



---

# Monitoring Cisco Wireless LAN Controllers

Cisco: Wireless PowerPack version 104.1

---

# Table of Contents

<b>Introduction</b> .....	<b>3</b>
What are Cisco Wireless LAN Controllers? .....	3
What Does the Cisco: Wireless PowerPack Monitor? .....	4
Installing the Cisco: Wireless PowerPack .....	4
<b>Configuration and Discovery</b> .....	<b>5</b>
Prerequisites for Monitoring Cisco WLC .....	5
Configuring a Cisco WLC SNMP Credential .....	5
Discovering Cisco WLC Devices .....	6
Verifying Discovery and Dynamic Application Alignment .....	7
Manually Aligning Dynamic Applications .....	7
Handling Device Failover .....	8
Troubleshooting Duplicate Device Issues .....	10
Viewing Cisco WLC Component Devices .....	11
<b>Dashboards</b> .....	<b>13</b>
Device Dashboards .....	13
Cisco WLC: AP Dashboard .....	14
Cisco WLC: Interface Dashboard .....	14

---

# 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
<i>Installing the Cisco: Wireless PowerPack</i> .....	4

**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.

---

### 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.)

**IMPORTANT:** The minimum required MySQL version is 5.6.0.

To download and install the PowerPack:

1. Search for and download the PowerPack from the **PowerPacks** page (Product Downloads > PowerPacks & SyncPacks) at the [ScienceLogic Support Site](#).
2. In SL1, go to the **PowerPacks** page (System > Manage > PowerPacks).
3. Click the **[Actions]** button and choose *Import PowerPack*. The **Import PowerPack** dialog box appears.
4. Click **[Browse]** and navigate to the PowerPack file from step 1.
5. Select the PowerPack file and click **[Import]**. The **PowerPack Installer** modal displays a list of the PowerPack contents.
6. Click **[Install]**. The PowerPack is added to the **PowerPacks** page.

**NOTE:** If you exit the **PowerPack Installer** modal without installing the imported PowerPack, the imported PowerPack will not appear in the **PowerPacks** 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:

<a href="#">Prerequisites for Monitoring Cisco WLC</a> .....	5
<a href="#">Discovering Cisco WLC Devices</a> .....	6
<a href="#">Handling Device Failover</a> .....	8
<a href="#">Viewing Cisco WLC Component Devices</a> .....	11

---

### 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:
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.
7. 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.
8. Click **[Save]**.

---

## Discovering Cisco WLC Devices

To discover Cisco WLC devices:

1. Go to the **Discovery Control Panel** page (System > Manage > Classic Discovery).
2. Click the **[Create]** button. The **Discovery Session Editor** page appears.
3. 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](#).
4. 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.
5. Click **[Save]**, then close the **Discovery Session Editor** page.

6. The **Discovery Control Panel** page will refresh. Click the lightning bolt icon () for the discovery session you created.
7. 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:

1. In the **Discovery Session** page, click the device icon () for the newly discovered Cisco WLC device to view its **Device Properties** page.
2. From the **Device Properties** page for the Cisco WLC device, click the **[Collections]** tab. The **Dynamic Application Collections** page appears.
3. The following Dynamic Applications should appear on the **Dynamic Application Collections** page for the WLC device:
  - *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.
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.
6. 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.

---

## Handling Device Failover

As of version 104.1 of this PowerPack, if you want to enable failover support of component devices between root-level Wireless controllers (or re-enable your own previously implemented custom support), you must follow the steps below:

1. Set the GUID (Globally Unique Identifier) for a collection object that is expected to be unique across the component devices. For the "Cisco: WLC AP Discovery" Dynamic Application, this is often the MAC address or Serial Number. For the "Cisco: WLC AP Interface Discovery" Dynamic Application, this is often the Interface Index.
  - Go to the **Dynamic Applications Manager** page (System > Manage > Applications).
  - Type "Cisco: WLC AP Discovery" in the **Dynamic Application Name** column.
  - Click the wrench icon () and then select the **[Collections]** tab. The **Collection Objects** page appears.
  - Click the wrench icon () next to the collection object you want to set the GUID for.
  - Under **Component Identifiers**, select *GUID (%G)*.
  - Click **[Save]**.

2. Enable collection for the selected collection object. Many of the collection objects for the "Cisco: WLC AP Discovery" Dynamic Application do not collect data by default. To enable collection, the "Cisco: WLC AP Discovery" snippet code must be modified:

**NOTE:** No additional collections need to be enabled in the "Cisco: WLC AP Discovery" Dynamic Application unless you are using one of those disabled collections as the GUID component identifier described in step 1.

