# Monitoring Cisco Meraki (API)

Cisco: Meraki [API] PowerPack version 113.6

# Table of Contents

# 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.

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

This chapter covers the following topics:

# 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.

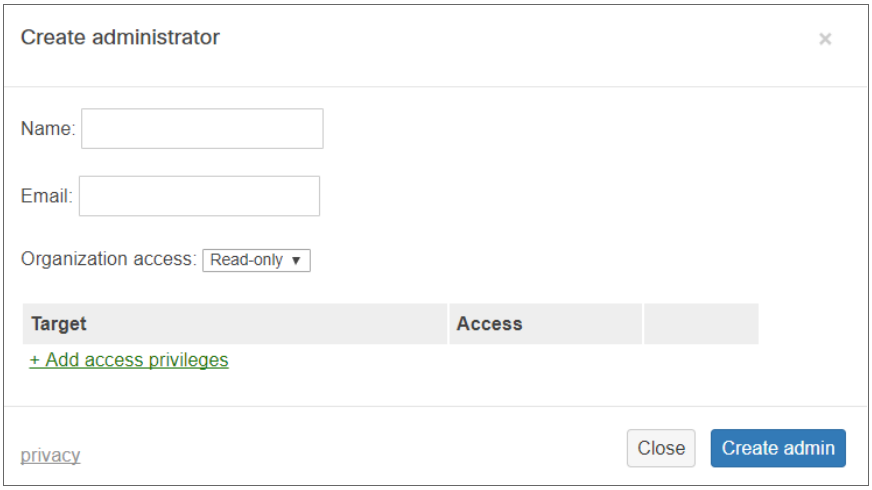
IMPORTANT: While an API key for a read-only Meraki user is acceptable for most credential purposes in this PowerPack, an API key for a user with write permissions is required for the automation that changes configurations and reboots devices.

**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:



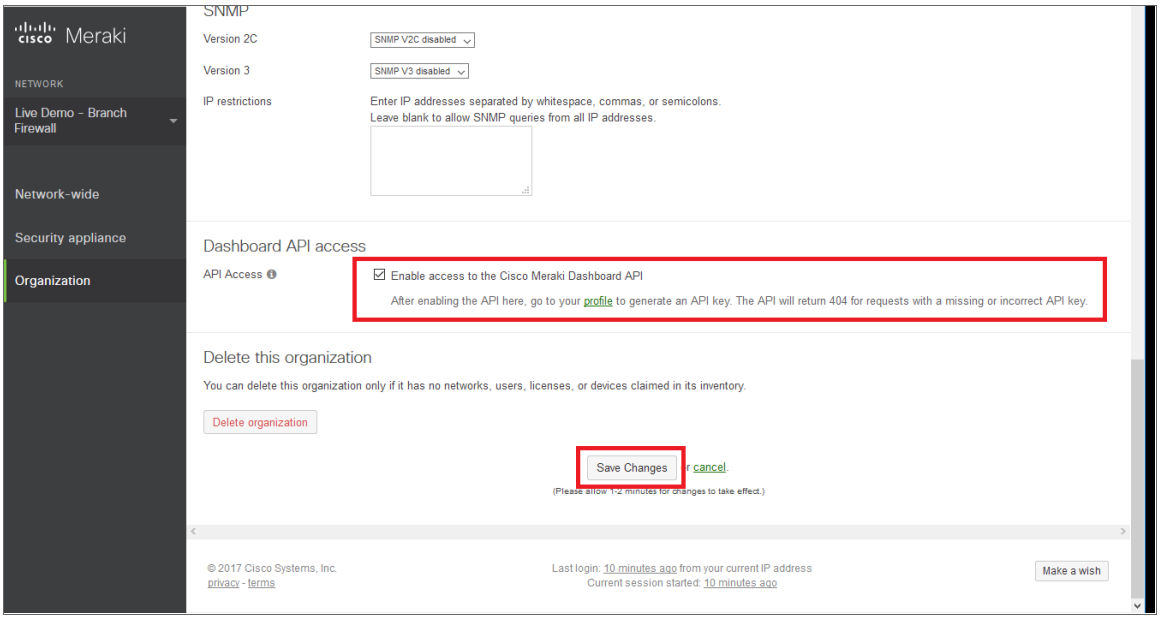

- ***Name***. Type the user's name.

