



Monitoring Cisco Meraki (API)

Cisco: Meraki [API] PowerPack version 111.1

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Chapter

1

Introduction

Overview

This manual describes how to monitor Cisco Meraki access points, switches, firewalls, cameras, sensors, and other IOT devices in SL1 using the *Cisco: Meraki [API] PowerPack* and the Meraki API.

NOTE: Version 111.1 is a special release to address an issue in version 111 that caused uplink status data to report on the wrong device. If you are using version 111, ScienceLogic recommends upgrading to version 111.1.

The following sections provide an overview of Cisco Meraki and the *Cisco: Meraki [API] PowerPack*:

This chapter covers the following topics:

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What Does the Cisco: Meraki [API] PowerPack Monitor?	4
Installing the Cisco: Meraki [API] PowerPack	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 is Cisco Meraki?

Cisco Meraki provides a set of networking devices and appliances that you can manage from the cloud. Cisco Meraki's centralized cloud architecture enables you to securely monitor users, applications, and devices in your environment.

What Does the Cisco: Meraki [API] PowerPack Monitor?

To monitor Cisco Meraki devices using SL1 and the Meraki API, you must install the *Cisco: Meraki [API] PowerPack*. This PowerPack enables you to discover and collect data about Cisco Meraki appliances.

The *Cisco: Meraki [API] PowerPack* includes:

- Dynamic Applications to discover, model, and monitor performance metrics and collect configuration data for Cisco Meraki devices
- Device Classes for each of the Cisco Meraki devices, networks, and organizations that SL1 monitors
- Event Policies and corresponding alerts that are triggered when Cisco Meraki devices meet certain status criteria
- Event Policies for Email/Webhook alerts
- Example credentials that you can use as template to create Basic/Snippet or SOAP/XML credentials for connecting to the Cisco Meraki API
- Run Book Action and Automation policies that create Meraki organization virtual devices during discovery and vanish devices

NOTE: Meraki dashboards can be downloaded in the Cisco Meraki: SL1 Dashboards PowerPack.

Installing the Cisco: Meraki [API] PowerPack

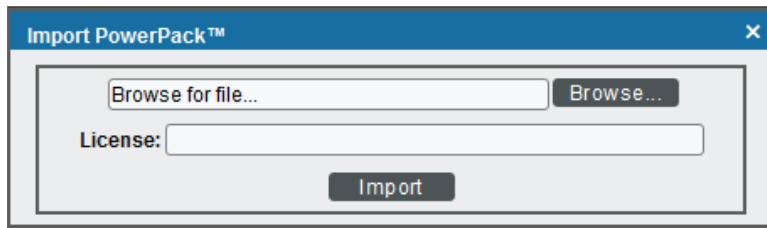
Before completing the steps in this manual, you must import and install the latest version of the *Cisco: Meraki [API] PowerPack*.

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 Meraki devices for monitoring by SL1 using the *Cisco: Meraki [API]* PowerPack and the Meraki API:

This chapter covers the following topics:

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<i>Creating a Cisco Meraki Virtual Device</i>	23
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<i>Viewing Cisco Meraki Component Devices</i>	26
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Generating a Cisco Meraki API Key

To configure Cisco Meraki for monitoring using the Meraki API, you must first generate an API key for a read-only Meraki user. You will then enter this user's API key in the *Basic/Snippet credential* or *SOAP/XML credential* you create in SL1 to monitor Meraki.

NOTE: If the read-only user has access to multiple organizations, then SL1 can discover all of those organizations with a single discovery session. In this scenario, each organization is created as a separate "root level" device with the networks and devices for that organization modeled in the DCM Tree as children of the organization. Organizations and their child components can be moved between collectors after discovery for load balancing purposes.

However, if you want each Meraki organization to have its own corresponding ScienceLogic organization in SL1, ScienceLogic recommends creating a unique read-only user account and API key for each organization in Meraki. You can then create separate credentials in SL1 for each Meraki organization using those unique API keys, and then use those credentials to run separate discovery sessions for each organization.

To create a read-only user:

1. Log in to the Cisco Meraki web interface.
2. Go to **Organization > Administrators**, and then click the **[Add admin]** button.
3. On the **Create administrator** page, complete the following fields:

The screenshot shows a modal window titled "Create administrator" with a close button (x) in the top right corner. It contains the following elements:

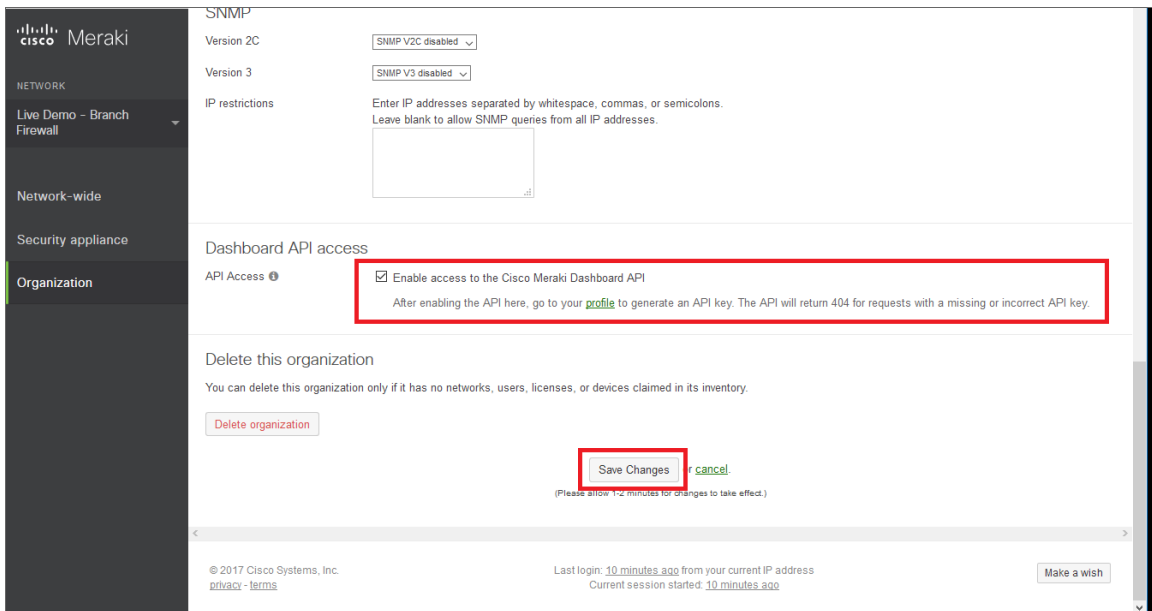
- Name:** A text input field.
- Email:** A text input field.
- Organization access:** A dropdown menu currently set to "Read-only".
- Table:** A table with two columns: "Target" and "Access". Below the table is a link: "+ Add access privileges".
- Footer:** A "privacy" link, a "Close" button, and a blue "Create admin" button.

- **Name.** Type the user's name.
 - **Email.** Type the user's email address.
 - **Organization access.** Select *Read-only*.
4. Click **[Create admin]**. Cisco Meraki sends an email to the email address provided, describing how the user can complete the registration process. The user must complete those steps before generating the API key.

