



Monitoring Cisco Wireless LAN Controllers

Cisco: Wireless PowerPack version 104

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Chapter

1

Introduction

Overview

This manual describes how to monitor Cisco wireless LAN controllers in SL1 using the *Cisco: Wireless PowerPack*.

The following sections provide an overview of Cisco wireless LAN controllers and the *Cisco: Wireless PowerPack*:

This chapter covers the following topics:

<i>What are Cisco Wireless LAN Controllers?</i>	3
<i>What Does the Cisco: Wireless PowerPack Monitor?</i>	4
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<p>NOTE: ScienceLogic provides this documentation for the convenience of ScienceLogic customers. Some of the configuration information contained herein pertains to third-party vendor software that is subject to change without notice to ScienceLogic. ScienceLogic makes every attempt to maintain accurate technical information and cannot be held responsible for defects or changes in third-party vendor software. There is no written or implied guarantee that information contained herein will work for all third-party variants. See the End User License Agreement (EULA) for more information.</p>

What are Cisco Wireless LAN Controllers?

Cisco wireless LAN controllers (WLC) play a central role in Cisco unified wireless networks. WLCs collect management and data packets from the network's access points (AP) and then switch those packets between wireless clients and the wired portion of the network. The WLC also controls the network configuration and passes this configuration data to the access points, which act as wireless client interfaces.

What Does the Cisco: Wireless PowerPack Monitor?

The *Cisco: Wireless PowerPack* enables you to monitor Cisco WLCs and APs using the AIRESpace-WIRELESS-MIB and CISCO-LWAPP-MIB. The PowerPack includes the following features:

- Dynamic Applications that discover and collect data from all Cisco WLC component devices monitored
- Event Policies and corresponding alerts that are triggered when Cisco WLC component devices meet certain status criteria
- Device Classes for each of the Cisco WLC component devices monitored
- Device Dashboards that display information about Cisco WLC component devices

Installing the Cisco: Wireless PowerPack

Before completing the steps in this manual, you must import and install the latest version of the *Cisco: Wireless PowerPack*.

TIP: By default, installing a new version of a PowerPack overwrites all content from a previous version of that PowerPack that has already been installed on the target system. You can use the **Enable Selective PowerPack Field Protection** setting in the **Behavior Settings** page (System > Settings > Behavior) to prevent new PowerPacks from overwriting local changes for some commonly customized fields. (For more information, see the *System Administration* manual.)

To download and install a PowerPack:

1. Download the PowerPack from the ScienceLogic Support Site at <https://support.sciencelogic.com/s/powerpacks>.
2. Go to the **PowerPack Manager** page (System > Manage > PowerPacks).
3. In the **PowerPack Manager** page, click the **[Actions]** button, then select *Import PowerPack*. The **Import PowerPack** dialog box appears.
4. Click the **[Browse]** button and navigate to the PowerPack file.
5. When the **PowerPack Installer** modal appears, click the **[Install]** button to install the PowerPack.

NOTE: If you exit the **PowerPack Installer** modal without installing the imported PowerPack, the imported PowerPack will not appear in the **PowerPack Manager** page. However, the imported PowerPack will appear in the **Imported PowerPacks** modal. This page appears when you click the **[Actions]** menu and select *Install PowerPack*.

Chapter

2

Configuration and Discovery

Overview

The following sections describe how to configure and discover Cisco wireless LAN controllers for monitoring by SL1 using the *Cisco: Wireless PowerPack*:

This chapter covers the following topics:

<i>Prerequisites for Monitoring Cisco WLC</i>	5
<i>Configuring a Cisco WLC SNMP Credential</i>	5
<i>Discovering Cisco WLC Devices</i>	7
<i>Handling Device Failover</i>	11
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Prerequisites for Monitoring Cisco WLC

Before you can monitor Cisco wireless LAN controllers using the *Cisco: Wireless PowerPack*, you must have the following information:

- The IP address of the WLC that you want to monitor with SL1
- The settings for an SNMP V2 or SNMP V3 credential that can be used to communicate with the WLC

Configuring a Cisco WLC SNMP Credential

To configure SL1 to monitor a Cisco WLC, you must first create a SNMP V2 or SNMP V3 credential. This credential allows the Dynamic Applications in the *Cisco: Wireless PowerPack* to communicate with the WLC.

