



# Get Started With Cisco EPN Manager



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**Note** If you are an administrator and need to set up Cisco EPN Manager for its initial use, see [Server Setup Tasks](#).

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## Web Client Requirements

The following are the client and browser requirements for the Cisco EPN Manager Web GUI:

- Hardware—Mac or Windows laptop or desktop compatible with one of the tested and supported browsers that are listed below.
- Browsers:



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**Note** You can have up to three Cisco EPN Manager tabs open simultaneously in a single browser session.

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- Google Chrome versions 70 onwards
- Mozilla Firefox ESR version 78

- Mozilla Firefox versions 70 onwards
- Recommended display resolution—1600x900 pixels or higher (minimum: 1366x768)

To improve loading time and reduce network bandwidth usage, Cisco EPN Manager caches static files (js, css) in the browser in the same version of Cisco EPN Manager (Firefox browsers).



**Note** Google Chrome ignores all caching directives and reloads page content because of known limitations about self-signed certificates.


## Log In and Out

To log into the GUI, enter the following in your web browser address field, where *server-ip* is the IP address of the Cisco EPN Manager server:



**Note** Do not autofill or save any username and password in the browser when you log in to Cisco EPN Manager.

Depending on your network configuration, the first time your browser connects to the Cisco EPN Manager web server, you may have to update your client browser to trust the security certificate of the server. You can also generate and import user-specific client certificates to your browser, which allows the user to log into Cisco EPN Manager. These generated client certificates allow you to log in without specifying a username or password. These generated client certificates require a passcode when you update them to your browser. This ensures the security of the connection between your client and the Cisco EPN Manager web server.

To log out, click  at the top right of the Cisco EPN Manager window and choose **Log Out**.

For information on Cisco EPN Manager users and the actions they can perform, see:

- [How to Transition Between the CLI User Interfaces in Cisco EPN Manager](#)—Describes all classes of users supported by Cisco EPN Manager, including the various CLI user accounts.

## Setup Tasks to Complete Before Using Cisco EPN Manager


Before you can use the Cisco EPN Manager features, these tasks should be completed by an administrator:

**Table 1: Setup Tasks and References**

Tasks to complete before using Cisco EPN Manager	For information, see:
Set up and configure the Cisco EPN Manager server.	<a href="#">Server Setup Tasks</a>
Add devices to Cisco EPN Manager and create device groups to simplify device and network management.	<a href="#">Add and Organize Devices</a>

Tasks to complete before using Cisco EPN Manager	For information, see:
Enable monitoring for interfaces and technologies used by the network.	<a href="#">Monitor Device and Network Health and Performance</a>
Customize alarm and event behavior for your deployment (for example, alarm and event refresh rates and e-mail and trap receivers).	<a href="#">Set Alarm and Event Management Preferences</a>

## Change Your Password



You can change your password at any time by clicking  at the top right of the Cisco EPN Manager window and choosing **Change Password**. Click the ? (**help**) icon to review the password policy.

(Optional) Click the **Generate New Password** button to set a secured system-generated password. On clicking this button, a new password will be displayed in the adjacent text box. The same is also displayed in the **New Password** and **Confirm Password** text boxes. Click the eye icon in the text box to view or hide the password. You can also copy the password to clipboard by clicking the **Copy** button.


Click the **Reset** button to clear the values in the text box.

## Use the Main Window Controls


The top left of the Cisco EPN Manager title bar provides the following controls.

	Menu button—Toggles the main Cisco EPN Manager navigation menu on the left (also called the left sidebar menu)
	Home button—Returns you to the home page (normally the Overview Dashboard)

The right side of the title bar displays your user name and the virtual domain you are working in. A *virtual domain* is a logical grouping of devices. Virtual domains are used to control who has access to devices and areas of the network. To switch between virtual domains that are assigned to you, see [Work In a Different Virtual Domain](#), on page 22.

	Web GUI global settings button—Log out, change password, view your Cisco.com account profile, adjust your GUI preferences, check a Cisco.com support case, launch online help
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The Alarm Summary gives you a visual indicator of number of alarms in your network. The color indicates the highest severity alarm.

	Alarm Summary—Provides a visual count of alarms in the categories you specify. Clicking this area opens the <b>Alarm Summary</b> popup window.
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When you click the **Alarm Summary** button, Cisco EPN Manager opens the **Alarm Summary** popup window. You can customize the data that is displayed in both the button and the pop-up window.

## Change Your Default Home Page

You can specify which page you want to display when you perform either of the following tasks:

- You click  from the left side of the web GUI title bar.
- You log in to the Cisco EPN Manager web GUI.

This setting is saved on a per-user basis. You can change it at any time without affecting other users.

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- Step 1** While you have the page you want displayed, click  at the top right of the Cisco EPN Manager web GUI.
- Step 2** Choose **Set Current Page as Home**.
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## Set Up and Use the Dashboards

Dashboards provide at-a-glance views of the most important data in your network. They provide status as well as alerts, monitoring, performance, and reporting information. You can customize these dashboards so they contain only the information that is important to you. It may be helpful to set the **Network Summary** dashboard as your default home page. By doing so, this dashboard is displayed after you log in and you can quickly check overall network health before you do anything else. To set any dashboard as your default home page, see [Change Your Default Home Page, on page 4](#).

Use the following dashboards to monitor and manage your network:



**Note** To view data on the dashboards, you will need to enable the relevant monitoring policies. By default, only device health monitoring (Device Health monitoring policy) is enabled. See [How Device Health and Performance Is Monitored: Monitoring Policies](#) for more information.

- **Network Summary** dashboard—To check the health of the entire network. See [Network Summary Dashboard Overview](#).
- **Service Performance** dashboard—To monitor Carrier Ethernet and optical service performance. See [Service Performance Dashboard Overview](#).
- **Performance** dashboard—To view high-level performance metrics for network components such as interfaces, QoS policies, and ITU-T Y.1731 probes. See [Performance Dashboard Overview](#).
- **Device Trends** dashboard—To view performance information for a specific device, application, or service. See [Device Trends Dashboard Overview](#).
- **DWDM/OTN Performance** dashboard—To view performance information for the dense wavelength division multiplexing (DWDM) and Optical Transport Network (OTN) interfaces in your network. See [DWDM/OTN Performance Dashboard Overview](#).