- Go to the **Dynamic Applications Manager** page (System > Manage > Applications).
- Type "Cisco: WLC AP Discovery" in the **Dynamic Application Name** column.
- Click the wrench icon () and then select the **[Snippets]** tab. The **Snippet Editor & Registry** page appears.
- Click the wrench icon () next to **Cisco: WLC AP Discovery**.
- Add the final index of the collection object's SNMP OID to the `COLLECTED_OIDS` list at the top of the snippet. For example, to add the "Serial Number" collection object (which has an SNMP OID of `'1.3.6.1.4.1.14179.2.2.1.1.17'`, and a final index of `'17'`), the "COLLECTED\_OIDS" list will go from `* COLLECTED_OIDS = ['6', '16', '3']` to `* COLLECTED_OIDS = ['6', '16', '3', '17']`
- Click **[Save]**.

**NOTE:** For failover support, the GUID component identifier must be set for both the "Cisco: WLC AP Discovery" and "Cisco: WLC AP Interface Discovery" Dynamic Applications, if both applications are enabled. If the "Cisco: WLC AP Interface Discovery" Dynamic Application is disabled, you only need to set the component identifier in the "Cisco: WLC AP Discovery" Dynamic Application.

**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.

## Troubleshooting Duplicate Device Issues

If the GUID (Globally Unique Identifier) Component Identifier is already set to a different collection object (For example, "Serial Number") in the "Cisco: WLC AP Discovery" Dynamic Application before upgrading to version 104.1 of the Cisco: Wireless PowerPack, it will be removed upon upgrading to version 104.1.

If no GUID (Globally Unique Identifier) is set, components can be duplicated in a failover scenario where the component device moves from one SL1 root device to another. If the GUID is set, the components should not be duplicated in a failover scenario.

**NOTE:** If duplicate components are created, the original devices may be automatically vanished, depending on the device settings and the global settings in the SL1 System.

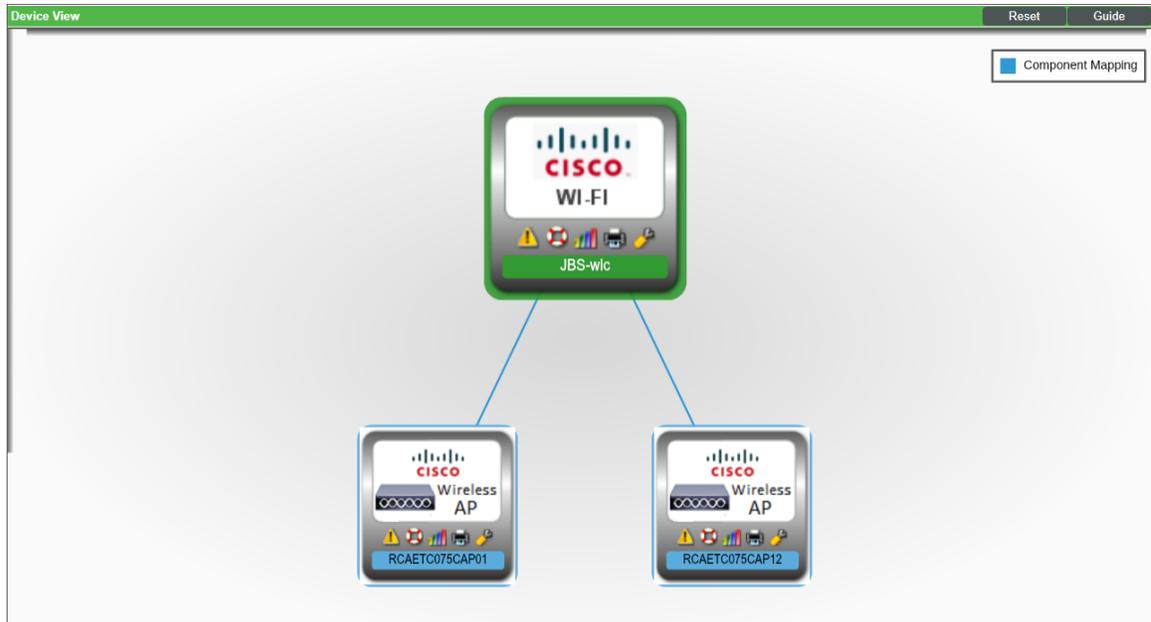
If components are discovered with the GUID component identifier set in a previous version, and the PowerPack is upgraded to 104.1, duplicate component devices should not be immediately created. However, if the GUID component identifier setting is not restored after the upgrade, you will see duplicate devices created in the event of a failover to another root device. If the GUID setting is restored after the upgrade, no duplicate components should be created upon a failover.