To create an SNMP credential for monitoring a WLC:

1. Go to the **Credential Management** page (System > Manage > Credentials).
2. Click **[Actions]**, and then select *Create SNMP Credential*. The **Credential Editor** page appears:

The screenshot shows the 'Credential Editor' window with a title bar and a close button. The main content area is titled 'Create New SNMP Credential' and includes a 'Reset' button. The form is divided into three sections: 'Basic Settings', 'SNMP V1/V2 Settings', and 'SNMP V3 Settings'. The 'Basic Settings' section contains fields for 'Profile Name', 'SNMP Version' (a dropdown menu currently showing '[SNMP V2]'), 'Port' (with the value '161'), 'Timeout(ms)' (with the value '1500'), and 'Retries' (with the value '1'). The 'SNMP V1/V2 Settings' section contains two text input fields: 'SNMP Community (Read-Only)' and 'SNMP Community (Read/Write)'. The 'SNMP V3 Settings' section contains several fields: 'Security Name', 'Security Passphrase', 'Authentication Protocol' (a dropdown menu showing '[MD5]'), 'Security Level' (a dropdown menu showing '[Authentication Only]'), 'SNMP v3 Engine ID', 'Context Name', 'Privacy Protocol' (a dropdown menu showing '[DES]'), and 'Privacy Protocol Pass Phrase'. A 'Save' button is located at the bottom of the form.

3. In the **Profile Name** field, type a name for the credential.
4. In the **SNMP Version** field, select *SNMP V2* or *SNMP V3*.

NOTE: Do not use an SNMP V1 credential for monitoring a WLC. Using an SNMP V1 credential will decrease the performance of the data collection process.

5. If you selected *SNMP V2*, then in the **SNMP Community (Read Only)** field, type the community string for the WLC.
6. If you selected *SNMP V3*, supply values in the following fields:
 - **Security Name.** Type the SNMP user name for the WLC.
 - **Security Passphrase.** Type the passphrase for the SNMP user.
 - **Authentication Protocol.** If applicable, select the authentication protocol for the SNMP user.
 - **Security Level.** If applicable, select the security level that is applicable to the SNMP user.
 - **SNMP v3 Engine ID.** If applicable, type the SNMP V3 Engine ID for the SNMP user.

- **Privacy Protocol.** If applicable, select the privacy protocol for the SNMP user.
- **Privacy Protocol Pass Phrase.** If applicable, type the privacy protocol passphrase for the SNMP user.

- Optionally, supply values in the other fields on this page. In most cases, you can use the default values for the other fields. For a description of the fields in this page, see the **Discovery & Credentials** manual.
- Click **[Save]**.

Discovering Cisco WLC Devices

To discover Cisco WLC devices:


- Go to the **Discovery Control Panel** page (System > Manage > Classic Discovery).
- Click the **[Create]** button. The **Discovery Session Editor** page appears:

The screenshot shows the 'Discovery Session Editor | Editing Session [3]' interface. It is divided into four main sections:

- Identification Information:** Includes fields for 'Name' and 'Description'.
- IP and Credentials:** Contains an 'IP Address/Hostname Discovery List' with an 'Upload File' button and a 'Browse...' button. Below this is a list of 'SNMP Credentials' with 'SNMP Public V2' selected. There is also an 'Other Credentials' section and a 'Basic/Snippet' list.
- Detection and Scanning:** Includes 'Initial Scan Level' (System Default), 'Scan Throttle' (System Default), 'Port Scan All IPs' (System Default), and 'Port Scan Timeout' (System Default). It also has a 'Detection Method & Port' list with 'UDP: 161 SNMP' selected, and fields for 'Interface Inventory Timeout (ms)' (600000) and 'Maximum Allowed Interfaces' (10000). A 'Bypass Interface Inventory' checkbox is also present.
- Basic Settings:** Includes 'Discover Non-SNMP' (unchecked), 'Model Devices' (checked), and 'DHCP' (unchecked). It has a 'Device Model Cache TTL (h)' field set to 2, a 'Collection Server PID: 1' dropdown, an 'Organization' dropdown, and an 'Add Devices to Device Group(s)' list. At the bottom, there is an 'Apply Device Template' dropdown.