Users with administrator privileges can also use the following dashboards:

- **Licensing** dashboard—See [View the Licensing Dashboard](#).
- **Jobs** dashboard—See [Manage Jobs Using the Jobs Dashboard, on page 23](#).
- **System Monitoring** dashboard—See [Check Cisco EPN Manager Server Health, Jobs, Performance, and API Statistics Using the System Monitoring Dashboard](#).

Note the following:

- For an explanation of the parts of the dashboard window and how to use dashboard filters, see [How to Use the Dashboards, on page 16](#).
- To troubleshoot dashboard data issues, see [Find Out Why Data Is Missing from a Dashboard](#).

## Types of Dashboards

The following topics describe the dashboards available in Cisco EPN Manager.

### Service Performance Dashboard Overview

From the **Service Performance** dashboard, you can view the performance statistics for a particular circuit, VC, or service during the time frame you specify. To open this dashboard, choose **Dashboard > Service Performance >** any of the tabs described in the following table.

Dashboard Tab	Information Provided
CEM	<p>For the selected Circuit Emulation (CEM) circuit:</p> <ul style="list-style-type: none"> <li>• Details such as its name, type, and creation date</li> <li>• Statistics (you can toggle between the statistics for the circuit's endpoints)</li> <li>• Number of packets lost during transmission</li> <li>• Number of packets re-ordered in the jitter buffer before they reached their destination</li> <li>• Number of jitter buffer overruns and underruns</li> <li>• Number of packets ordered incorrectly and subsequently dropped</li> <li>• Number of malformed packets</li> <li>• Number of seconds that were errored, severely errored, or unavailable</li> <li>• Failed events</li> <li>• Dashlets that chart the number of Explicit Pointer Adjustment Relay counters (such L-bits and P-bits) that have been generated and received</li> </ul> <p><b>Note</b> To view these dashlets, both the CEM and Pseudowire Emulation Edge to Edge monitoring policies must be enabled. See <a href="#">Monitoring Policies Reference</a>.</p>

Dashboard Tab	Information Provided
TE Tunnel	<p>For the selected Traffic Engineering (TE) tunnel circuit:</p> <ul style="list-style-type: none"> <li>• Details such as its name, serviceability state, and associated endpoint</li> <li>• Service statistics</li> <li>• Outgoing traffic, bandwidth utilization, and reserved bandwidth</li> <li>• Service availability</li> </ul>
SR Policy	<p>For the selected Segment Routing (SR) policy:</p> <ul style="list-style-type: none"> <li>• Details such as its name, serviceability state, and associated endpoint</li> <li>• Service statistics</li> <li>• Outgoing traffic, bandwidth utilization, and reserved bandwidth</li> <li>• Service availability</li> </ul>
CE/L3VPN	<p>For the selected circuit or VC:</p> <ul style="list-style-type: none"> <li>• Details such as its name, discovery state, and the last time it was modified</li> <li>• Lists the circuits and VCs with the highest values for the following parameters: <ul style="list-style-type: none"> <li>• Average traffic between endpoints</li> <li>• QoS class traffic and drops</li> </ul> </li> </ul> <p><b>Note</b> You can toggle between inbound and outbound data. In the <b>Top N Service QoS Class Traffic</b> dashlet, you can also toggle between pre- and post-policy data.</p> <ul style="list-style-type: none"> <li>• Inbound and outbound QoS drops</li> <li>• Service traffic and availability</li> <li>• Two-way delay, one-way jitter , and service loss</li> <li>• End-to-end performance statistics for service probes with a cross-launch to the IPSLA dashboard for EVCs or to the Y.1731 dashboard for L3VPN services.</li> </ul>

Dashboard Tab	Information Provided
Top CE/L3VPN	<p>Lists the circuits and VCs with the highest values for the following parameters:</p> <ul style="list-style-type: none"><li>• Delay</li><li>• Jitter</li><li>• Service loss</li><li>• Traffic (both inbound and outbound)</li></ul> <p>You can toggle between the information for CE and L3VPN services.</p>



**Note** For a description of how to customize the contents and layout of a dashboard tab, see [Customize a Dashboard Tab](#).

## Performance Dashboard Overview

From the **Performance** dashboard, you can view high-level performance metrics for network components such as interfaces, QoS policies, and ITU-T Y.1731 probes. To open this dashboard, choose **Dashboard > Performance >** any of the tabs described in the following table.

Dashboard Tab	Information Provided
Interfaces	<p>For the selected interface:</p> <ul style="list-style-type: none"> <li>• Details such as its name, the IP address of the device it is located on, and its configured speed</li> <li>• The average, minimum, and maximum values for the following performance metrics (you can toggle between the metrics collected for inbound and outbound data): <ul style="list-style-type: none"> <li>• Traffic</li> <li>• Utilization</li> <li>• Errors</li> <li>• Discards</li> <li>• Cyclic redundancy check (CRC) errors</li> </ul> <p><b>Note</b> CRC error data is not polled by default. To enable the collection of this data, choose a polling frequency for the Interface Health monitoring policy's CRC parameter (see <a href="#">Change the Polling for a Monitoring Policy</a>).</p> </li> <li>• Individual graphs that chart the performance metrics listed in the <b>Interface Statistics</b> dashlet</li> <li>• Interface availability</li> <li>• Top N QoS class map policy graph (inbound and outbound pre-policy rate, post-policy rate, and drops percentage)</li> <li>• QoS class map policy statistics (inbound and outbound)</li> </ul>
QoS	<p>For the selected QoS policy:</p> <ul style="list-style-type: none"> <li>• Summary information</li> <li>• Statistics and graphs for pre-policy, post-policy, and dropped class map traffic</li> <li>• Statistics and graphs for conforming, exceeding, and violating class map traffic</li> </ul>