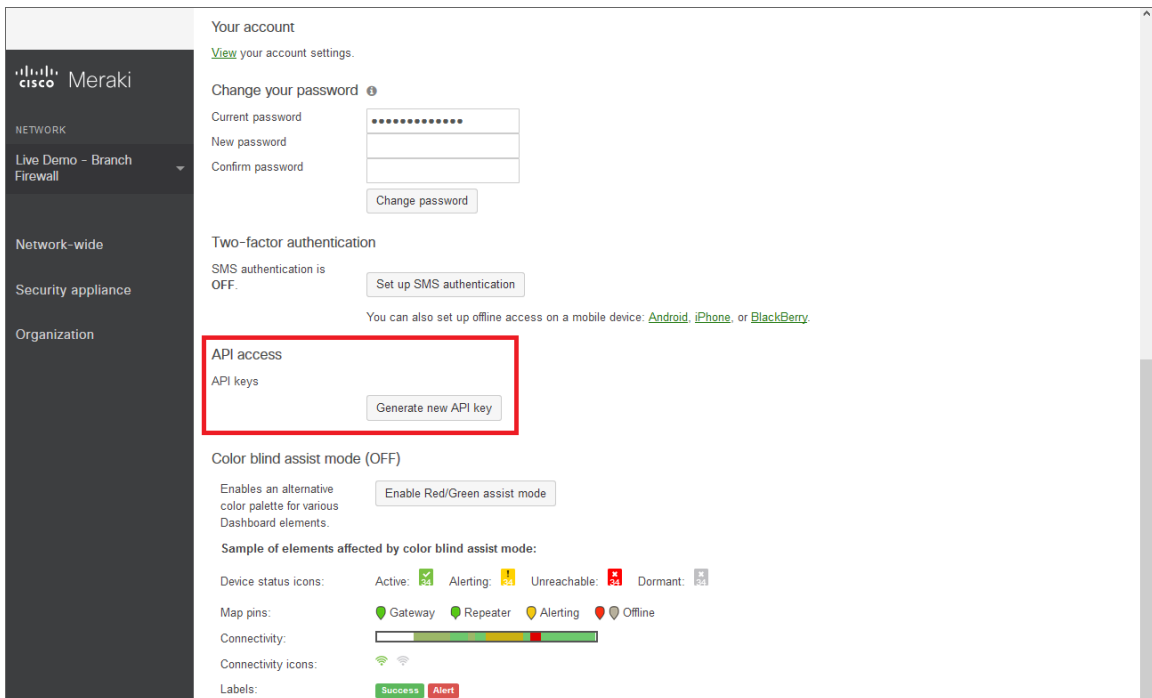
To generate a Cisco Meraki API key for that read-only user:

1. Log in to the Cisco Meraki web interface as the read-only user.

2. Go to **Organization > Settings:**



3. In the **Dashboard API access** section, select the **Enable access to the Cisco Meraki Dashboard API** checkbox.
4. Click the **Save Changes** button.
5. Click the **profile** link in the **Dashboard API access** section.
6. In your user profile, navigate to the **API access** section and click the **Generate new API key** button.



7. In the **API access** section, the API key appears. Copy and save the key value.

NOTE: API keys are visible only to the user that created them.

Creating a Basic/Snippet Credential

To configure SL1 to monitor Cisco Meraki systems using the Meraki API, you must create a Basic/Snippet credential. This credential allows the Dynamic Applications in the *Cisco: Meraki [API] PowerPack* to connect with the Cisco Meraki API. An example Basic/Snippet credential that you can edit for your own use is included in the PowerPack.

NOTE: If you are using an SL1 system prior to version 11.1.0, the new user interface does not include the **Duplicate** option for sample credential(s). ScienceLogic recommends that you use [the classic user interface and the Save As button](#) to create new credentials from sample credentials. This will prevent you from overwriting the sample credential(s).

To create a Basic/Snippet credential:

1. Go to the **Credentials** page (Manage > Credentials).
2. Locate the **Cisco: Meraki - API** sample credential, click its **[Actions]** icon (☰) and select **Duplicate**. A copy of the credential, called **Cisco: Meraki - API copy** appears.
3. Click the **[Actions]** icon (☰) for the **Cisco: Meraki - API copy** credential and select **Edit**. The **Edit Credential** page appears:

The screenshot shows the 'Edit Credential' interface. On the left, the 'Name' field is 'Cisco: Meraki - API copy'. Below it, 'All Organizations' is checked and 'What organization manages this service?' is a dropdown. The 'Timeout (ms)' is set to 5000. The 'Hostname/IP*' is 'https://api.meraki.com' and 'Port*' is '443'. The 'Username' is 'X-Cisco-Meraki-API-Key' and the 'Password*' is masked with asterisks. A 'Save & Test' button is at the bottom right of this section. On the right, the 'Credential Tester' section has a 'Select Credential Test' dropdown set to 'Cisco: Meraki - API copy', a 'Select Collector' dropdown set to 'CU | RNG-PATCH-E-CU: 10.2.10.91', and an 'IP or Hostname to test*' field. A 'Test Credential' button is at the bottom right of this section. A 'Save & Close' button is at the bottom right of the entire page.

4. Supply values in the following fields:
 - **Name.** Type a new name for the Meraki credential.

- **All Organizations.** Toggle on (blue) to align the credential to all organizations, or toggle off (gray) and then select one or more specific organizations from the **What organization manages this service?** drop-down field to align the credential with those specific organizations.
- **Timeout (ms).** Keep the default value.
- **Hostname/IP.** Keep the default value.

NOTE: You **must** use the default value of "https://api.meraki.com" in the **Hostname/IP** field.

- **Port.** Keep the default value.
- **Username.** Keep the default value.
- **Password.** Type the [Meraki API key](#).

4. Click **[Save & Close]**.

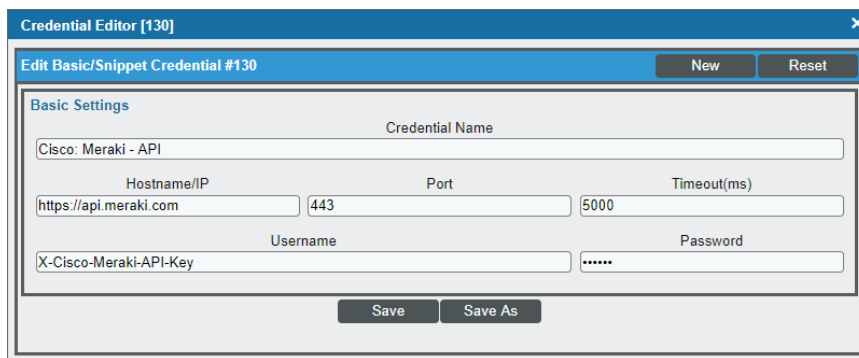
NOTE: If you would like to test your credential using the Credential Tester panel, click **[Save & Test]**. For detailed instructions on using the Credential Tester panel, see the [Testing the Cisco Meraki API Credential](#) section.

Creating a Basic/Snippet Credential in the SL1 Classic User Interface

To configure SL1 to monitor Cisco Meraki systems using the Meraki API, you must create a Basic/Snippet credential. This credential allows the Dynamic Applications in the *Cisco: Meraki [API]* PowerPack to connect with the Cisco Meraki API. An example Basic/Snippet credential that you can edit for your own use is included in the PowerPack.

To create a Basic/Snippet credential:

1. Go to the **Credential Management** page (System > Manage > Credentials).
2. Locate the **Cisco: Meraki - API** credential, and then click its wrench icon (🔧). The **Edit Basic/Snippet Credential** modal page appears:



3. Complete the following fields:
 - **Credential Name.** Type a new name for the credential.
 - **Hostname/IP.** Keep the default value.

NOTE: You **must** use the default value of "https://api.meraki.com" in the **Hostname/IP** field.

- **Port.** Keep the default value.
- **Timeout(ms).** Keep the default value.
- **Username.** Keep the default value.
- **Password.** Type the [Meraki API key](#).

4. Click the **[Save As]** button.
5. When the confirmation message appears, click **[OK]**.

Creating a SOAP/XML Credential

If you access Meraki systems through a third-party proxy server, you can create a SOAP/XML credential to enable the Dynamic Applications in the *Cisco: Meraki [API]* PowerPack to connect with the Cisco Meraki API via the proxy server.

Similarly, if you want to discover only some selected devices, you can create a SOAP/XML credential that specifies tag values that the Dynamic Applications in the *Cisco: Meraki [API]* PowerPack can use to determine which devices should be discovered.