- ***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.

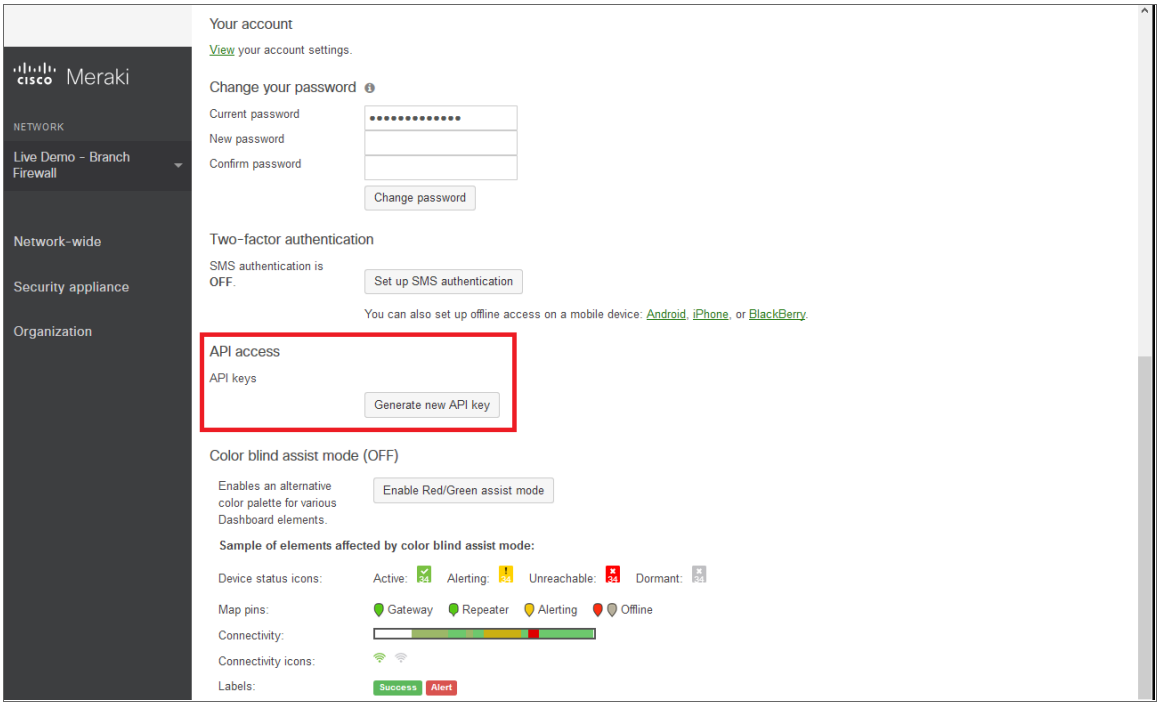
To generate a Cisco Meraki API key for that read-only user:

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.