Dashboard Tab	Information Provided
Y1731	<p>For Layer 2 services on the selected probe:</p> <ul style="list-style-type: none"> <li>• Summary information</li> <li>• ITU-T Y.1731 statistics</li> <li>• Delay, jitter, and frame loss, CCM frame loss between endpoints</li> <li>• Jitter Bins Statistics</li> <li>• Delay Bins Statistics</li> <li>• Endpoint availability</li> </ul> <p><b>Note</b> Bins statistics data is not polled by default. To enable the collection of this data, choose a polling frequency for Bins Statistics parameters in IP SLA Y.1731 Monitoring Policy (see <a href="#">Change the Polling for a Monitoring Policy</a>).</p>
IP SLA	<p>For Layer 3 services on the selected probe:</p> <ul style="list-style-type: none"> <li>• Summary information</li> <li>• IP Service Level Agreement (SLA) statistics</li> <li>• Delay, jitter, and frame loss between endpoints</li> <li>• Endpoint availability</li> </ul>
BNG Statistics	<p>Broadband Network Gateway (BNG) information for the selected device:</p> <ul style="list-style-type: none"> <li>• Details such as its name, IP address, product type, and software version</li> <li>• Names of configured IP pools, as well as the number and percentage of available addresses used by each pool</li> <li>• Chart that graphs the number of used or free addresses for the selected IP pools</li> <li>• Charts that graph the number of sessions for authenticated and up subscribers by line card and session type</li> </ul> <p>Note the following:</p> <ul style="list-style-type: none"> <li>• Use the check boxes below the charts to select the items you want to view information for</li> <li>• Place your cursor over any point in the graphs to view the values for the selected items at that particular time</li> </ul>

Dashboard Tab	Information Provided
ME1200 QoS	<p>Quality of Service (QoS) information for the selected service on a Cisco ME 1200 device:</p> <ul style="list-style-type: none"> <li>• Details such as the name of the device, the customer associated with this device, and its user-network interface (UNI) port.</li> <li>• Average bit and frame rates for green (conforming), yellow (exceeding), red (violating), and discard traffic. You can toggle between inbound and outbound traffic data.</li> <li>• Graphs that chart the traffic measured for the traffic types listed in the <b>ME1200 QoS Statistics</b> dashlet.</li> </ul> <p>Note the following:</p> <ul style="list-style-type: none"> <li>• Five traffic graphs are provided: one for each traffic type as well as one consolidated graph.</li> <li>• You can toggle between viewing the data by frame rate (in frames per second) or bit rate (in kilobits per second).</li> <li>• You can specify the elements you want to view in a chart by checking the appropriate check box below that chart. In the consolidated traffic dashlet, you can specify traffic types. And in the individual traffic dashlets, you can specify one or multiple EVC Control Entries (ECEs) associated with the service.</li> </ul>
Optical SFPs	<p>For the selected Small Form-Factor Pluggable (SFP) Transceiver Module interface:</p> <ul style="list-style-type: none"> <li>• Details such as its name, the name and IP address of the device on which the interface is located, and its configured speed</li> <li>• The average, minimum, and maximum values for the following operating metrics for a device: <ul style="list-style-type: none"> <li>• Optical input and output power</li> <li>• Operating temperature</li> <li>• Transceiver supply voltage</li> <li>• Laser bias current</li> </ul> </li> </ul> <p>For the selected Quad Small Form-Factor Pluggable (QSFP) Transceiver Module interface:</p> <ul style="list-style-type: none"> <li>• Individual graphs that chart the operating metrics listed in the <b>SFP Statistics</b> dashlet</li> </ul>

Dashboard Tab	Information Provided
SONET/TDM Interfaces	<p>For the selected SONET or time-division multiplexing (TDM) interface:</p> <ul style="list-style-type: none"> <li>• Details such as its name, configured speed, and the IP address of the device it is located on</li> <li>• The average, minimum, and maximum values for the following performance metrics: <ul style="list-style-type: none"> <li>• Errored seconds</li> <li>• Severely errored seconds</li> <li>• C-bit severely errored seconds</li> <li>• P-bit severely errored seconds</li> <li>• Unavailable seconds</li> </ul> </li> </ul> <p>Values are provided for both the near-end (the receiving end) and far-end (the transmitting end) of the interface</p> <ul style="list-style-type: none"> <li>• Individual graphs that chart the performance metrics listed in the <b>SONET/TDM Statistics</b> dashlet</li> </ul>
Device Sensors	<p>For each sensor of the selected device:</p> <ul style="list-style-type: none"> <li>• Name</li> <li>• Description</li> <li>• Measurement type</li> <li>• Current value</li> </ul> <p>Click the <b>i</b> icon on the current value to view the trend over last 6 hours.</p>
MPLS Links Latency	<p>You can get the following details for the link you select:</p> <ul style="list-style-type: none"> <li>• Link details such as the link name, endpoint device and interface.</li> <li>• Link delay (one-way and two-way).</li> </ul> <p><b>Note</b> You can click Link Name in the Top N MPLS Links Table to launch the MPLS links dashboard on the selected link.</p>

Note the following:

- Interface monitoring is not enabled by default. For information on how to check this, see [Check What Cisco EPN Manager Is Monitoring](#).
- For a description of how to customize the contents and layout of a dashboard tab, see [Customize a Dashboard Tab](#).

## Network Summary Dashboard Overview

The **Network Summary** dashboard alerts you to the most important issues currently affecting your network. It also collects metrics from various sources to display a set of key performance indicators (KPIs). To open this dashboard, choose **Dashboard > Network Summary >** any of the tabs described in the following table.