NOTE: If you are on an SL1 system prior to version 11.1.0, you will not be able to duplicate the sample credential. It is recommended that you create your new credentials using [the SL1 classic user interface](#) so you do not overwrite the sample credential(s).

Two example SOAP/XML credentials that you can edit for your own use are included in the PowerPack:

- **Cisco: Meraki - API - Proxy**, for users who connect to Meraki through a third-party proxy server

Edit Credential

Name*
Cisco: Meraki - API - Proxy

All Organizations What organization manages this service? Timeout (ms) 5000

Content Encoding: text/xml | Method: POST | HTTP Version: http/1.1

URL: https://api.meraki.com

HTTP Auth User: X-Cisco-Meraki-API-Key | HTTP Auth Password: *****

Hostname/IP: 10.0.0.0 | Port (number optional): 3128

User: em7admin | Password: *****

Embedded Password (%P): *****

Embed Value [%1] | Embed Value [%2]

Embed Value [%3] | Embed Value [%4]

HTTP Headers Add Header

Credential Tester

Select Credential Test: ▼

Select Collector: CU | RNG-PATCH-E-CU: 10.2.10.91

IP or Hostname to test* Test Credential

Save & Close

- **Cisco: Meraki - API (Selective)**, for users who want to discover only some selected devices based on tag values

Edit Credential

Name*
Cisco: Meraki - API (Selective)

All Organizations What organization manages this service? Timeout (ms) 5000

Content Encoding: text/xml | Method: POST | HTTP Version: http/1.1

URL: https://api.meraki.com

HTTP Auth User: X-Cisco-Meraki-API-Key | HTTP Auth Password: *****

Hostname/IP: | Port (number optional): 0

User: | Password: *****

Embedded Password (%P): *****

Embed Value [%1] | Embed Value [%2]

Embed Value [%3] | Embed Value [%4]

HTTP Headers Add Header

Credential Tester

Select Credential Test: ▼

Select Collector: CU | RNG-PATCH-E-CU: 10.2.10.91

IP or Hostname to test* Test Credential

Save & Close

To define a SOAP/XML credential:

1. Go to the **Credentials** page (Manage > Credentials).
2. Locate the sample credential you want to use, then click its **[Actions]** icon (☰) and select **Duplicate**. A copy of the credential, called **Cisco: Meraki - API - Proxy copy** or **Cisco: Meraki - API (Selective) copy** appears.
3. Click the **[Actions]** icon (☰) for the credential copy and select **Edit**. The **Edit Credential** modal page appears.

3. Supply values in the following fields:
 - **Name**. Type a new name for your Meraki credential.
 - **All Organizations**. Toggle on (blue) to align the credential to all organizations, or toggle off (gray) and then select one or more specific organizations from the **What organization manages this service?** drop-down field to align the credential with those specific organizations.
 - **Timeout (ms)**. Keep the default value.
 - **Content Encoding**. Keep the default value.
 - **Method**. Keep the default value.
 - **HTTP Version**. Keep the default value.
 - **URL**. Keep the default value of "https://api.meraki.com".
 - **HTTP Auth User**. Keep the default value.
 - **HTTP Auth Password**. Type the [Meraki API key](#).

Proxy Settings

NOTE: You must complete the **Proxy Settings** fields only if you connect to the Meraki API through a third-party proxy server. If you do not use a proxy to connect to Meraki, then you can leave these fields blank.

- **Hostname/IP.** Type the server's hostname or IP address.
- **Port.** Type the port on the proxy server to which you will connect.
- **User.** Type the username used to access the proxy server.
- **Password.** Type the password used to access the proxy server.

HTTP Headers

- **proxy_url_protocol: http.** Edit this header if you want to connect a proxy using a different protocol, such as http or https. The default value is "http".
- **Add a header.** Click **[Add a header]** once if you want to include tag values for SL1 to match when it discovers Meraki devices, or click **[Add a header]** twice if you want to include tag values and specify that tag-matching should be case-insensitive. In the blank fields that appear, do one or both of the following:
 - Type "tags:" in the first field, followed by one or more tag values. You can include multiple tag values in a string, using comma separators and no spaces. For example: "tags:value1,value2,value3".
 - Type "regex:IGNORECASE" in the second field if you want SL1 to match the tag values regardless of case.

NOTE: If you are using a tag to discover a device and want to discover that device's network, the device and its network must have the same tag applied.

NOTE: Tag values can include wildcard characters.

NOTE: After initial discovery, you can add more tag values and run discovery again to discover additional component devices. However, if you remove tag values and then run discovery again, the component devices that had been discovered based on the removed tag values will be updated to an unavailable state.

4. Click **[Save & Close]**.

NOTE: If you would like to test your credential using the Credential Tester panel, click **[Save & Test]**. For detailed instructions on using the Credential Tester panel, see the [Testing the Cisco Meraki API Credential](#) section.

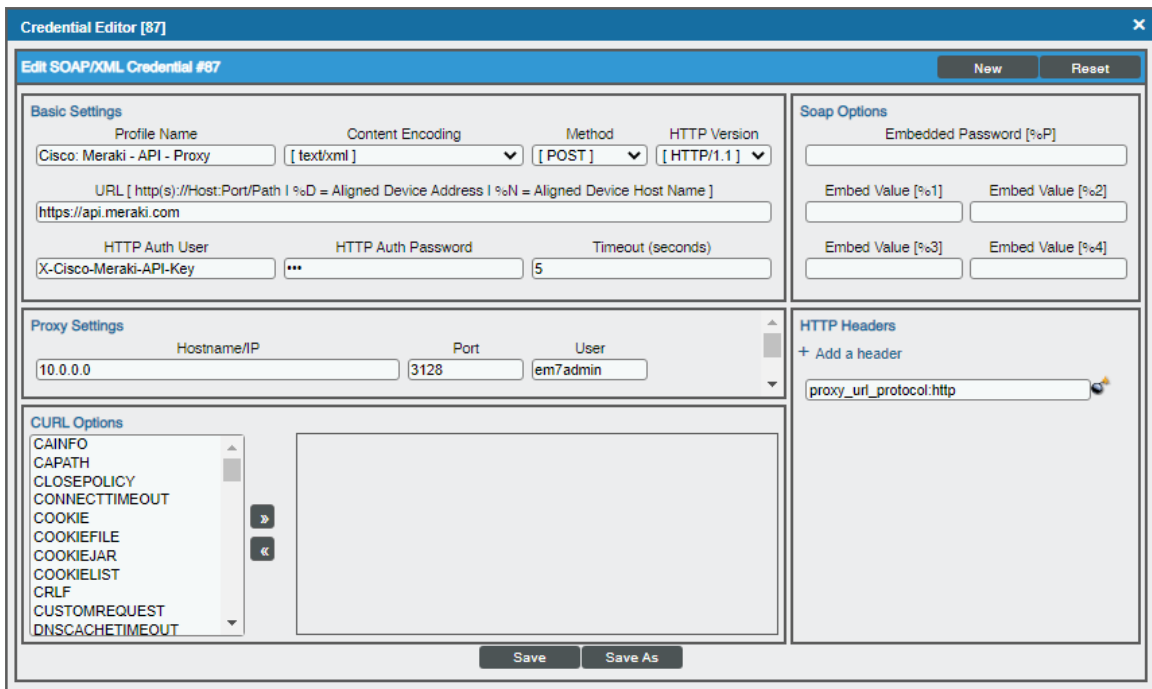
Creating a SOAP/XML Credential in the SL1 Classic User Interface

If you access Meraki systems through a third-party proxy server, you can create a SOAP/XML credential to enable the Dynamic Applications in the *Cisco: Meraki [API]* PowerPack to connect with the Cisco Meraki API via the proxy server.

