



Monitoring and Troubleshooting Sites

This chapter provides contains the following section:

- [Viewing the Complete Cisco IWAN Network, page 8-1](#)
- [Viewing Site Details, page 8-4](#)
- [Compliance Reporting: Out-of-Band Configuration Changes, page 8-6](#)
- [Service Assurance: Network Connectivity Alarms, page 8-8](#)

Viewing the Complete Cisco IWAN Network

Use the Monitoring page to view all sites within your Cisco IWAN network, worldwide, with information about the status of each site. The Monitoring page provides a map showing the geographic locations of each site, and provides an alternative list view that shows sites in a compact table format.

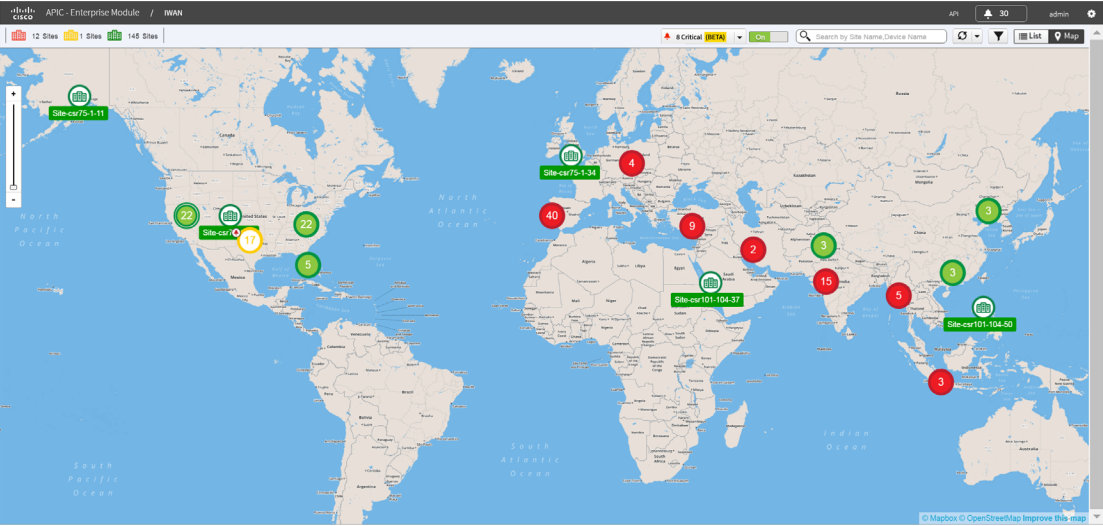
Procedure

- Step 1** From the Cisco IWAN app home page, click **Monitor & Troubleshoot**. The Monitoring page opens with a map showing all sites. Site icons indicate a single site at the location. To avoid clutter, where numerous sites are located within a specific area, the map displays a circle with a numeral indicating the total number of sites, including hubs and branches.

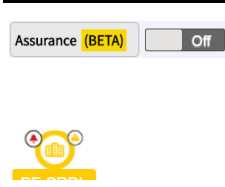



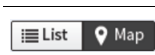
The **Map** and **List** buttons at the top-right switch between the map view and a list view of IWAN sites.

Monitoring Page, Symbols, and Controls

Figure 8-1 Monitoring Page



Map Element	Description
Site Symbols	
	Hub site.
	Branch site.
	Numerous sites in the same area. Zoom in on the map to view the sites separately.
Warnings and Alarms	
	Provisioned site, no warnings or alarms.
	Site with warning of out-of-band changes reported by the Compliance feature. Click to view the Site Details page, then select the Policy Compliance tab to display the site configuration. See Compliance Monitoring, page 8-7 .
	Site with one or more alarms. See Service Assurance: Network Connectivity Alarms, page 8-8 . Click to view the alarm details.
	Site – provisioning failure.
	Green—Number of provisioned sites without network alarms. Yellow—Number of sites with network alarms. The sites with alarms appear yellow on the map. Red—Number of sites with a provisioning failure.