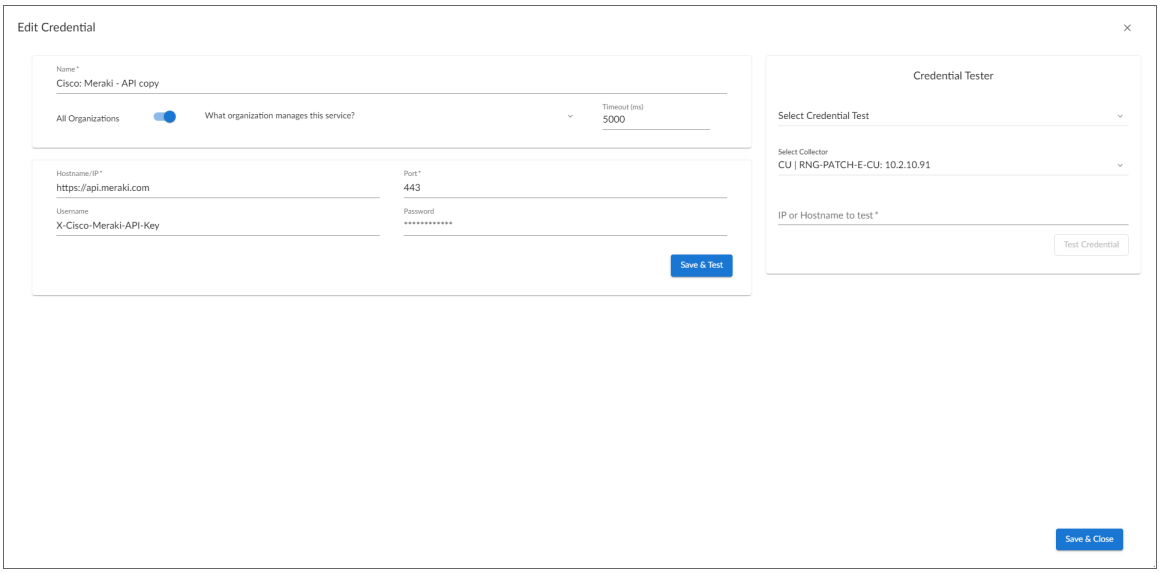
# Creating a Basic/Snippet Credential

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:




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]**.

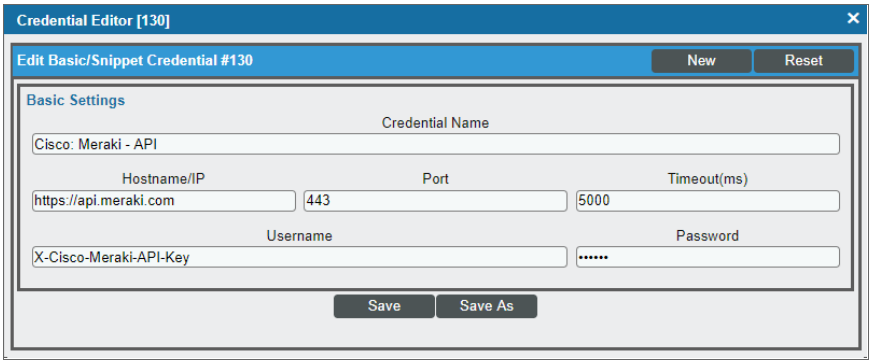
**NOTE:** If you would like to test your credential using the Credential Tester panel, click **[Save & Test]**. For detailed instructions on using the Credential Tester panel, see the *Testing the Cisco Meraki API Credential* section.

## 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

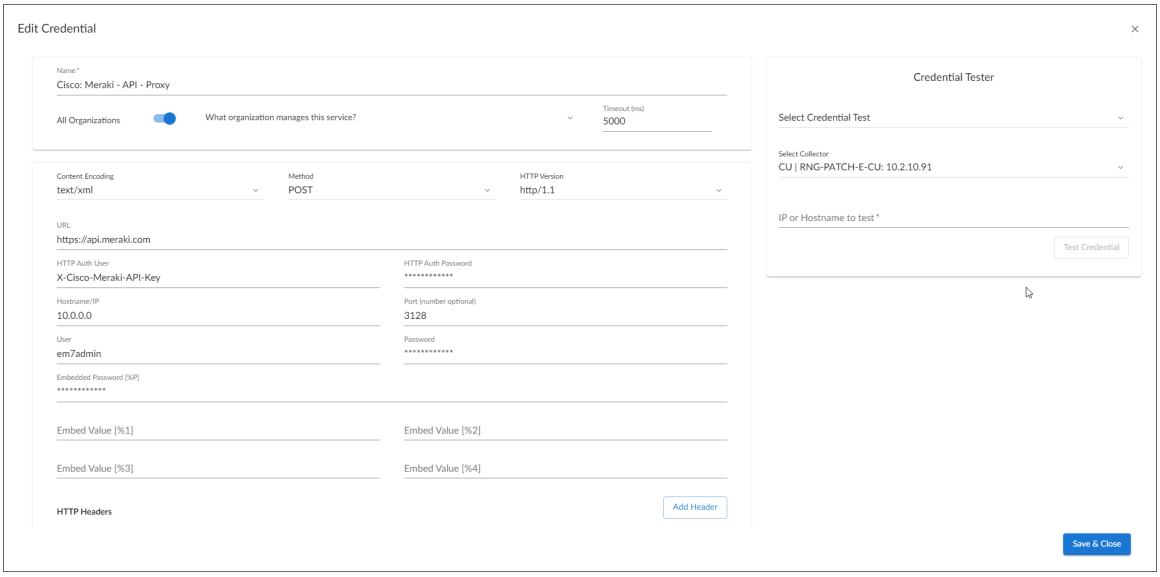
If you access Meraki systems through a third-party proxy server, you can create a SOAP/XML credential to enable the Dynamic Applications in the *Cisco: Meraki [API]* PowerPack to connect with the Cisco Meraki API via the proxy server.