Dashboard Tab	Information Provided
Network Devices	<ul style="list-style-type: none"> <li>Status (ICMP reachability, SNMP reachability, device manageability), system health, and alarm summary metric dashlets</li> </ul> <p>Note the following:</p> <ul style="list-style-type: none"> <li>To open a pop-up window that describes the information provided by a metric dashlet, place your cursor over its name and then click the <b>?</b> icon.</li> <li>To open a page that lists the alarms or devices that correspond to a particular metric, click a dashlet value. For example, if the <b>SNMP Reachability Status</b> dashlet indicates that 50 devices are currently reachable via SNMP, click <b>50</b> to open the <b>Network Devices</b> page and view a listing of these devices.</li> </ul> <ul style="list-style-type: none"> <li>Top N devices by CPU utilization, memory utilization, and environmental temperature</li> </ul> <p>For the <b>Top N Environmental Temperature</b> dashlet, note the following:</p> <ul style="list-style-type: none"> <li>Two temperature values are provided for each device: its highest recorded internal temperature (displayed in the <b>Max Inlet Temp</b> column) and its highest recorded ambient temperature (displayed in the <b>Max Other Temp</b> column). By default, devices are sorted by their internal temperature.</li> <li>To identify the sensor that recorded a particular temperature value, place your cursor over its <b>i (information)</b> icon.</li> </ul> <ul style="list-style-type: none"> <li>Network topology</li> </ul>

Dashboard Tab	Information Provided
Incidents	<ul style="list-style-type: none"> <li>• System health and alarm summary metric dashlets</li> </ul> <p>Note the following:</p> <ul style="list-style-type: none"> <li>• To open a pop-up window that describes the information provided by a metric dashlet, place your cursor over its name and then click the ? icon.</li> <li>• To open a page that lists the alarms that correspond to a particular metric, click a dashlet value. For example, if the <b>Alarm Summary</b> dashlet indicates that 12 critical alarms have been raised in your network, click <b>12</b> to open the <b>Alarms</b> page and view a listing of these alarms.</li> </ul> <ul style="list-style-type: none"> <li>• Alarm count for the entire network and the Cisco EPN Manager server</li> <li>• Top N alarm types</li> <li>• Syslog summary</li> <li>• Top N event types and their count</li> <li>• Top N devices by number of syslogs sent</li> <li>• Syslog details such as the corresponding device, severity, and message text</li> <li>• Top N devices by number of alarms raised</li> </ul>
Top N Interfaces	<p>For the selected port group:</p> <ul style="list-style-type: none"> <li>• Interface availability and utilization summaries</li> <li>• Top N devices by interface traffic, errors and discards, cyclic redundancy check (CRC) errors, and utilization</li> </ul> <p><b>Note</b> CRC error data is not polled by default. To enable the collection of this data, choose a polling frequency for the Interface Health monitoring policy's CRC parameter (see <a href="#">Change the Polling for a Monitoring Policy</a>).</p> <ul style="list-style-type: none"> <li>• Bottom N devices by interface availability</li> </ul> <p>Also note that the dashlets in this tab (except for the summary dashlets) allow you to open the 360 view for a device's adjacent device or interface by clicking its <i>i</i> (<b>information</b>) icon.</p>
Top N QoS	<p>For the selected port group:</p> <ul style="list-style-type: none"> <li>• Top N devices by QoS pre-policy, post-policy, and drop rates</li> <li>• Top N devices by conforming, exceeding, and violating traffic rates</li> </ul> <p>You can toggle between inbound and outbound traffic data.</p>

Dashboard Tab	Information Provided
Top N Y1731	Endpoints with the highest values for the following parameters: <ul style="list-style-type: none"> <li>• Delay (one- and two-way)</li> <li>• Jitter (one-way)</li> <li>• Frame loss</li> </ul>
Top N MPLS Links Latency	<ul style="list-style-type: none"> <li>• Delay (one-way and two-way)</li> </ul> <p><b>Note</b> You can click Link Name in the Top N MPLS Links Table to launch the MPLS links dashboard on the selected link.</p>
PTP/SyncE	<ul style="list-style-type: none"> <li>• PTP Clock Class over time</li> <li>• Servo State over time</li> <li>• SyncE Quality Level over time</li> </ul> <p><b>Note</b> Cisco EPN Manger uses the values you have configured in the <b>PTP/SyncE</b> System Settings page to display data in the dashboard. See <a href="#">PTP/SyncE Dashboard Settings, on page 14</a> for more information.</p>

You can view specific data by adding or removing columns in the dashlets. In the **Top N Interfaces**, **Top N QoS**, and **Top N Y1731** tabs, you can also use the **Sort by** option to sort the data displayed in the columns.

In the **Top N Interfaces** and **Top N QoS** tabs you can:

- Choose a specific device group and/or port group to view only information for those devices/ports.
  - To filter data for all the dashlets based on port/device groups, use the **Port Groups** filter at the top of the dashboard.
  - To filter data for a specific dashlet only, click the dashlet's **Edit** icon and choose a device/port group from the **Port Groups** and/or **Device Groups** drop-down list.
- Filter the data in the dashlets by Class Map (and you can choose to exclude the class-default).
- Click an interface's name link to view performance information for that interface in the **Performance** dashboard. If you click a link in the **Top N Interfaces** tab, the **Interfaces** tab opens. If you click a link in the **Top N QoS** tab, the **QoS** tab opens instead.
- Interface monitoring is not enabled by default. For information on how to check this, see [Check What Cisco EPN Manager Is Monitoring](#).
- For a description of how to customize the contents and layout of a dashboard tab, see [Customize a Dashboard Tab](#).

## PTP/SyncE Dashboard Settings

To configure metrics that is used by Cisco EPN Manger to display data in the **PTP/SyncE** dashboard, navigate to **Administrator > System Settings > Performance > PTP/SyncE**. Configure the metrics as required and click **Save**.

Section	Description	Action
<b>PTP Clock Class</b>	Allows you to define the range of values of <b>PTP Clock Class</b> that should be reported as <b>Ok</b> or <b>Degraded</b> or <b>Failure</b> .	Enter values from the entire range of 0 to 255. Ensure that there is no overlap in values between the three categories.
<b>PTP Servo State</b>	Allows you to define how Cisco EPN Manager reports each of the 5 possible PTP Servo states.	Configure each of the 5 states in this section to <b>Ok</b> or <b>Degraded</b> or <b>Failure</b> .
<b>Sync Quality level</b>	Allows you to define the SyncE quality levels that Cisco EPN Manager reports as Ok. By default, Cisco EPN Manger allows you to define 2 values as Ok. You can add a third value if required by selecting the check-box next to the grayed out field. Any other SyncE QL values apart from the ones you have defined as <b>Ok</b> is reported as <b>Degraded</b> .	Choose a value from the drop-down list.
<b>UTC Offset</b>	You can define the correct UTC offset in the system. Cisco EPN Manger reports the devices configured with the matching value of UTC offset as <b>Correct UTC offset</b> and devices configured with offset not matching this value as <b>Incorrect UTC Offset</b> .	Enter a value between 0 - 65535.