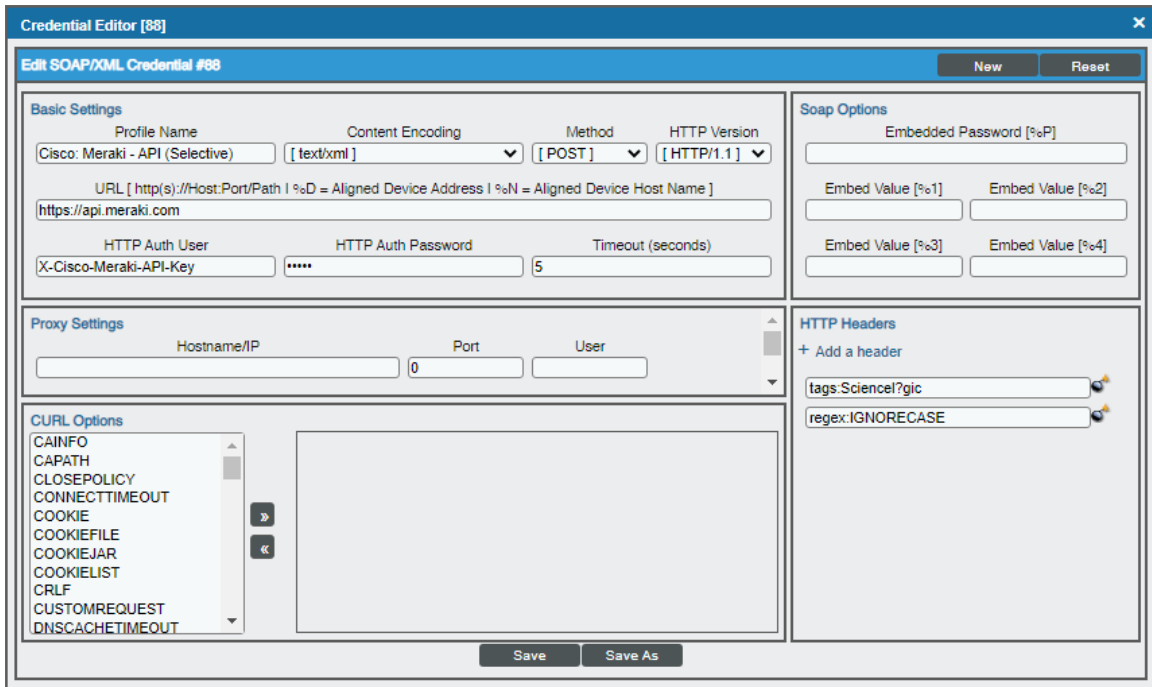
Similarly, if you want to discover only some selected devices, you can create a SOAP/XML credential that specifies tag values that the Dynamic Applications in the *Cisco: Meraki [API]* PowerPack can use to determine which devices should be discovered.

Two example SOAP/XML credentials that you can edit for your own use are included in the PowerPack:


- **Cisco: Meraki - API - Proxy**, for users who connect to Meraki through a third-party proxy server

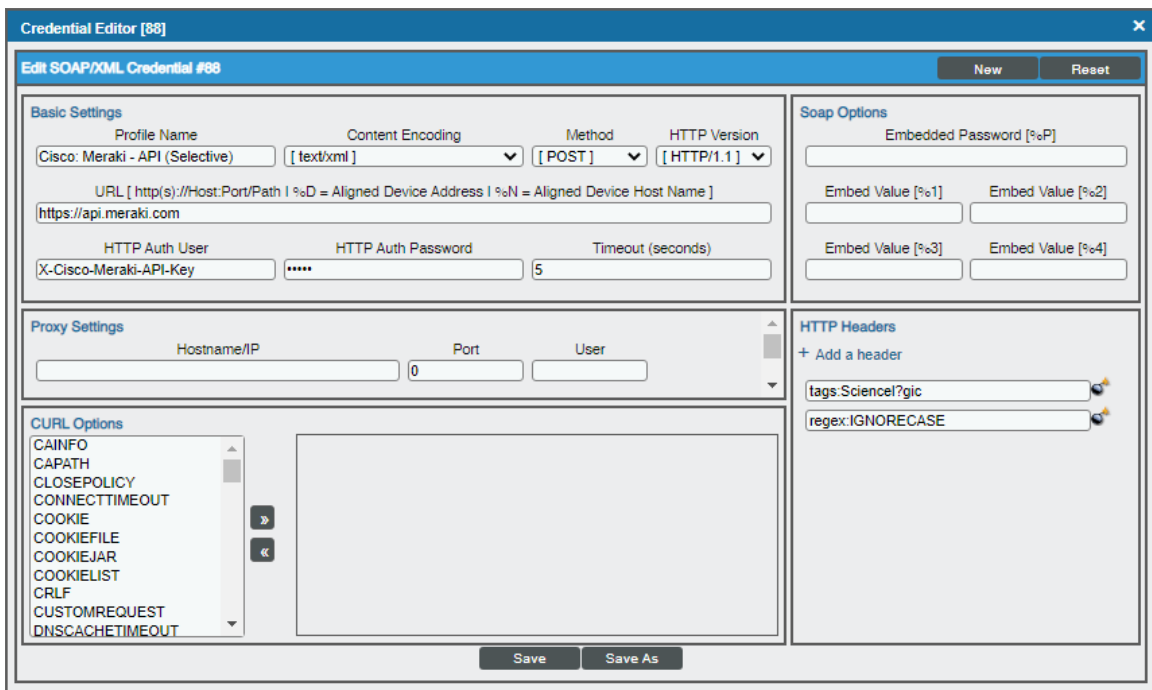


- **Cisco: Meraki - API (Selective)**, for users who want to discover only some selected devices based on tag values



To define a SOAP/XML credential:

1. Go to the **Credential Management** page (System > Manage > Credentials).
2. Locate the Cisco Meraki example credential that you want to use and click its wrench icon (). The **Credential Editor** modal page appears:



3. Enter values in the following fields:

Basic Settings

- **Profile Name.** Type a new name for your Meraki credential.
- **HTTP Auth Password.** Type the [Meraki API key](#).

NOTE: You can use the default values for the remaining **Basic Settings** fields. You **must** use the default value in the **URL** field.

Proxy Settings

NOTE: You must complete the **Proxy Settings** fields only if you connect to the Meraki API through a third-party proxy server. If you do not use a proxy to connect to Meraki, then you can leave these fields blank.

- **Hostname/IP.** Type the server's hostname or IP address.
- **Port.** Type the port on the proxy server to which you will connect.
- **User.** Type the username used to access the proxy server.
- **Password.** Type the password used to access the proxy server.

HTTP Headers

- **proxy_url_protocol: http.** Edit this header if you want to connect a proxy using a different protocol, such as http or https. The default value is "http".
- **Add a header.** Click **[Add a header]** once if you want to include tag values for SL1 to match when it discovers Meraki devices, or click **[Add a header]** twice if you want to include tag values and specify that tag-matching should be case-insensitive. In the blank fields that appear, do one or both of the following:
 - Type "tags:" in the first field, followed by one or more tag values. You can include multiple tag values in a string, using comma separators and no spaces. For example: "tags:value1,value2,value3".
 - Type "regex:IGNORECASE" in the second field if you want SL1 to match the tag values regardless of case.

NOTE: If you are using a tag to discover a device and want to discover that device's network, the device and its network must have the same tag applied.

NOTE: Tag values can include wildcard characters.

NOTE: After initial discovery, you can add more tag values and run discovery again to discover additional component devices. However, if you remove tag values and then run discovery again, the component devices that had been discovered based on the removed tag values will be updated to an unavailable state.

4. Click the **[Save As]** button, and then click **[OK]**.

Testing the Cisco Meraki API Credential

The *Cisco: Meraki [API]* PowerPack includes a credential test for Cisco Meraki credentials. Credential tests define a series of steps that SL1 can execute on demand to validate whether a credential works as expected.