	<p>Controls network alarm reporting, called Service Assurance (beta feature). Service Assurance reports critical network issues affecting sites in the IWAN network. Sites with alarms present appear in yellow. See Service Assurance: Network Connectivity Alarms, page 8-8.</p> <p>Each 30 minutes, the IWAN app requests alarm information from sites in the network, then analyzes the information and updates the display of alarms. If any alarms are present, this control displays the total number of alarms in the network.</p> <p>Optional:</p> <ul style="list-style-type: none"> • If alarms are present, click the Assurance control to display the Alarms page listing all alarms in the system. • Click the down arrow to open a small drop-down window with a Refresh button. Click Refresh to immediately request alarm information from each site in the network without waiting for the next scheduled auto-refresh. While the IWAN app analyzes alarm information, the drop-down window displays the percent progress. When complete, it updates the display. • On the map, hover over a site icon to display information about any alarms affecting the site. Click View Details to display the Site Details page with alarm details. • On the map, click a site icon to display the Site Details page with alarm details.
Additional Features	
	<p>Search for a specific site by site name or device name.</p>
	<p>Updates site information, such as provisioning status, and so on. Refresh does not affect the display of alarms.</p>
	<p>Filters the display of sites according to selected criteria.</p>
	<p>Changes between Map and Site List views.</p>

Viewing Site Details

Each site in the Cisco IWAN network has a Site Details page. The information provided on the page depends on the status of the site, application traffic health, whether alarms are present for the site, and so on.

Procedure

Step 1 Click a site. The Site Details page opens with the following information:

Map Element	Description
Site Status	Indicates whether the site is provisioned.
Hub/Site Topology tab	Graphical display of the site topology, including site name, location, and preferred POP. Hover over elements in the topology to display additional information.
IP Address Allocation	List of devices at the site and the IP addresses to which the devices are allocated.
Application Health tab	Displays information about application traffic. If application traffic performance is good, the tab displays: <ul style="list-style-type: none"> • Application traffic information • Bandwidth usage for each application • Statistical trend for each application If application traffic on the site has experienced problems that impact the application, such as packet loss, excessive delay, or excessive jitter, this tab displays the details. See Figure 8-2 on page 8-5 .
Alarms tab	(Displayed if alarms present) Alarms may be caused by problems with specific applications or by bandwidth allocation issues. The system provides recommended actions for addressing the alarm issues. See Service Assurance: Network Connectivity Alarms, page 8-8 .
Policy Compliance tab	(Displayed if out-of-band configuration detected) See Compliance Reporting: Out-of-Band Configuration Changes, page 8-6 .
Troubleshoot tab	Indicates the application causing a critical alarm, and provides recommended actions for improving the site performance. For example, if an application needs more bandwidth than has been allocated for it, you can adjust the bandwidth settings. See Figure 8-3 on page 8-5 and Figure 8-4 on page 8-6 .