## Device Trends Dashboard Overview

From the **Device Trends** dashboard, you can view performance information for a specific device, application, or service. To open this dashboard, choose **Dashboard > Device Trends >** any of the tabs described in the following table.

Dashboard Tab	Information Provided
Device	For the selected device: <ul style="list-style-type: none"> <li>• CPU utilization and memory utilization</li> <li>• Health information</li> <li>• Port summary</li> </ul>

Dashboard Tab	Information Provided
Application	<p>For the selected application or service:</p> <ul style="list-style-type: none"> <li>• Traffic rate and volume</li> <li>• Top N clients, servers, and applications by traffic rate and volume</li> </ul> <p><b>Note</b> This feature is not supported and will be removed from Cisco EPN Manager 6.1 onwards.</p>

Note the following:

- Interface monitoring is not enabled by default. For information on how to check this, see [Check What Cisco EPN Manager Is Monitoring](#).
- For a description of how to customize the contents and layout of a dashboard tab, see [Customize a Dashboard Tab](#).

## DWDM/OTN Performance Dashboard Overview

The **DWDM/OTN Performance** dashboard displays performance information for the Dense Wavelength Division Multiplexing (DWDM) and Optical Transport Network (OTN) interfaces that are traversed by a specific circuit. This includes physical, Optical Data Unit (ODU), Optical Transport Unit (OTU), Ethernet, Synchronous Optical Network (SONET), and Synchronous Digital Hierarchy (SDH) interfaces. The performance information is presented in different tabs per interface type.

To open this dashboard, perform one of the following actions:

- Choose **Dashboard > DWDM/OTN Performance > Circuit**. Click an interface name in the Interfaces dashlet. The relevant tab for the type of interface opens. For example, if you click an OTU interface, the OTU tab opens.
- From an interface's 360 view, choose **View > Performance**.

Note the following:

- Interface monitoring is not enabled by default. For information on how to check this, see [Check What Cisco EPN Manager Is Monitoring](#).
- For a description of how to customize the contents and layout of a dashboard tab, see [Customize a Dashboard Tab](#).

## How to Use the Dashboards

The following figure illustrates the key parts of a dashboard window and the controls you can use to adjust them.



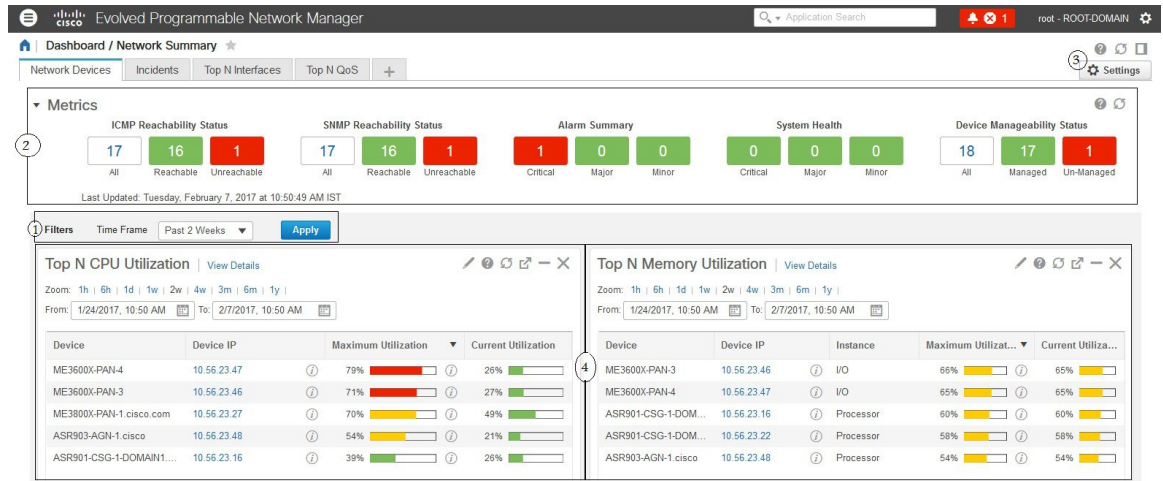
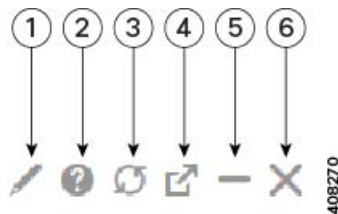


Table 2: Dashboard Elements

1	Dashboard filters—Filters all dashlets in the dashboard according to the selection. In this example, a time-based filter is used. The filters displayed depend on the dashboard type. For example, in the performance dashboards, you must select a specific interface, device, circuit, or VC.
2	Metric dashlets—Provides quick metrics for alarms, available devices, and so forth.
3	Dashboard settings and controls: <ul style="list-style-type: none"> <li>• Dashboard icons—Allows you to launch online help, refresh the entire dashboard, and open the <b>Dock</b> window.</li> <li>• Dashboard <b>Settings</b> menu—Allows you to add or rename a dashboard tab, add new dashlets (both standard and metric), adjust the dashboard's layout, reset all dashboards to their default settings, and export data from the selected dashlets.</li> </ul> <p><b>Note</b> The newly added or a renamed dashboard tab can be viewed only in the Tab view. This change is not reflected in the Dashboard menu.</p>
4	Standard dashlets—Provides at-a-glance data that is relevant to the dashboard.

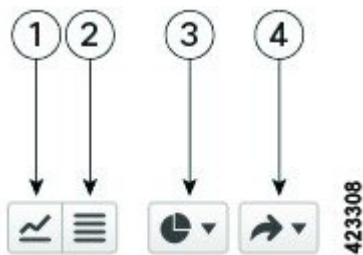
In the top right corner of each dashlet are icons that are activated when you use that dashlet. The dashlet type determines the icons that are available. The most common icons are displayed in the following figure:



1	<b>Edit</b> icon—Click to change a dashlet's properties, such as its title, refresh interval, and the number of devices that are displayed (applicable only to Top N and Bottom N dashlets).
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2	<b>Help</b> icon—Click to open a pop-up window that describes the dashlet, indicates the monitoring policy that needs to be activated in order for the dashlet to collect data, and lists the filters that can be applied to the dashlet.
3	<b>Refresh</b> icon—Click to refresh the information displayed in the dashlet.
4	<b>Detach</b> icon—Click to move the dashlet to another location in the dashboard.
5	<b>Collapse/Expand</b> icon—Click to toggle between a maximized and minimized dashlet.
6	<b>Close</b> icon—Click to remove the dashlet from the dashboard.