The Cisco Meraki credential tests can be used to test the Basic/Snippet and SOAP/XML credentials for monitoring the Cisco Meraki API using the Dynamic Applications in the *Cisco: Meraki [API]*PowerPack.

The **Cisco: Meraki [API] (Basic/Snippet) Credential tester** performs the following steps:

- **Test Meraki Reachability.** Performs an ICMP ping request to the host specified in the credential.
- **Test Meraki Port Availability.** Performs an NMAP request to the TCP port specified in the credential on the host specified in the credential.
- **Test Meraki Organization Request.** Performs a check to see if the Meraki organization request has been collected appropriately.

The **Cisco: Meraki [API] (SOAP/XML) Credential tester** performs the following steps:

- **Test Meraki Reachability.** Performs an ICMP ping request to the host specified in the credential.
- **Test Meraki Port Availability.** Performs an NMAP request to the TCP port specified in the credential on the host specified in the credential.
- **Test Meraki Organization Request.** Performs a check to see if the Meraki organization request has been collected appropriately.

To test the Cisco Meraki credential:

1. Go to the **Credentials** page (Manage > Credentials).
2. Locate the credential you wish to test, select the **Actions** button (☰) next to it and click *Edit/Test*. The **Edit Credential** modal page appears:

3. In the **Credential Tester** pane on the right, fill out the following fields on this page:
 - **Select Credential Test.** Select **Cisco: Meraki [API] (Basic/Snippet) Credential tester** or the **Cisco: Meraki [API] (SOAP/XML) Credential tester**, depending on which credential you are testing.
 - **Collector.** Select the All-In-One Appliance or Data Collector that will run the test.
 - **IP or Hostname to Test.** Enter "api.meraki.com" or the IP address of your Meraki system.
4. Click the **[Run Test]** button to run the credential test. The **Testing Credential** window appears.

STEP	DESCRIPTION	LOG MESSAGE	STATUS
Test Meraki reachability.	Check to see if the IP/Hostname is reachable using ICMP.	The state of IP/Hostname [api.meraki.com] is 'reachable' using ICMP, t...	✓ Passed ?
Test Meraki port availa...	Check to see if the Meraki port has been open appropriately.	The IP/Hostname [api.meraki.com] is using the port [443], the current...	✓ Passed ?
Test Meraki organizati...	Check to see if the Meraki organizations request has been collected a...	Collected: 4 Organizations.	✓ Passed ?

The **Testing Credential** window displays a log entry for each step in the credential test. The steps performed are different for each credential test. The log entry for each step includes the following information:

- **Step.** The name of the step.
- **Description.** A description of the action performed during the step.
- **Log Message.** The result of the step for this execution of the credential test.

- **Status.** Whether the result of this step indicates the credential and/or the network environment is configured correctly (Passed) or incorrectly (Failed).
- **Step Tip.** Mouse over the question mark icon (?) to display the tip text. The tip text recommends what to do to change the credential and/or the network environment if the step has a status of "Failed".

Testing the Cisco Meraki API Credential in the SL1 Classic User Interface

The *Cisco: Meraki [API]* PowerPack includes a credential test for Cisco Meraki credentials. Credential tests define a series of steps that SL1 can execute on demand to validate whether a credential works as expected.

The Cisco Meraki credential tests can be used to test the Basic/Snippet and SOAP/XML credentials for monitoring the Cisco Meraki API using the Dynamic Applications in the *Cisco: Meraki [API]*PowerPack.

The **Cisco: Meraki [API] (Basic/Snippet) Credential tester** performs the following steps:

- **Test Meraki Reachability.** Performs an ICMP ping request to the host specified in the credential.
- **Test Meraki Port Availability.** Performs an NMAP request to the TCP port specified in the credential on the host specified in the credential.
- **Test Meraki Organization Request.** Performs a check to see if the Meraki organization request has been collected appropriately.

The **Cisco: Meraki [API] (SOAP/XML) Credential tester** performs the following steps:

- **Test Meraki Reachability.** Performs an ICMP ping request to the host specified in the credential.
- **Test Meraki Port Availability.** Performs an NMAP request to the TCP port specified in the credential on the host specified in the credential.
- **Test Meraki Organization Request.** Performs a check to see if the Meraki organization request has been collected appropriately.

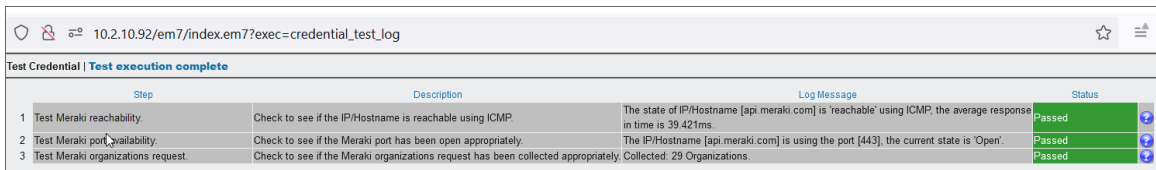
To test the Cisco Meraki credential:

1. Go to the **Credential Test Management** page (System > Customize > Credential Tests).
2. Locate the **Cisco: Meraki [API] (Basic/Snippet) Credential tester** or the **Cisco: Meraki [API] (SOAP/XML) Credential tester**, depending on which credential you are testing, and click its lightning bolt icon (⚡). The **Credential Tester** modal page appears:

3. Supply values in the following fields:

- **Test Type.** This field is pre-populated with the credential test you selected.
- **Credential.** Select the credential to test. This drop-down list includes only credentials that you have access to that can be tested using the selected credential test.
- **Hostname/IP.** Enter "api.meraki.com" or the IP address of your Meraki system.
- **Collector.** Select the All-In-One Appliance or Data Collector that will run the test.

4. Click the **[Run Test]** button to run the credential test. The **Test Credential** window appears.



The screenshot shows a browser window with the URL 10.2.10.92/em7/index.em7?exec=credential_test_log. The page title is "Test Credential | Test execution complete". Below the title is a table with four columns: Step, Description, Log Message, and Status. The table contains three rows of test results, all with a "Passed" status.

Step	Description	Log Message	Status
1 Test Meraki reachability.	Check to see if the IP/Hostname is reachable using ICMP.	The state of IP/Hostname [api.meraki.com] is 'reachable' using ICMP, the average response in time is 39.42ms.	Passed
2 Test Meraki port availability.	Check to see if the Meraki port has been open appropriately.	The IP/Hostname [api.meraki.com] is using the port [443], the current state is 'Open'.	Passed
3 Test Meraki organizations request.	Check to see if the Meraki organizations request has been collected appropriately.	Collected: 29 Organizations.	Passed

The **Test Credential** window displays a log entry for each step in the credential test. The steps performed are different for each credential test. The log entry for each step includes the following information:

- **Step.** The name of the step.
- **Description.** A description of the action performed during the step.
- **Log Message.** The result of the step for this credential test.
- **Status.** Whether the result of this step indicates the credential or the network environment is configured correctly (Passed) or incorrectly (Failed).
- **Step Tip.** Mouse over the question mark icon (?) to display the tip text. The tip text recommends what to do to change the credential or the network environment if the step has a status of "Failed".

Disabling Asynchronous Dynamic Application Collection

If the Meraki system you want to monitor consists of more than 200 devices per Organization on a collector, it is suggested to disable the "Data Collection: Async Dynamic App Collection" process before discovering your Meraki system.

NOTE: Disabling asynchronous Dynamic Application collection may increase the amount of time it takes the ScienceLogic platform to discover all of the component devices in your Meraki system.

To disable asynchronous Dynamic Application collection:

1. Go to the **Process Manager** page (System > Settings > Admin Processes, or System > Settings > Processes in the SL1 classic user interface).

2. Use the **Process Name** filter field to search for the "Data Collection: Async Dynamic App Collection" process, and then click its wrench icon (🔧). The **Process Editor** page appears.