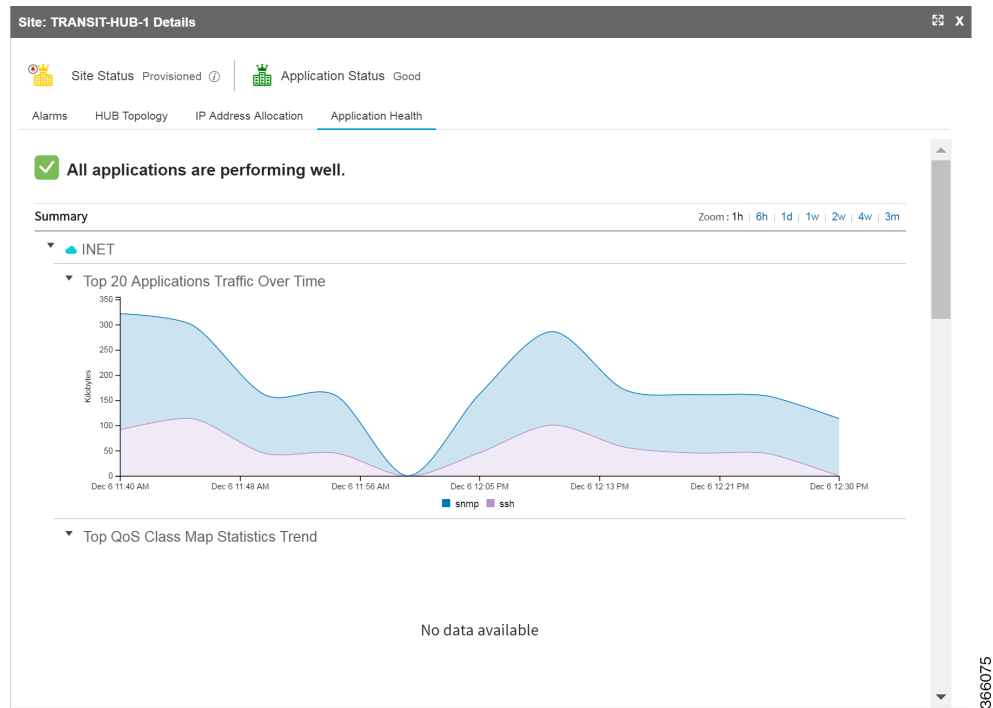
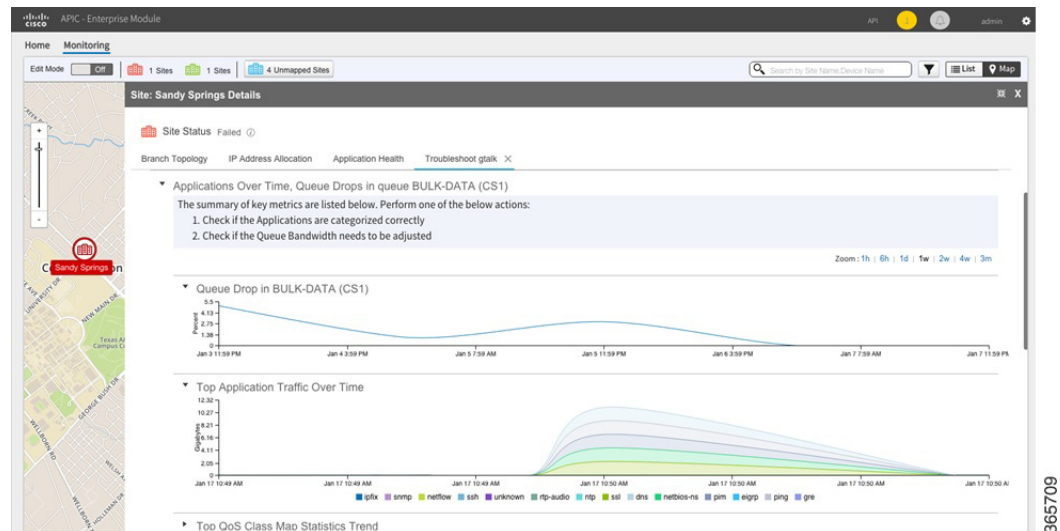
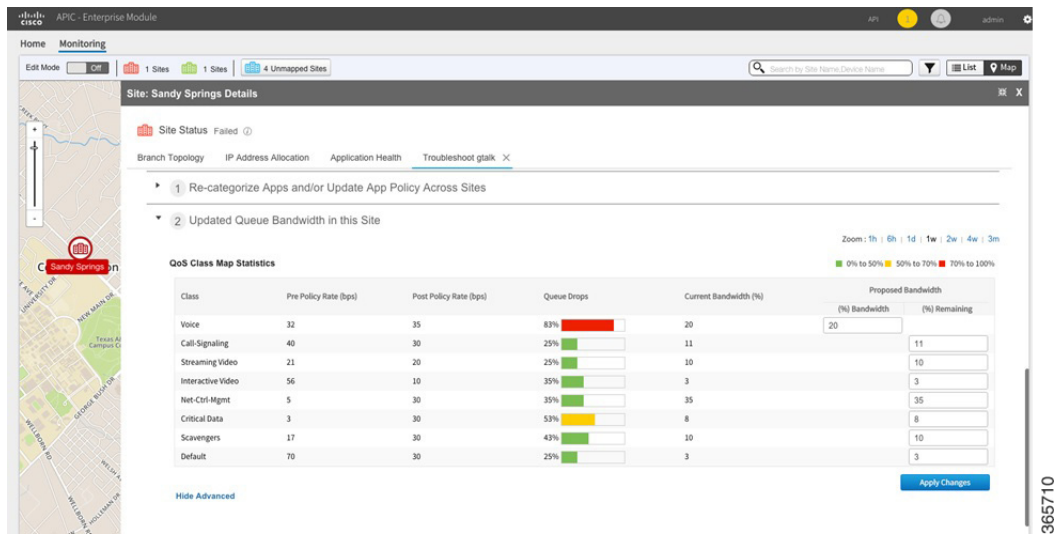
Figure 8-2 Application Health Tab**Figure 8-3 Troubleshooting—Detection**