In the bottom right corner of dashlets that provide charts, you can find the buttons highlighted in the following figure. The buttons that are available will vary among dashlets.



1	<b>Chart View</b> button—Click to view a dashlet's information as a chart.
2	<b>Table View</b> button—Click to view a dashlet's information as a table.
3	<b>Chart Type</b> button—Click to choose the type of chart a dashlet displays (such as a bar or pie chart) and any options you want to set (such as displaying a unique fill pattern for each element).
4	<b>Actions</b> button—Click to print the information provided by a dashlet or export the information as either a .csv or .pdf format file.

See these topics for additional information on dashboards:

- [Types of Dashboards, on page 5](#)
- [Add Dashlets to Dashboards, on page 19](#)
- [Add a New Dashboard, on page 18](#)
- [Find Out Why Data Is Missing from a Dashboard](#)

## Add a New Dashboard

Use this procedure to create a new dashboard. Your new dashboard will appear as a new tab under one of the dashboards listed in [Types of Dashboards, on page 5](#).

**Step 1** Open the relevant existing dashboard.

For example, if you want to create a new tab under the **Performance** dashboard, click any tab under **Dashboard > Performance**.

- Step 2** Click the + (**Add New Dashboard**) tab.  
The **Settings** menu opens.
- Step 3** Enter a name for the new dashboard, then click **Apply**.
- Step 4** Click the new dashboard tab, then add dashlets as described in [Add a Predefined Dashlet To a Dashboard, on page 20](#).
- 

## Customize a Dashboard Tab

To customize a tab in any of the dashboards that Cisco EPN Manager provides, complete the following procedure:

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- Step 1** Choose **Dashboard** > the dashboard tab you want to customize.  
For example, if you want to customize the **Performance** dashboard's **BNG** tab, choose **Dashboard** > **Performance** > **BNG**.
- Step 2** Adjust the dashboard tab as needed.  
You can do things like:
- Drag dashlets to a different location on the dashboard.
  - From the tab's **Settings** menu, rename a tab, add new dashlets (see [Add Dashlets to Dashboards](#)), and change the tab's layout.
- The newly added or renamed dashboard tab can be viewed only in the Tab view. This change is not reflected in the Dashboard menu.
- Note** To open a pop-up window that provides an overview of a dashlet you are thinking about adding, expand the **Add Dashlets** drop-down list, locate the dashlet, and then hover your cursor over its name.
- Use the filters to specify the information you want to view and the appropriate time frame, then click **Apply**.
- Step 3** If necessary, troubleshoot why the tab is not displaying any data.  
See [Find Out Why Data Is Missing from a Dashboard](#) for more information.
- 

## Add Dashlets to Dashboards

You can add two types of dashlets to your dashboards:

- Prepackaged dashlets that are provided with Cisco EPN Manager—Some of the dashlets are displayed on dashboards by default; others are listed in the **Settings** menu, and you can add them as needed. These dashlets provide information you will likely monitor (for example, device CPU utilization, interface errors and discards, and traffic statistics). See [Add a Predefined Dashlet To a Dashboard, on page 20](#).
- Customized dashlets that you create to monitor device performance—These dashlet types can only be added to the **Device Trends** dashboard. See [Add a Customized Dashlet to the Device Trends Dashboard](#).

## Add a Predefined Dashlet To a Dashboard

Cisco EPN Manager provides a predefined set of dashlets that will provide you with commonly-sought network data. By default, a subset of these dashlets is already included in the dashboards, to help you get started. Complete the following procedure to add another of these predefined dashlets to your dashboards.




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**Note** To edit or remove a dashlet, click the appropriate icon from the top right corner of that dashlet. (See [How to Use the Dashboards.](#))

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- Step 1** From the sidebar menu, choose **Dashboard**, then select the dashboard you want to add a dashlet to. For example, to add a **Device Memory Utilization** dashlet to the **Device Trends** dashboard, choose **Dashboard > Device Trends > Device**.
- Step 2** Identify the dashlet you want to add, then add it:
- From the top right corner of the dashboard, click **Settings** and then click **Add Dashlet(s)**. Cisco EPN Manager lists the dashlets that can be added to that dashboard.
  - To open a pop-up window that provides an overview of a particular dashlet, hover your cursor over dashlet's name. The pop-up window also lists the sources for the data the dashlet provides and the filters you can apply to the dashlet.
  - Click **Add** to add the selected dashlet to the dashboard.
- Step 3** Verify that the dashlet is populated with data. If it is not, check whether the required monitoring policy is enabled. (Only the Device Health monitoring policy is enabled by default. It checks device availability, CPU and memory pool utilization, and environmental temperature.)
- From the top right corner of the dashlet, click its **? (Help)** icon to open the dashlet's pop-up window.
  - Check the information provided in the **Data Sources** area. If it lists a monitoring policy, check whether the policy is activated. See [Check What Cisco EPN Manager Is Monitoring.](#)
- 

## Add a Customized Dashlet to the Device Trends Dashboard

If none of the dashlets in the **Device Trends** dashboard provide the device performance information you need, you can add a dashlet that uses a customized template to poll devices for their SNMP MIB attributes. Complete the following procedure to add this dashlet to the dashboard.

### Before you begin

Check the available monitoring policies to determine which policy collects the information you need. You will have to specify a policy during the dashlet creation process. If none of the policies meet your needs, you can create a policy that polls new parameters. See [Create a Monitoring Policy for Unsupported Parameters and Third-Party Devices.](#)

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- Step 1** Choose **Dashboard > Device Trends > Device**.
- Step 2** From the top right corner of the dashboard, click **Settings** and then click **Add Dashlet(s)**.
- Step 3** Expand the **Device Dashlets** list.
- Step 4** Locate **Generic Dashlet**, then click **Add**.