At the bottom of the page, there are 'Save' and 'Save As' buttons, and a 'Log All' checkbox.
































- Supply values in the following fields:
 - **Name.** Type a name for the discovery session.
 - **IP Address Discovery List.** Type the IP address for the WLC.
 - **SNMP Credentials.** Select the **SNMP credential you created for the WLC.**

- Optionally, supply values in the other fields in this page. In most cases, you can use the default values for the other fields. For a description of the fields in this page, see the **Discovery & Credentials** manual.
- Click **[Save]**, then close the **Discovery Session Editor** page.
- The **Discovery Control Panel** page will refresh. Click the lightning bolt icon () for the discovery session you created.
- In the pop-up window that appears, click **[OK]**. The **Discovery Session** page displays the progress of the discovery session.

Verifying Discovery and Dynamic Application Alignment

To verify that SL1 has automatically aligned the correct Dynamic Applications during discovery:

- In the **Discovery Session** page, click the device icon () for the newly discovered Cisco WLC device to view its **Device Properties** page.
- From the **Device Properties** page for the Cisco WLC device, click the **[Collections]** tab. The **Dynamic Application Collections** page appears.
- The following Dynamic Applications should appear on the **Dynamic Application Collections** page for the WLC device:

Close	Properties	Thresholds	Collections	Monitors	Schedule																																																																					
Logs	Toolbox	Interfaces	Relationships	Tickets	Redirects	Notes	Attributes																																																																			
Device Name: JBS-big-wlc IP Address / ID: 10.2.10.135 12 Class: Cisco Systems Organization: System Collection Mode: Active Description: Cisco Controller Device Hostname:		Managed Type: Physical Device Category: wireless.controller Sub-Class: AIR CT 8510 Uptime: 11 days, 00:52:41 Collection Time: 2018-04-12 13:05:00 Group / Collector: CUG JJA-AIO-CiscoWLS																																																																								
Dynamic Application™ Collections <div>Expand Actions Reset Guide</div> <table border="1"> <thead> <tr> <th>Dynamic Application</th> <th>ID</th> <th>Poll Frequency</th> <th>Type</th> <th>Credential</th> <th></th> </tr> </thead> <tbody> <tr> <td>+ Cisco: WLC CPU</td> <td>1334</td> <td>5 mins</td> <td>SNMP Performance</td> <td>Default SNMP Credential</td> <td></td> </tr> <tr> <td>+ Cisco: WLC CPU and Memory Performance</td> <td>1354</td> <td>5 mins</td> <td>SNMP Performance</td> <td>Default SNMP Credential</td> <td></td> </tr> <tr> <td>+ Cisco: WLC Memory</td> <td>1335</td> <td>5 mins</td> <td>SNMP Performance</td> <td>Default SNMP Credential</td> <td></td> </tr> <tr> <td>+ Cisco: WLC System Counts</td> <td>1353</td> <td>5 mins</td> <td>SNMP Performance</td> <td>Default SNMP Credential</td> <td></td> </tr> <tr> <td>+ Cisco: WLC Configuration</td> <td>1348</td> <td>360 mins</td> <td>SNMP Configuration</td> <td>Default SNMP Credential</td> <td></td> </tr> <tr> <td>+ Cisco: WLC Interface Performance Average</td> <td>1350</td> <td>5 mins</td> <td>Snippet Performance</td> <td>Default SNMP Credential</td> <td></td> </tr> <tr> <td>+ Cisco: WLC Interference Average</td> <td>1351</td> <td>5 mins</td> <td>Snippet Performance</td> <td>Default SNMP Credential</td> <td></td> </tr> <tr> <td>+ Cisco: WLC Noise Average</td> <td>1352</td> <td>5 mins</td> <td>Snippet Performance</td> <td>Default SNMP Credential</td> <td></td> </tr> <tr> <td>+ Cisco: WLC AP Discovery</td> <td>1336</td> <td>120 mins</td> <td>Snippet Configuration</td> <td>Default SNMP Credential</td> <td></td> </tr> <tr> <td>+ Entity Configuration</td> <td>1313</td> <td>1440 mins</td> <td>Snippet Configuration</td> <td>Default SNMP Credential</td> <td></td> </tr> </tbody> </table> <div> <div>[Select Action]</div> <div>Go</div> </div> <div>Save</div>									Dynamic Application	ID	Poll Frequency	Type	Credential		+ Cisco: WLC CPU	1334	5 mins	SNMP Performance	Default SNMP Credential		+ Cisco: WLC CPU and Memory Performance	1354	5 mins	SNMP Performance	Default SNMP Credential		+ Cisco: WLC Memory	1335	5 mins	SNMP Performance	Default SNMP Credential		+ Cisco: WLC System Counts	1353	5 mins	SNMP Performance	Default SNMP Credential		+ Cisco: WLC Configuration	1348	360 mins	SNMP Configuration	Default SNMP Credential		+ Cisco: WLC Interface Performance Average	1350	5 mins	Snippet Performance	Default SNMP Credential		+ Cisco: WLC Interference Average	1351	5 mins	Snippet Performance	Default SNMP Credential		+ Cisco: WLC Noise Average	1352	5 mins	Snippet Performance	Default SNMP Credential		+ Cisco: WLC AP Discovery	1336	120 mins	Snippet Configuration	Default SNMP Credential		+ Entity Configuration	1313	1440 mins	Snippet Configuration	Default SNMP Credential	
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- Cisco: WLC CPU