The screenshot shows the 'Process Editor | Editing Process [129]' window. It has a blue title bar with 'Reset' and 'Guide' buttons. The main area is divided into three columns. The left column contains 'Process Name' (Data Collection: Async Dynamic App Collection), 'Program File' (async_dynamic_collect.py), 'Operating State' (Disabled, highlighted with a red box), and 'Debug Mode' ([Disabled]). The middle column contains 'Frequency' ([Asynchronous]), 'Async Throttle' ([2]), and 'Time Factor (Mins.)' ([15]). The right column contains 'Appliance Types' with a list of checkboxes: All-In-One Server [1] (checked), Database [2] (unchecked), Administration Portal [3] (unchecked), Customer Portal [4] (unchecked), Data Collection Unit [5] (checked), Message Collection Unit [6] (unchecked), and Integration Server [7] (unchecked). A 'Save' button is at the bottom center.

3. In the **Operating State** field, select *Disabled*.
4. Click **[Save]**.

Re-enabling Asynchronous Dynamic Application Collection

If you no longer want to monitor Meraki devices in SL1 and you want to return the system to its original state with asynchronous Dynamic Application collection re-enabled, you must first delete all Meraki devices from the platform. You must then clear the Database Server or Data Collector of any asynchronous processes that are already queued. Failing to do these steps can result in the platform ceasing all data collection until those asynchronous processes are executed.

To re-enable asynchronous Dynamic Application collection:

1. Navigate to the Database Server by typing "<IP address>:8008" into your browser address bar.
2. Log in to the Database Server. The phpMyAdmin browser appears.
3. Select the database from the drop-down **Database** field, and then select the **master_logs** database.
4. In the **master_logs** database, select the **spool_process** table on the left menu, and then click the **[SQL]** tab.
5. Run the following query to clear out the processes on the database:

```
DELETE FROM 'spool_process' WHERE 'proc' = 129 AND 'state' != 0;
```



6. Click **[OK]** at the prompt. Many rows should have been deleted from the table.


If you are using a distributed ScienceLogic system, continue with step 7. Otherwise, go to step 14.

7. In the left menu of the phpMyAdmin browser, select the Data Collector appliance where Meraki devices were discovered.

If the IP address of the Data Collector appears in the upper left-hand corner of the phpMyAdmin browser, go to step 12. Otherwise, if you receive a MySQL error message that your access is denied, continue with step 8.

8. In the Database Server, navigate to the **Master** database and then select the **system_settings_licenses** table.
9. Click **[Browse]** in the upper left-hand side of the page and then identify the Data Collector appliance.
10. Click the **edit** button for the Data Collector:

<input type="checkbox"/>			3	5	SL_ISO1_CU	collector unit: 10.2.8.72	8.5.0	2119	80500002119
--------------------------	---	---	---	---	------------	------------------------------	-------	------	-------------

11. Locate the **db_user** and **db_pass** fields. In those fields, type the same credentials as the Database Server.
12. Click **[Go]**. Wait a few seconds before trying to access the Data Collector in the phpMyAdmin browser. When you do so, the IP address of the Data Collector should appear in the upper left-hand corner of the phpMyAdmin browser.
13. Repeat steps 3-6 on the Data Collector. If successful, many rows should have been deleted from the **spool_process** table.
14. In SL1, go to the **Process Manager** page (System > Settings > Admin Processes, or System > Settings > Processes in the SL1 classic user interface).
15. Use the **Process Name** filter field to search for the "Data Collection: Async Dynamic App Collection" process, and then click its wrench icon (). The **Process Editor** page appears.
16. In the **Operating State** field, select *Enabled*, and then click **[Save]**.

Creating a Cisco Meraki Virtual Device

To monitor your Cisco Meraki devices, you must create a **virtual device** that represents the Meraki Cloud Controller. A virtual device is a user-defined container that represents a device or service that cannot be discovered by SL1. You can use the virtual device to store information gathered by policies or Dynamic Applications.

If you want to discover more than one Meraki account, you must create a virtual device for each API key that you want to use.

To create a virtual device that represents your Meraki Cloud Controller:

1. Go to the **Device Manager** page (Devices > Device Manager).
2. Click **[Actions]** and select *Create Virtual Device* from the menu. The **Virtual Device** modal page appears.
3. Enter values in the following fields:
 - **Device Name**. Enter a name for the device.

- **Organization.** Select the organization for this device. The organization you associate with the device limits the users that will be able to view and edit the device. Typically, only members of the organization will be able to view and edit the device.
 - **Device Class.** Select *Cisco Systems | Meraki Cloud Controller*.
 - **Collector.** Select the collector group that will monitor the device.
4. Click **[Add]** to create the virtual device.
 5. Repeat these steps for each Meraki API key that you want to use.

Manually Aligning the Cisco: Meraki Cloud Controller Discovery Dynamic Application

After creating the Cisco Meraki virtual device, you must manually align the "Cisco: Meraki Cloud Controller Discovery" Dynamic Application to the Cisco Meraki virtual device.

NOTE: The "Cisco: Meraki Cloud Controller Discovery" Dynamic Application will be renamed "Cisco: Meraki Organization Discovery" in version 1.12 of the PowerPack.

To manually align the Cisco Meraki Dynamic Application:

1. Go to the **Devices** page (Devices > Device Manager).
2. Locate your Cisco Meraki virtual device and click its name.
3. In the **Device Investigator**, click the **[Collections]** tab.
4. Click the **[Edit]** button at the top of the page, then click the **[Align Dynamic App]** button.
5. In the **Align Dynamic Application** modal, click **Choose Dynamic Application**.
6. Locate the "Cisco: Meraki Cloud Controller Discovery" and click **[Select]**.
7. In the **Align Dynamic Application** modal, de-select the **Use Device SNMP Credential** box. Click the **Choose Credential** option that appears.
8. Select the Cisco Meraki credential you created and click **[Select]**.
9. Click **[Align Dynamic App]** to align the Dynamic Application with the Cisco Meraki virtual device.

After aligning the "Cisco: Meraki Cloud Controller Discovery" Dynamic Application, your Cisco Meraki component devices will be discovered and classified.

NOTE: The **Poll Frequency** of the "Cisco: Meraki Cloud Controller Discovery" Dynamic Application should be set to 5 minutes.

Assigning a Device Class to a Discovered Device

As of version 111 of the Cisco: Meraki API PowerPack, the parameters used to assign a device class to a device have been updated. The device's model name is split into two parts when SL1 assigns a device class:

- The first two characters of the model name are assigned to the Class Identifier 1 component identifier on the Class Identifier collection object. If the Cisco: Meraki device's model name starts with a "v", the next two characters after the "v" are assigned to this collection object instead.
- The rest of the characters in the model name are assigned to the Class Identifier 2 component identifier on the Class Identifier 2 collection object.

SL1 will assign a device class based on the information in the Class Identifier 1 and 2 fields:

- If the information in the Class Identifier 1 and 2 fields matches the Class Identifier 1 and 2 of a device class in the PowerPack exactly, that device class is assigned to the device.
- If the information in the Class Identifier 1 field matches, but no match occurs on the Class Identifier 2 collection object, one of 15 fallback device classes is assigned. The fallback device class matching Class Identifier 1 with the lowest weight will be assigned.
- If no match occurs in either of the Class Identifier fields, the "Cisco Systems | Meraki Device" default device class is assigned to the device.


NOTE: This process is standard SL1 functionality that is documented in the Dynamic Application Development manual .

Manually Aligning the Cisco: Meraki Cloud Controller Discovery Dynamic Application in the SL1 Classic User Interface

After creating the Cisco Meraki virtual device, you must manually align the "Cisco: Meraki Cloud Controller Discovery" Dynamic Application to the Cisco Meraki virtual device.

NOTE: The "Cisco: Meraki Cloud Controller Discovery" Dynamic Application will be renamed "Cisco: Meraki Organization Discovery" in version 112 of the PowerPack.

