 1 In the Group Rules field of the Add Group dialog box, select the object you want to filter by from the second drop-down list.

Step 2 From the third drop-down list, select the parameter you want to filter by.

The values listed here will vary, depending on the object you selected in Step 1.

Step 3 From the fourth drop-down list, select a logical operator.

Step 4 In the text field, enter the value you want to filter by. This value must contain only alphanumeric characters (A-Z, a-z, 0-9) or any of the following special characters: , - . _ @

If you want to configure another rule, proceed to Step 5. Otherwise, skip ahead to Step 8.

Step 5 Click the + icon.

Step 6 In the first drop-down list, select whether network elements must meet the conditions of this and any other rules you configured in order to be added to a group.

Step 7 Repeat Steps 1 through 4.

Step 8 Click **Save**.

Editing a Group

Procedure

Step 1 In the Group Management portlet, open the popup for the relevant group and click **Edit Group**.

If this option is not available, you cannot edit the selected group.

Step 2 In the Edit Group dialog box, modify the group's name and description.

The group's name must contain only alphanumeric characters (A-Z, a-z, 0-9) or any of the following special characters: , - . _ @

Step 3 Click **Save**.

Deleting a Group

Procedure

Step 1 In the Group Management portlet, open the popup for the relevant group and click **Delete Group**.

If this option is not available, you cannot delete the selected group.

Step 2 Click **Yes** to confirm deletion of the group.

Adding a Group Member

Procedure

Step 1 Do one of the following:

a) To add a group member from the Common Inventory portlet, choose **Inventory** > **Common Inventory** > **Devices** from the Prime Central menu and skip ahead to Step 3.

b) To add a group member from the Data Center page, choose **Assure** > **Services** > **Data Center** from the Prime Central menu and proceed to Step 2.

Step 2 Do one of the following:

a) To add a compute service resource, hypervisor, or device cluster, click the **Compute** tab and then click the appropriate subtab.

b) To add a VPN, click the **Network** tab.

c) To add a storage device, click the **Storage** tab.

Step 3 Check the check box for the device or service that you want to add and click **Add to Group**.

Step 4 In the Select Group to Add window, select the appropriate group and click **Add**.

A message indicates that the member was successfully added.

Step 5 In the Group Management portlet, click the **Refresh** icon.

The new group member is displayed.

Removing a Group Member

Procedure

Step 1 In the Group Management portlet, navigate to the appropriate group.

Step 2 Check the check box for the group member that you want to remove and click **Remove from Group**.

Step 3 Click **Yes** to confirm deletion of the group member.

Monitoring Alarm Counts for Grouped Devices

In Alarms Count Summary portlet (see the following figure), you can view total count of alarms for each group defined in Group Management portlet. This enables you to have a consolidated view of total number of faults with their highest severity on network elements of a particular group.

Procedure

	Command or Action	Purpose
Step 1	To view Alarms Count Summary portlet, add it to the Prime Central home page. See Adding a Portlet for more information on adding a portlet.	In Alarms Count Summary portlet, all User Defined sub-groups are defined in the same level unlike the tree structure in Group Management portlet to enable quick filtering of all subgroups. You can add devices to User Defined Static Groups manually from Compute, Network, or Storage in the Data Center or from Common Inventory portlet. See Adding a Group Member for more information on adding members to groups. Once the devices are added to a group, their corresponding alarms count along with their highest severity is displayed in the portlet. Alarms Count Summary portlet will update automatically after every 25 seconds, or click refresh button to update the results in the portlet. ***Figure 10: Alarms Count Summary***