Cisco EPN Manager adds a blank generic dashlet to the **Device Trends** dashboard.

**Step 5** Configure the new dashlet as needed.

At a minimum, you should:

- Enter a meaningful title in the **Dashlet Title** field.
- Check the **Override Dashboard Time Filter** check box if you do not want to apply the time filters to all of the dashlets in the dashboard.
- In the **Type** drop-down list, choose whether the dashlet will display its data as a table or line chart. (Regardless of your choice, Cisco EPN Manager will display a toggle at the bottom of the dashlet that allows you to change the format.)
- In the **Policy Name** drop-down list, choose the monitoring policy that will collect the data for this dashlet. See [Monitoring Policies Reference](#) for descriptions of the available monitoring policies.

**Step 6** Click **Save And Close**.

If no data is displayed in the dashlet, see [Find Out Why Data Is Missing from a Dashboard](#).

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## Customize the Dock Window

Use the **Dock** window for quick navigation to frequently used web GUI pages and pop-up windows (such as the 360 view for a particular device). From here, you can also access links to the 15 most recently visited pages and Cisco EPN Manager training materials. To open this window, click the **Dock** icon (located in the top right area of the page).

Complete the following procedure to update the links provided in the **Dock** window:

---

**Step 1** Add a web GUI page link to the **Favorites** tab (**Dock** icon > **Links Visited** > **Favorites**):

- a) Open the web GUI page you want to add.
- b) Click its star (**Favorite**) icon, which is located in the top left area of the page.

**Step 2** Add a pop-up window link to the **Docked Items** area (**Dock** icon > **Docked Items**):

- a) Open the pop-up window you want to add, then open its 360 view.
- b) From the top right corner of the pop-up window, click the **Add to Dock** icon.

---

## Find Out Why Data Is Missing from a Dashboard

If data is missing from a dashboard or dashlet, Cisco EPN Manager displays possible reasons in an error message in the dashlet such as:

- Monitoring policy not enabled
- Unmanaged or unreachable devices in the system
- Technology isn't supported on the device
- Inaccurate server time or server time not synced with the device


Perform the following steps to identify the cause:

- 
- Step 1** Check whether the dashlet data is filtered.
- If you see **Edited** next to the dashlet name, do the following:
- Click the **Edit** icon and adjust the current filter settings.
  - Click **Save and Close**.
- Step 2** Check whether there is a problem with the device.
- See [Get Basic Device Information: Device 360 View](#).
- Step 3** Check whether the device inventory is being collected properly.
- See [Find Devices With Inventory Collection or Discovery Problems](#).
- Step 4** Check whether Cisco EPN Manager is collecting the required data by viewing the monitoring policies it is using:
- Open the dashlet's overview pop-up window by clicking its **Help** icon.
  - Note the monitoring policy listed under **Data Sources**.  
Monitoring policies are described in [Monitoring Policies Reference](#).
  - Verify that this policy is listed and active in the **Monitoring Policies** page.  
To open this page, choose **Monitor > Monitoring Tools > Monitoring Policies**, then choose **My Policies**.
    - If the policy is not listed, proceed to Step 4d.
    - If the policy is listed and its status is **Active**, click **Details** to open the **Collection Data** pop-up window and see if the device is being monitored by the policy. If it is not, you must adjust the policy as described in [Change the Device Set a Policy is Monitoring](#). If the device is included in the policy, proceed to Step 5.
    - If the policy is listed and its status is **Inactive**, select the policy and click **Activate**.
  - Create a new monitoring policy and activate it.  
See [Adjust What Is Being Monitored](#).
- Step 5** Check whether the relevant data was purged from the system.
- See [How Data Retention Settings Affect Web GUI Data](#).
- 

## Work In a Different Virtual Domain

Virtual domains are logical groupings of devices and are used to control your access to specific sites and devices. Virtual domains can be based on physical sites, device types, user communities, or any other designation the administrator chooses. All devices belong to ROOT-DOMAIN, which is the parent domain for all new virtual domains. For more information about virtual domains, see [Create Virtual Domains to Control User Access to Devices](#).

If you are allowed access to more than one virtual domain, you can switch to a different domain by completing the following procedure:

- 
- Step 1** Click  from the right side of the title bar.
- Step 2** Choose **Virtual Domain:** *current-domain*.
- Step 3** From the **Virtual Domain** drop-down list, choose a different domain.  
Cisco EPN Manager immediately changes your working domain.
- 

## Manage Jobs Using the Jobs Dashboard

If you have the appropriate user account privileges, you can manage Cisco EPN Manager jobs using the Jobs dashboard. To view the **Jobs** dashboard, choose **Administration > Dashboards > Job Dashboard**. From here, you can quickly see if a job was successful, partially successful, or failed.

If too many jobs are already running, Cisco EPN Manager will hold other jobs in the queue until resources are available. If this delays a scheduled job past its normal starting time, the job will not run. You will have to run it manually.

Some jobs may require approval. In such cases, Cisco EPN Manager sends an email to users with Administrator privileges notifying them that a job was scheduled and needs approval. The job will only run after it is approved. See .

You can set a time interval at which the jobs table is auto-refreshed. Click **Settings** in the upper corner of the page, select a value from the drop-down list in the field **Set Auto Refresh Rate** and click **Save**.




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**Note** To disable auto-refresh of the jobs table, select OFF from the drop-down list.

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The following table describes the buttons displayed in the **Jobs** dashboard.

**Table 3: Jobs Dashboard Buttons**

Button	Description
<b>Delete Job</b>	Removes a job from the <b>Jobs</b> dashboard.
<b>Edit Job</b>	Edit the settings configured for the selected job.
<b>Edit Schedule</b>	Displays the series schedule and lets you edit it (start time, interval, and end time). <b>Note</b> Editing the schedule of an already-scheduled job will change the status of that job to <b>Pending for Approval</b> since each edit requires an approval from the user who created the job.
<b>Run</b>	Runs a new instance of the selected job. Use this to rerun partially successful or failed jobs; the job will only run for the failed or partially successful components.
<b>Abort</b>	Stops a currently-running job, but allows you to rerun it later. Not all jobs can be aborted; Cisco EPN Manager will indicate when this is the case.