To manually align the Cisco Meraki Dynamic Application:

1. Go to the **Device Manager** page (Devices > Device Manager).
2. Click the wrench icon () for your Cisco Meraki virtual device.
3. In the **Device Administration** panel, click the **[Collections]** tab. The **Dynamic Application Collections** page appears.
4. Click the **[Actions]** button and select *Add Dynamic Application* from the menu.
5. In the **Dynamic Application Alignment** window, from the **Dynamic Applications** field, select the "Cisco: Meraki Cloud Controller Discovery" Dynamic Application.

6. In the **Credentials** field, select the Cisco Meraki credential you created.
7. Click **[Save]** to align the Dynamic Application with the Cisco Meraki virtual device.

After aligning the "Cisco: Meraki Cloud Controller Discovery" Dynamic Application, your Cisco Meraki component devices will be discovered and classified.



IMPORTANT: The virtual device named "Cloud controller" must remain in SL1 in order to discover new organizations, as they are created in the Meraki account aligned to the credential on this device. This virtual device can be deleted, but no new Meraki organizations will be discovered.

NOTE: The **Poll Frequency** of the "Cisco: Meraki Cloud Controller Discovery" Dynamic Application should be set to 5 minutes.

Configuring Dynamic Applications to Hide Empty Rows

If you have a device that is no longer being monitored and a configuration Dynamic Application is returning empty rows in the **[Configs]** tab of that device, you can use the **Hide row** setting in the Dynamic Applications to hide those empty rows.

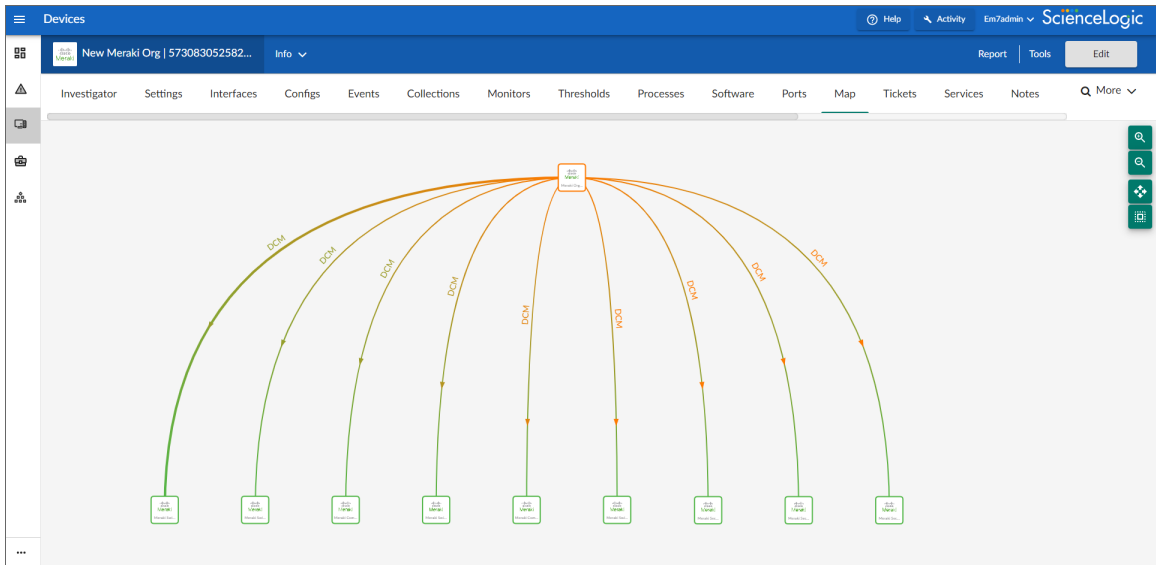
To do this:

1. Go to the **PowerPack Manager** page (System > Manage > PowerPacks).
2. Located the *Cisco: Meraki [API]* PowerPack and click its wrench icon ()
3. In the pane on the left, select **Dynamic Applications**.
4. For each Dynamic Application with "Configuration" in its **Type**, click its wrench icon ()
5. In the **Dynamic Applications Properties Editor**, click the **Null Row Option** dropdown and select **Hide row**.
6. Click **[Save]**.

Viewing Cisco Meraki Component Devices

In addition to the **Devices** page, you can view your Cisco Meraki devices in the following places in the user interface:

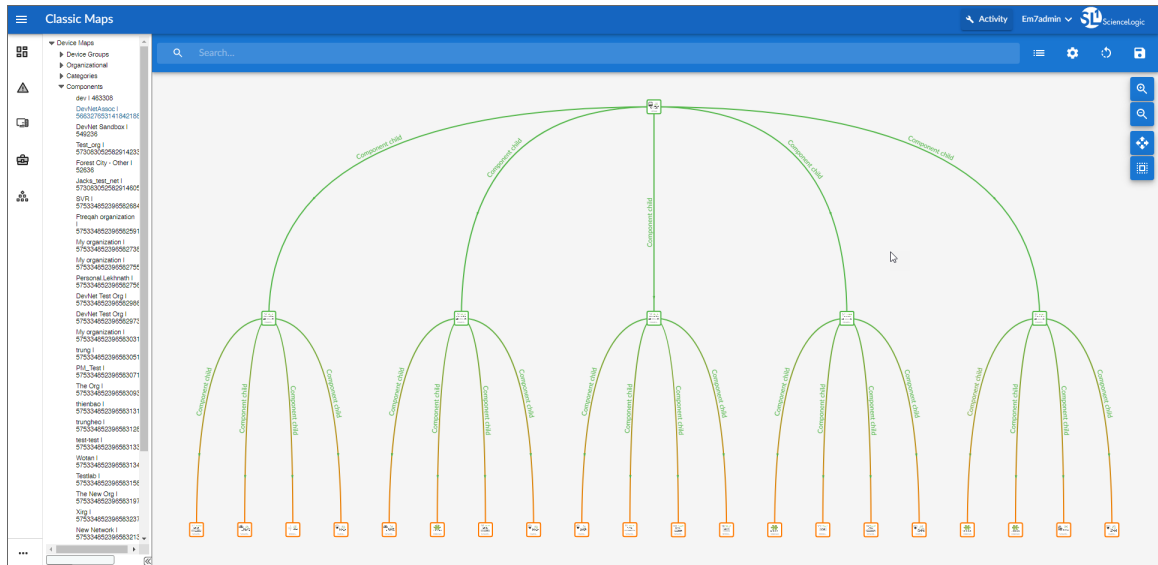
- The **Device Investigator** Map page (click **Map** in the **Device Investigator** page) displays a map of a particular device and all of the devices with which it has parent-child relationships. Double-clicking any of the listed devices reloads the page to make the selected device the primary device.



- The **Device Components** page (Devices > Device Components) displays a list of all root devices and component devices discovered by SL1. The **Device Components** page displays all root devices and component devices 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 Meraki device, find the device and click its plus icon (+).

Device Name	IP Address	Device Category	Device Class / Sub-class	DID	Organization	Current State	Collection Status	Collection State
New Meraki Org 573083052582...	--	Virtual	Cisco Systems Meraki Organization	1430	System	Major	CUG	Active
Long Island Office test	--	Network	Cisco Systems Meraki Combination Network	1579	System	Healthy	CUG	Active
LongOaktest	--	Network	Cisco Systems Meraki Combination Network	1581	System	Healthy	CUG	Active
my automated network	--	Network	Cisco Systems Meraki Switch Network	1578	System	Healthy	CUG	Active
my island new automated network	--	Network	Cisco Systems Meraki Switch Network	1580	System	Healthy	CUG	Active
my new automated network	--	Network	Cisco Systems Meraki Switch Network	1577	System	Healthy	CUG	Active
myTest	--	Network	Cisco Systems Meraki Security Appliance Network	1583	System	Healthy	CUG	Active
my-vmw-1ad-mv	--	Network	Cisco Systems Meraki Security Appliance Network	1585	System	Healthy	CUG	Active
myTest7	--	Network	Cisco Systems Meraki Security Appliance Network	1584	System	Healthy	CUG	Active
myMX Test	--	Network	Cisco Systems Meraki Switch Network	1582	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 Meraki device, 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 **Maps** manual.