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.

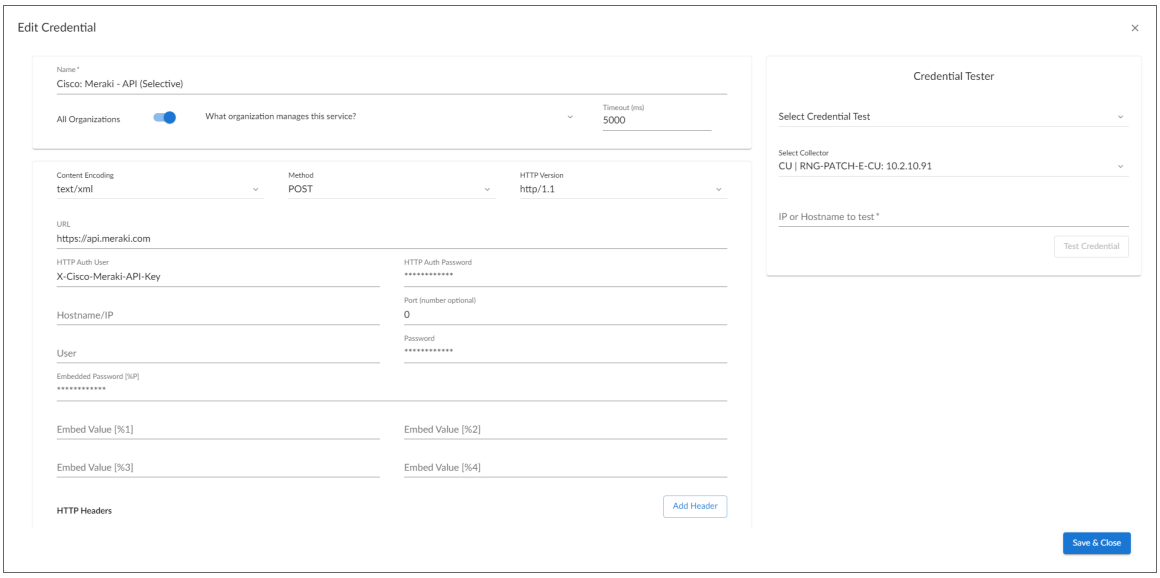
**NOTE**: If you are on an SL1 system prior to version 11.1.0, you will not be able to duplicate the sample credential. It is recommended that you create your new credentials using ***the SL1 classic user interface*** so you do not overwrite the sample credential(s).