- *Cisco: WLC CPU and Memory Performance*
- *Cisco: WLC Memory*
- *Cisco: WLC System Counts*
- *Cisco: WLC Configuration*
- *Cisco: WLC Interface Performance Average*
- *Cisco: WLC Interface Average*
- *Cisco: WLC Noise Average*
- *Cisco: WLC AP Discovery*

NOTE: It can take several minutes after discovery for Dynamic Applications to be automatically aligned to the controller device. If the listed Dynamic Applications do not display on this page, try clicking the **[Reset]** button.

Manually Aligning Dynamic Applications

If the Dynamic Applications have not been automatically aligned, you can align them manually.

NOTE: The "Cisco: WLC Rogue AP" Dynamic Application, which can be used to collect information about rogue access points, is not automatically aligned during discovery. To use the "Cisco: WLC Rogue AP" Dynamic Application, follow the instructions in this section.


To manually align Dynamic Applications:





















































1. From the **Device Properties** page for the Cisco WLC device, click the **[Collections]** tab.

2. Click the **[Actions]** button and then select *Add Dynamic Applications*. The **Dynamic Application Alignment** page appears:

The screenshot shows a dialog box titled "Dynamic Application Alignment" with a "Reset" button in the top right corner. The dialog is divided into two main sections: "Dynamic Applications" on the left and "Credentials" on the right. At the top of the "Dynamic Applications" section is a search bar containing the text "wlc". Below the search bar, the list is organized into three categories: "Bulk Snippet Configuration:" (listing various Cisco WLC configuration snippets), "Bulk Snippet Performance:" (listing various Cisco WLC performance snippets), and "Snippet Journal:" (listing "Cisco: WLC Rogue APs", which is currently selected and highlighted). The "Credentials" section on the right contains several categories: "Default:" (with "Default SNMP Credential" selected), "SNMP:" (listing various SNMP examples), "Database:" (listing various databases), and "SOAP/XML Host:" (listing various host credentials). At the bottom center of the dialog is a "Save" button.