Figure 8-4 Troubleshooting—Adjusting Bandwidth



Compliance Reporting: Out-of-Band Configuration Changes

For sites within a Cisco IWAN network, administrators typically make configuration changes centrally, using the IWAN app. Any configuration changes made locally, directly on a device in the network, and not through the IWAN app, are called out-of-band configuration changes. Sites with local configuration changes are called non-compliant.

The IWAN app can check sites in the network for compliance. The Compliance Reporting mechanism collects configuration information about each site. If it detects a site with out-of-band configuration changes, it flags the site as non-compliant on the IWAN app Monitoring page, displaying a yellow badge on the site in the Map view or a yellow warning symbol in Sites List view.



The Site Details page for a non-compliant site provides details of the changes that have been made locally.

Compliance Reporting Mechanism

Cisco Prime Infrastructure operates with routers in the IWAN network to collect information about router configuration. Prime Infrastructure provides this configuration information to the IWAN app, which then determines the compliance status of each router in the network.

The IWAN app flags a router as non-compliant if:

- The IWAN app detects configuration changes made locally on a router, and not through the IWAN app.
- and
- The configuration discrepancy has exceeded a 5-minute grace period.

Compliance Reporting Setup

To enable the Cisco IWAN app Compliance Reporting feature to report sites that have out-of-band configuration changes, perform the following steps.

- Step 1** On the IWAN app Home page, click **Configure Hub Site & Settings**. The Network wide settings page opens.
- Step 2** Click the **System** tab.
- Step 3** Click the **Show more** button to display additional settings.
- Step 4** In the Syslog section, in the Server IP field, enter the address of the Cisco Prime server. (A network administrator can provide the Prime server address.)

Syslog

Server IP

366067

- Step 5** Click the **Save & Continue** button to save the changes. Compliance Reporting is enabled.

Compliance Monitoring

When Compliance Reporting has been activated, the Monitoring page indicates sites that have out-of-band configuration changes, as follows:

- Map view: Yellow warning badge displayed on the site icon.

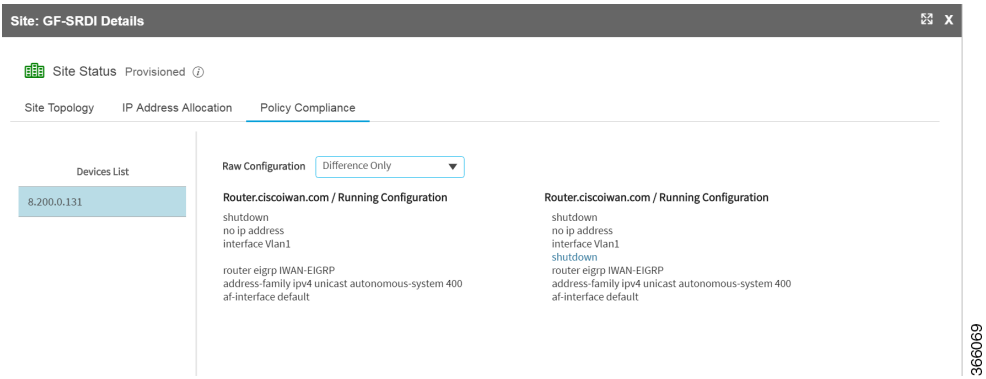


- Sites List view: Yellow warning icon in the Status column for the site.

Total 6						
Health	App Health	Site	Location	Status	Action	
		BR4351	Wyoming	Provisioned		
		DR3L	Wyoming 82721	Provisioned		
		HUB	United Kingdom	Provisioned		
		SR3L4451	Iowa 50588	Provisioned		
		SR3L4451	Wyoming	Provisioned		
		TRANSIT-HUB-1	United Kingdom	Provisioned		

366084

Click a site to view the Site Details page, then select the Policy Compliance tab to display the site configuration details. From the Raw Configuration drop-down menu, select **All** to display the complete details of the site configuration, or select **Difference Only** to display only the out-of-band changes made on the site.