**NOTE:** If a controller and its components are discovered with a GUID component identifier set, and the GUID component identifier is subsequently changed to a different collection object, SL1 will model the existing devices as new duplicate components using the new GUID value.

## 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:

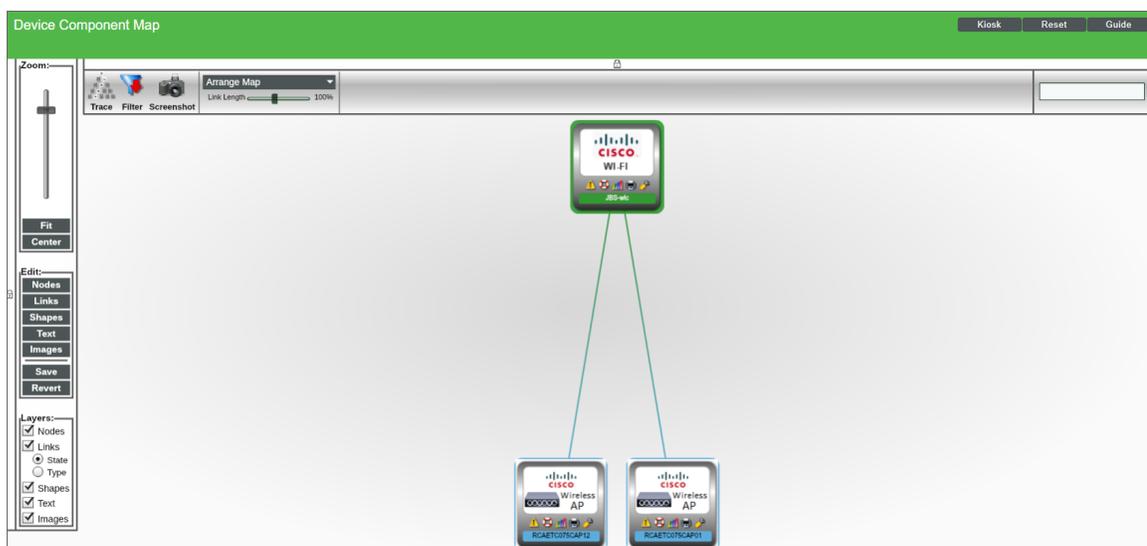
- The **Device View** page displays a map of a particular device and all of the devices with which it has parent-child relationships. Double-clicking any of the devices listed reloads the page to make the selected device the primary device:



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

- 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:

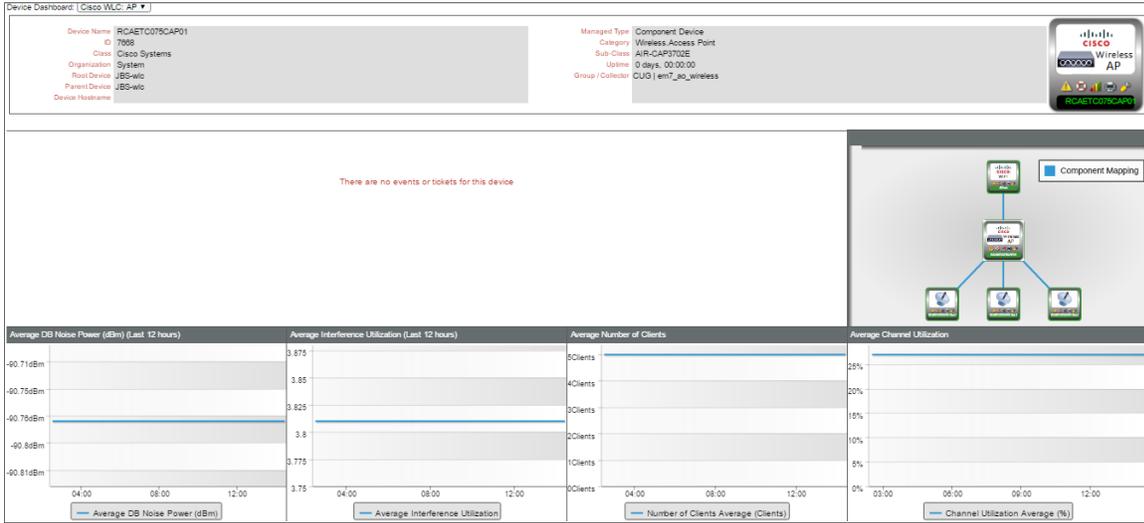
<i>Device Dashboards</i> .....	13
--------------------------------	----