3. In the **Dynamic Applications** field, select the Dynamic Application you want to align.
4. In the **Credentials** field, select the Cisco WLC SNMP credential.
5. Repeat steps 2-4 for the remaining Dynamic Applications you want to align with the device.

- After aligning the Dynamic Applications, click the **[Reset]** button and then click the plus icon (+) for the Dynamic Application. If collection for the Dynamic Application was successful, the graph icons  for the Dynamic Application are enabled:

Close	Properties	Thresholds	Collections	Monitors	Schedule																																																																												
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Device Name: JBS-wlc IP Address / ID: 10.2.8.104 1483 Class: Cisco Systems Organization: System Collection Mode: Active Description: Cisco Controller Device Hostname:		Managed Type: Physical Device Category: Wireless Sub-Class: AIR CT5508 Uptime: 98 days, 08:33:42 Collection Time: 2016-09-15 13:35:00 Group / Collector: CUG em7ao																																																																															
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Handling Device Failover

Component devices moving to a new parent controller upon failover, along with related alerts and events is supported as of version 104 of this PowerPack.

Component devices for Cisco Wireless Access Points and Cisco WLC AP Interfaces have a GUID (Globally Unique Identifier) component identifier set in the "Cisco: WLC AP Discovery" and "Cisco: WLC AP Interface Discovery" Dynamic Applications respectively. These GUID identifiers allow SL1 to detect when an access point and its interfaces begin reporting to a new controller that has also been discovered by the same SL1 system. The Access Point GUID component identifier is associated with the "AP Name" collection object. The Interface GUID component identifier is associated with the "Interface Name" collection object, which is a combination of the access point name concatenated with the interface slot number. This means that the access point names must be unique throughout SL1.

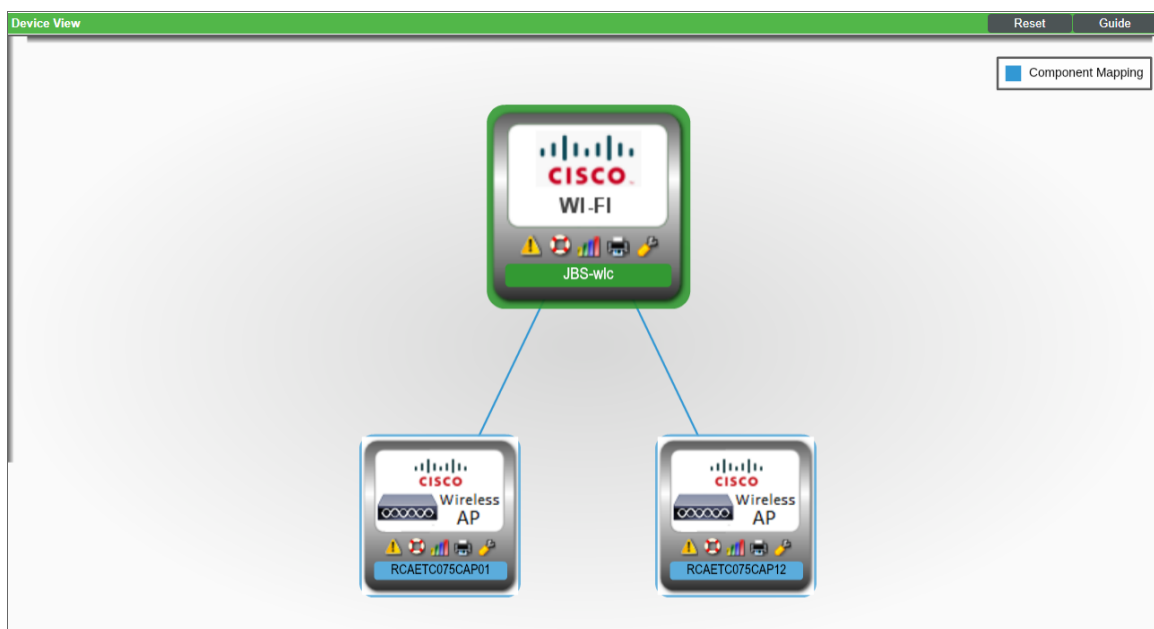
WARNING: ScienceLogic does not recommend enabling the "Cisco: WLC AP Interface Discovery" Dynamic Application in order to prevent potentially overloading the collector.