Service Assurance: Network Connectivity Alarms

The IWAN app provides information about critical network issues affecting connectivity throughout the IWAN network. This “Service Assurance” provides important insight into problems that could affect communication between the IWAN app and sites in the network.

Sites throughout the IWAN network report connectivity information to the IWAN app. The application processes the information and presents any critical network issues as alarms on the Monitoring page. A button labeled, “Critical” displays a summary of any alarms present in the network.



The Map view and Sites List view display the alarms for each site, and provide easily accessible details about each alarm.

Alarm Mechanism

At 30-minute intervals, the IWAN app requests information about network functionality from each site in the network. After analyzing the information, the application indicates any critical network issues by displaying alarms on the Monitoring page. Sites affected by the network issues are yellow with a red badge:



To view details of all alarms detected in the network, click the Assurance button at the top of the Monitoring page. For information about alarms affecting a specific site, hover over or click the site icon.



Note

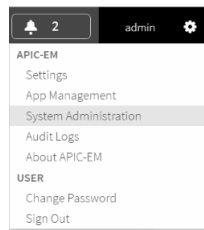
The Service Assurance feature, reporting network alarms, is a “beta” feature in this release. Do not rely on it as the only indicator of network problems.

Network Alarm Reporting Setup

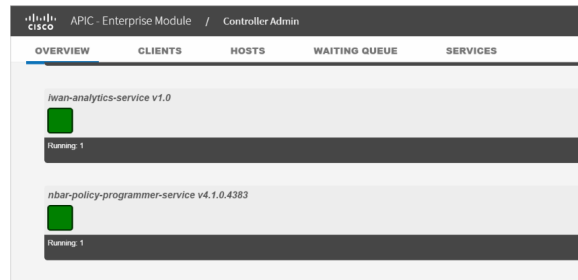
Before Enabling Service Assurance

Before enabling Service Assurance in the IWAN app, verify that the following APIC-EM service is running: **iwan-analytics-service**

To verify this, in APIC-EM, select **Settings (gear button) > System Administration** to view active services.



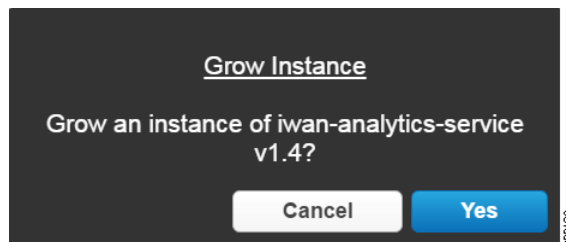
In the Overview tab, verify that **iwan-analytics-service** is running.



If no green square appears under **iwan-analytics-service** in the list of services, then the service is not running. The value of the "Running" label below the service name is 0.



To activate the service, click the plus icon (+) to the right of the service name. When prompted to grow an instance, click **Yes**.



Starting the service may take several minutes. When complete, a green square appears under the **iwan-analytics-service** name in the list of services.



Procedure

To enable the Service Assurance feature to report network alarms, perform the following steps.

-
- Step 1** On the IWAN app Home page, click **Monitor & Troubleshoot**. The Monitoring page opens.
- Step 2** On the Monitoring page, click the **On/Off** switch next to the **Assurance** button near the top of the page.

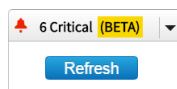


- Step 3** In this beta release of the Service Assurance feature, a window prompts you to select Lab Environment. Click the **Lab Environment** button.



The Service Assurance feature is activated. IWAN begins collecting information about network functionality for all sites in the network, refreshing the information each 30 minutes.

- Step 4** (Optional) On the **Assurance** button, click the down arrow to open a small drop-down window with a **Refresh** button. Click **Refresh** to immediately request alarm information for all sites in the network without waiting for the next scheduled auto-refresh.



While the IWAN app analyzes alarm information, the drop-down window displays the percent progress. When complete, the app updates the display.

Viewing Network Alarms

Do any of the following to view details of network alarms:

- **Map view:** Hover over a site icon to display information about any alarms affecting the site. Click **View Details** to display the Site Details page. The Alarms tab displays the alarm details.



- **Map view or Sites List view:** Click a site icon on the map or site name in the list view to display the Site Details page. The Alarms tab displays the alarm details.