---

### 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.

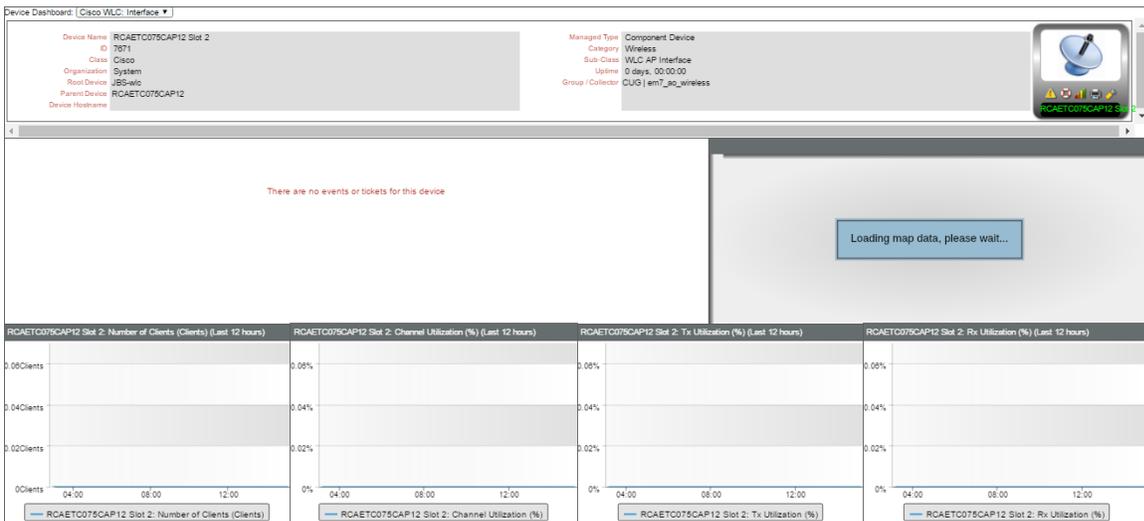
# Cisco WLC: AP Dashboard



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

© 2003 - 2024, ScienceLogic, Inc.

All rights reserved.

#### LIMITATION OF LIABILITY AND GENERAL DISCLAIMER

ALL INFORMATION AVAILABLE IN THIS GUIDE IS PROVIDED "AS IS," WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED. SCIENCELOGIC™ AND ITS SUPPLIERS DISCLAIM ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT.

Although ScienceLogic™ has attempted to provide accurate information on this Site, information on this Site may contain inadvertent technical inaccuracies or typographical errors, and ScienceLogic™ assumes no responsibility for the accuracy of the information. Information may be changed or updated without notice. ScienceLogic™ may also make improvements and / or changes in the products or services described in this Site at any time without notice.

#### Copyrights and Trademarks

ScienceLogic, the ScienceLogic logo, and EM7 are trademarks of ScienceLogic, Inc. in the United States, other countries, or both.

Below is a list of trademarks and service marks that should be credited to ScienceLogic, Inc. The ® and ™ symbols reflect the trademark registration status in the U.S. Patent and Trademark Office and may not be appropriate for materials to be distributed outside the United States.

- ScienceLogic™
- EM7™ and em7™
- Simplify IT™
- Dynamic Application™
- Relational Infrastructure Management™

The absence of a product or service name, slogan or logo from this list does not constitute a waiver of ScienceLogic's trademark or other intellectual property rights concerning that name, slogan, or logo.

Please note that laws concerning use of trademarks or product names vary by country. Always consult a local attorney for additional guidance.

#### Other

If any provision of this agreement shall be unlawful, void, or for any reason unenforceable, then that provision shall be deemed severable from this agreement and shall not affect the validity and enforceability of any remaining provisions. This is the entire agreement between the parties relating to the matters contained herein.

In the U.S. and other jurisdictions, trademark owners have a duty to police the use of their marks. Therefore, if you become aware of any improper use of ScienceLogic Trademarks, including infringement or counterfeiting by third parties, report them to Science Logic's legal department immediately. Report as much detail as possible about the misuse, including the name of the party, contact information, and copies or photographs of the potential misuse to: [legal@sciencelogic.com](mailto:legal@sciencelogic.com). For more information, see <https://sciencelogic.com/company/legal>.

ScienceLogic

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

International: +1-703-354-1010