NOTE: These Dynamic Application run every 2 hours by default. As a result, an access point that fails over to another controller may show as unavailable for up to that amount of time before moving to the new controller. This wait time can be reduced by decreasing the polling interval, however, these Dynamic Applications are resource intensive and should only be run at a higher rate if the collector is appropriately sized and has sufficient resources. The WLC controllers should be able to handle the additional SNMP walks as well before making such a change.

Viewing Cisco WLC Component Devices

In addition to the **Device Manager** page (Registry > Devices > Device Manager), you can view the Cisco WLC device and all associated component devices in the following places in the user interface:

- The **Device View** page displays a map of a particular device and all of the devices with which it has parent-child relationships. Double-clicking any of the devices listed reloads the page to make the selected device the primary device:



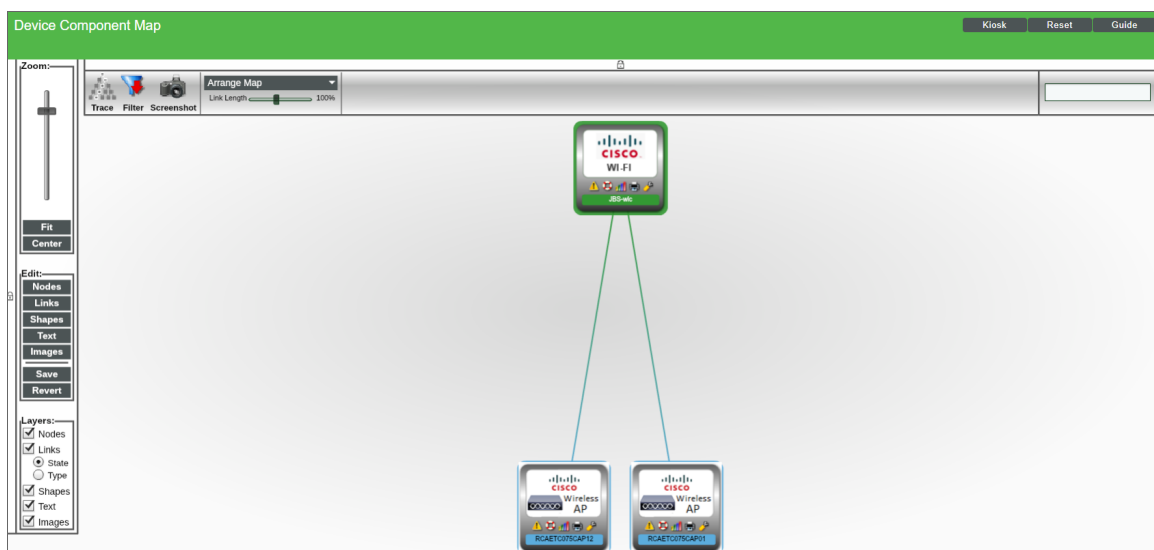
- The **Device Components** page (Registry > Devices > Device Components) displays a list of all root devices and component devices discovered by SL1 in an indented view, so you can easily view the hierarchy and relationships between child devices, parent devices, and root devices. To view the component devices associated with a Cisco WLC, click its plus icon (+):