Creating Events from Cisco Meraki Emails

The *Cisco: Meraki [API]* PowerPack includes Event Policies that can generate events in SL1 based on emails that Cisco Meraki sends to SL1. On SL1 version 11.2 and greater, Webhooks can be configured to handle these same events.

For SL1 to process events from inbound emails, you must configure your Meraki devices to send email to SL1 using certain formatting rules.

You must then enable SL1 to generate events from those inbound Meraki emails.

If configured properly, when SL1 domain receives an email with body text that matches a Meraki network component device name and a subject that matches the regular expression (RegEx) pattern of one of the PowerPack's Event Policies, SL1 will generate an event aligned to that network component device.

NOTE: Events from email are always aligned to network devices, even when the email includes references to one or more sub-component devices below the network device.

CAUTION: The email Event Policies included in the *Cisco: Meraki [API]* PowerPack each have an expiry delay setting that specifies the amount of time after which an active event is automatically cleared from SL1 if the event has not reoccurred. However, SL1 clearing an event for reaching its expiry delay setting does not mean that the initial condition that caused the event has been resolved.

Formatting Inbound Emails

Inbound emails must meet the following requirements to be processed as events by SL1:

- The email must be sent to the following address:

```
notify@SL1-domain-name
```

Where "SL1-domain-name" is one of the fully qualified domain names of the Database Server or All-In-One Appliance that is entered in the **Authorized Email Domains** field in the **Email Settings** (System > Settings > Email) page.

- The "from" address used by the external device must be "alerts-noreply@meraki.com" for non-maintenance events, "support-noreply@meraki.com" for maintenance events, or otherwise match an address defined in the **Originator Address** field in an email redirection policy on the **Mailer Redirection** page (Events > Inbound Email, or Registry > Events > Inbound Email in the SL1 classic user interface).
- The email subject line must begin with "Alert for" or "Scheduled maintenance for" and match the regular expression (RegEx) pattern of one of the Event Policies included in the *Cisco: Meraki [API] PowerPack*.
- The email body must include the name of a network device monitored by the SL1 system.

The following RegEx patterns are used:

- For scheduled maintenance emails:

```
(Scheduled maintenance for)\s  
((network\s|\d\snetworks\sin\sorganization\s)"([a-zA-Z0-9_-\.\.]+).*)
```

- For all other emails:

```
(Alert for)\s*([a-zA-Z0-9_-\.\.]+)\s*
```

NOTE: There must be a space between the RegEx pattern and the IP address, hostname, or device ID.

NOTE: The Event Policies included in the *Cisco: Meraki [API] PowerPack* **do not** include RegEx patterns "out of the box". Users can add or modify Event Policy RegEx patterns to best suit their needs.

NOTE: Emails that do not match the RegEx pattern of any Meraki Event Policy will generate a message in the system log. Emails that do not match the name of any component device in SL1 will not generate any events or messages.

NOTE: You can specify how an Event from Email policy will match a RegEx to a device name in the **Behavior Settings** page (System > Settings > Behavior). For more information, see the *Configuring Inbound Email* manual.

Enabling Inbound Email Alerts

After you have ensured that inbound Meraki emails are formatted correctly, you must enable SL1 to generate events from the inbound Meraki emails.

To do so:

1. Go to the **Mailer Redirection** page (Events > Inbound Email, or Registry > Events > Inbound Email in the SL1 classic user interface), and then click the **[Create]** button. The **Add Policy** modal page appears.
2. Complete the following fields:

The screenshot shows a modal window titled "Add Policy | Create New" with a "Reset" button in the top right corner. The form contains the following fields:

- Originator Address:** A text input field containing "alerts-noreply@meraki.com".
- Alignment Type:** A dropdown menu with the selected option "[If device not found, discard unmatched email]".
- Regex Pattern:** A text input field containing "Alert for".
- Regex Pattern Type:** A dropdown menu with the selected option "Advanced".
- Regex Type:** A dropdown menu with the selected option "[Subject]".

A "Save" button is located at the bottom center of the form.

- **Originator Address.** Type "alerts-noreply@meraki.com".
- **Alignment Type.** Select *If device not found, discard unmatched email*.
- **Regex Pattern.** Type "Alert for" or "Scheduled maintenance for network".
- **Regex Pattern Type.** Select *Advanced*.
- **Regex Type.** Select *Subject*.

3. Click **[Save]**.

NOTE: For more information about generating events from inbound emails, see the *Configuring Inbound Email* manual.

Using Custom Device Classes with Cisco Meraki API

If you have Cisco Meraki devices whose device classes do not match those contained in the Cisco Meraki API PowerPack, you can create and add custom device classes to the pack in order to discover them in SL1.

Creating a Custom Component Device Class

The Cisco Meraki API PowerPack includes device classes for many Cisco Meraki devices, but you can create custom device classes for devices that do not meet the criteria of the device classes in the PowerPack

To create a custom Component Device Class:

1. Go to the Device Class editor page (System > Customize > Device Classes).
2. Click **[Reset]** to clear the fields in the **Device Class Editor** pane.
3. Configure the device class as follows:
 - **Device Type.** Select "Component".
 - **Device Class.** Enter the name of the Device Class.
 - **Class Identifier 1.** Enter the first two characters of the model name in lower case letters here. For example, if the model name is "zx-d2", enter "zx".
 - **Class Identifier 2.** Enter the rest of the characters of the model name in lower case letters here. Do not begin this field with a "-" character. For example, if the model name is "zx-d2", enter "d2".
 - **Device Category.** Select the appropriate category from the drop-down list. This field specifies a logical categorization of devices by primary function, which allows SL1 to group related devices in reports and views.
 - **Root Device.** Select this checkbox if you will have additional tiers under this component device.
 - **Weight.** Select a value from the drop-down menu. A lower number should be assigned to a device class with a specific model (For ex , c9200-MXPOX) , A higher number should go to fallback or catch-it-all device classes.
 - **Description.** Enter a description for the device.
 - **Device Icon.** Select an icon that you created or select a generic icon.
4. Click **[Save]** to save your changes to the device class.

The screenshot shows the 'Device Class Editor' interface with the following configuration:

- Device Type:** Component
- Device Class:** Cisco Component Device Class
- Class Identifier 1:** CX
- Class Identifier 2:** 9200
- Weight:** 3
- Description:** Wireless Access Point
- Device Icon:** [_generic_unknown.png]
- Dynamic App Alignment:** Cisco Meraki Network Discovery (API)
- Device Dashboard:** [None]

Buttons for 'Icons', 'Reset', and 'Guide' are visible in the top right corner. A 'Save' button is located at the bottom of the 'Device Dashboard' section.



Adding Custom Device Classes to the PowerPack

NOTE: ScienceLogic does not recommend creating and adding your own device classes on your own. Failure to send custom device classes to your client success manager may affect billing.

If you have created custom device classes for your Cisco Meraki devices, you can add them to the PowerPack.

For more information on how to create device classes, see the **Device Management** manual.

To add device classes to the PowerPack:

1. Go to the **PowerPack Manager** page (System > Manage > PowerPacks).
2. Locate the *Cisco: Meraki [API]* PowerPack and click its wrench icon () .
3. From the **PowerPack Properties** page, click **Device Classes** in the Navbar on the left side of the page.
4. To add a device class, go to the **Available Device Classes** pane at the bottom of the page. Find the device class you want to include and click its lightning bolt icon (). The content will be moved to the top pane and included in the PowerPack.

NOTE: If a device is no longer collecting, check to see if the device tags have been changed and no longer match the tags in the credential for selective discovery.

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