Button	Description
<b>Cancel Series</b>	Stops a currently-running job and does not allow anyone to rerun it. If the job is part of a series, future runs are not affected.
<b>Pause Series</b>	Pauses a scheduled job series. When a series is paused, you cannot run any instances of that series (using <b>Run</b> ).
<b>Resume Series</b>	Resumes a scheduled job series that has been paused.



**Note** The **Delete Job**, **Abort**, and **Cancel Series** buttons are not available for system and poller jobs.



**Note** If you have logged in as a root user, then you can view all the jobs under Job Dashboard. If you have logged in as a non-root user, then you can only view the jobs performed by you.

To view the details of a job, follow these steps:

**Step 1** Choose **Administration > Dashboards > Job Dashboard**.

**Step 2** From the **Jobs** pane, choose a job series to get basic information (such as job type, status, job duration, and next start time).

**Step 3** To view the job interval, click a job instance hyperlink.

At the top of the job page, the **Recurrence** field indicates how often the job recurs. Job interval details will be added for every job that triggers. The job details page is refreshed every 5 seconds until the job is completed.

**Step 4** To get details about a failed or partially successful job, click the job instance hyperlink and expand the entries provided on the resulting page.

This is especially helpful for inventory-related jobs. For example, if a user imported devices using a CSV file (a bulk import), the job will be listed in the **Jobs** sidebar menu under **User Jobs > Device Bulk Import**. The job details will list the devices that were successfully added and the devices that were not.

### Example


To troubleshoot a failed software image import job:

1. Choose **User Jobs > Software Image Import** from the **Jobs** sidebar menu.
2. Locate the failed job in the table and then click its hyperlink.
3. Expand the job's details (if not already expanded) to view the list of devices associated with the job and the status of the image import for each device.
4. To view the import details for a specific device, click that device's *i* (**information**) icon in the **Status** column. This opens an **Image Management Job Results** pop-up window.



- Examine each step and its status. For example, the **Collecting image with Protocol: SFTP** column might report that SFTP is not supported on the device.

## Change User Preferences

To change the User Preferences, click the  icon at the top right corner of the screen, and choose **My Preferences > General**.

Category	User Preference Setting	Description
List pages	Items Per Page List	<p>Use this setting to define the number of entries displayed on the Monitoring pages for APs, Controllers, Site Maps, Roles &amp; AAA &gt; Active Sessions.</p> <p>By default, 50 entries are listed.</p> <p><b>Note</b> This setting does not apply to Network Devices, Alarms and Events, configuration archive, software image management, or configuration.</p>
Network Topology	Automatically switch device group selection to show all participating devices	Use this setting to automatically switch device group selection to view all participating devices in topology view. By default, this setting is not enabled.
	Auto-Refresh Interval (Map, Tables)	<p>Use this setting to define the time interval at which the maps and tables in the network topology view are refreshed. You can set the refresh interval to 30 seconds, 1 minute, 2 minutes, or 5 minutes. Select <b>No auto-refresh</b> if you do not want to refresh the maps and tables.</p> <p>By default, the refresh interval is 1 minute.</p>

Category	User Preference Setting	Description
Service Provisioning	Default Technology	Use this setting to define the Technology that will be selected by default when you go to the service provisioning page to create a new service.  <b>Note</b> If this user preference is not set, Carrier Ethernet will be set as the default value.
	Default Service Type	Use this setting to define the Service Type that will be selected by default when you go to the service provisioning page to create a new service.  <b>Note</b> If this user preference is not set, Access EPL will be set as the default value.
Chassis View Configuration	UI Refresh Interval	Use this setting to define how often the data in the UI is refreshed in the chassis view.  By default, the UI refresh interval is 1 minute.
	Chassis racks to display	Use this setting to define the number of chassis racks Cisco EPN Manager should display.  By default, this value is 2.
Device Inventory List View	Device List Table Refresh Interval	Use this setting to define the time interval at which the table in the Network Devices page is refreshed. You can set the refresh interval to 1 minute, 2 minutes, 5 minutes, 10 minutes, 15 minutes or 30 minutes. Select <b>Do not refresh</b> if you do not want to refresh the table.  The default value of this setting is <b>Do not refresh</b> .
Mobility Services Engine	Use MSE Admin View	By default, this setting is enabled.

Category	User Preference Setting	Description
Logout idle user after	<p>This setting also enables you to set the idle time for auto logout. By default, the value is 10 mins.</p> <p><b>Note</b> This value cannot exceed the value in the <b>Global Idle timeout</b> field under <b>System Settings</b>.</p>	

After you make the desired changes, click **Save** to apply your changed settings.


To clear the page level customization and setting, click **Clear GUI State Settings** on the top right corner of the EPNM window. This will delete the custom settings made to Network Summary Dashboard, Performance Graphs, Network Devices etc. pages and refreshes the application to the default values.

For information about user preference settings in Alarms and Events, see [Set Up Your Alarm and Event Display Preferences](#).

## Extend Cisco EPN Manager Functions

Advanced users can extend Cisco EPN Manager using the following tools:

- Cisco Evolved Programmable Network Manager MTOSI API—Integrates Cisco EPN Manager with your Operations Support System (OSS).
- Cisco Evolved Programmable Network Manager REST API—Manages additional administrative operations.

To get information about these tools, click  from the right side of the title bar and then choose **Help > API Help**. You can also download the following documents from Cisco.com:

- [Cisco Evolved Programmable Network Manager MTOSI API Guide for OSS Integration](#)
- [Cisco Evolved Programmable Network Manager RESTCONF NBI Guide](#)

## Check Cisco.com for the Latest Cisco EPN Manager Documentation

Refer to [Cisco Evolved Programmable Network Manager Documentation Overview](#) for information about and links to all of the documentation that is provided with Cisco EPN Manager.



**Note** We sometimes update the documentation after original publication. Therefore, you should also review the documentation on Cisco.com for any updates.