Device Components | Devices Found [2] Actions Reset Guide

	Device Name	IP Address	Device Category	Device Class Sub-class	DID	Organization	Current State	Collection Group	Collection State	
1. -	JBS-bag-wlc	10.2.10.135	controller	Cisco Systems AIR-CT 8510	12	System	Healthy	CUG	Active	
1.	SIM1AP-1	--	Access Point	Cisco Systems AIR-AP1141N	5351	System	Healthy	CUG	Active	
2.	SIM1AP-10	--	Access Point	Cisco Systems AIR-AP1141N	751	System	Healthy	CUG	Active	
3.	SIM1AP-100	--	Access Point	Cisco Systems AIR-AP1141N	1977	System	Healthy	CUG	Active	
4.	SIM1AP-1000	--	Access Point	Cisco Systems AIR-AP1141N	598	System	Healthy	CUG	Active	
5.	SIM1AP-1001	--	Access Point	Cisco Systems AIR-AP1141N	3424	System	Healthy	CUG	Active	
6.	SIM1AP-1002	--	Access Point	Cisco Systems AIR-AP1141N	2404	System	Healthy	CUG	Active	
7.	SIM1AP-1003	--	Access Point	Cisco Systems AIR-AP1141N	4554	System	Healthy	CUG	Active	
8.	SIM1AP-1004	--	Access Point	Cisco Systems AIR-AP1141N	3576	System	Healthy	CUG	Active	
9.	SIM1AP-1005	--	Access Point	Cisco Systems AIR-AP1141N	4641	System	Healthy	CUG	Active	
10.	SIM1AP-1006	--	Access Point	Cisco Systems AIR-AP1141N	5444	System	Healthy	CUG	Active	
11.	SIM1AP-1007	--	Access Point	Cisco Systems AIR-AP1141N	4180	System	Healthy	CUG	Active	
12.	SIM1AP-1008	--	Access Point	Cisco Systems AIR-AP1141N	5157	System	Healthy	CUG	Active	
13.	SIM1AP-1009	--	Access Point	Cisco Systems AIR-AP1141N	2649	System	Healthy	CUG	Active	
14.	SIM1AP-101	--	Access Point	Cisco Systems AIR-AP1141N	5572	System	Healthy	CUG	Active	
15.	SIM1AP-1010	--	Access Point	Cisco Systems AIR-AP1141N	3646	System	Healthy	CUG	Active	
16.	SIM1AP-1011	--	Access Point	Cisco Systems AIR-AP1141N	2055	System	Healthy	CUG	Active	

(Select Action) Go

- The **Component Map** page (Classic Maps > Device Maps > Components) allows you to view devices by root node and view the relationships between root nodes, parent components, and child components in a map. This makes it easy to visualize and manage root nodes and their components. SL1 automatically updates the **Component Map** as new component devices are discovered. The platform also updates each map with the latest status and event information. To view the map for a Cisco WLC, go to the **Component Map** page and select the map from the list in the left NavBar. To learn more about the **Component Map** page, see the **Views** manual.



Chapter

3

Dashboards

Overview

The following sections describe the device dashboards that are included in the *Cisco: Wireless PowerPack*:

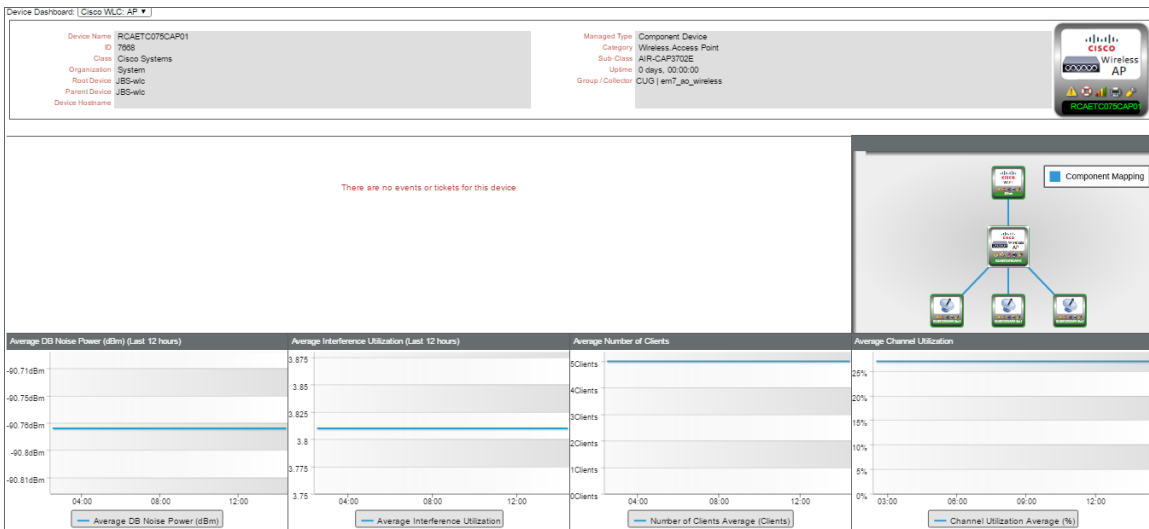
This chapter covers the following topics:

<i>Device Dashboards</i>	14
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Device Dashboards

The *Cisco: Wireless PowerPack* includes device dashboards that provide summary information for Cisco WLC component devices. Each of the device dashboards in the *Cisco: Wireless PowerPack* is set as the default device dashboard for the equivalent device class.

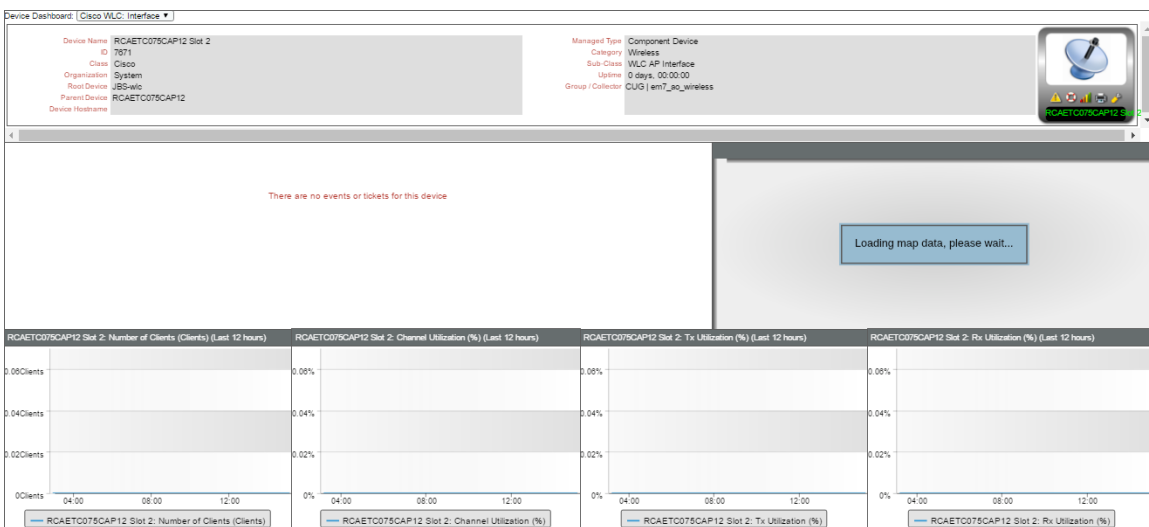
Cisco WLC: AP Dashboard



The Cisco WLC: AP device dashboard displays the following information about Cisco wireless access points:

- Events and tickets on the device
- A component map
- Average decibel (dB) noise over the past 12 hours
- Average interface utilization over the past 12 hours
- Average number of clients across all interfaces on the access point for the most recent poll
- Average channel utilization across all interfaces on the access point for the most recent poll

Cisco WLC: Interface Dashboard



The Cisco WLC: Interface dashboard displays the following information about Cisco wireless access point interfaces:

- Events and tickets on the device
- A component map
- Number of clients over the past 12 hours
- Channel utilization over the past 12 hours
- Tx utilization over the past 12 hours
- Rx utilization over the past 12 hours

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800-SCI-LOGIC (1-800-724-5644)

International: +1-703-354-1010