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

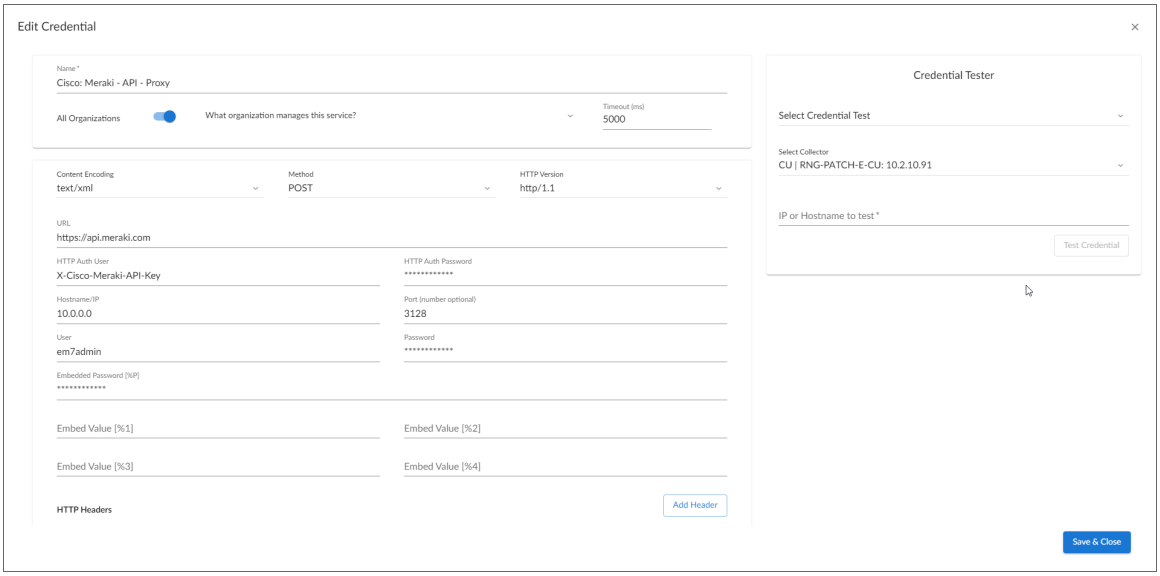



- **Cisco: Meraki - API (Selective)**, for users who want to discover only some selected devices based on tag values




To define a SOAP/XML credential:

1. Go to the **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.

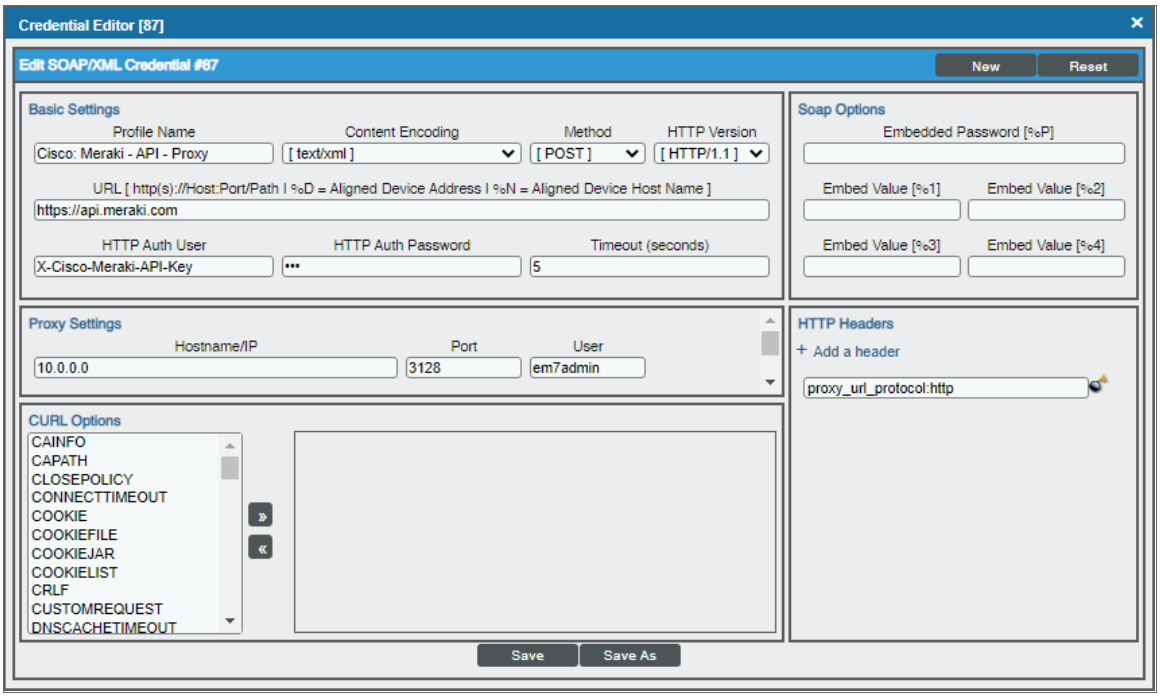
## Creating a SOAP/XML Credential in the SL1 Classic User Interface

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.

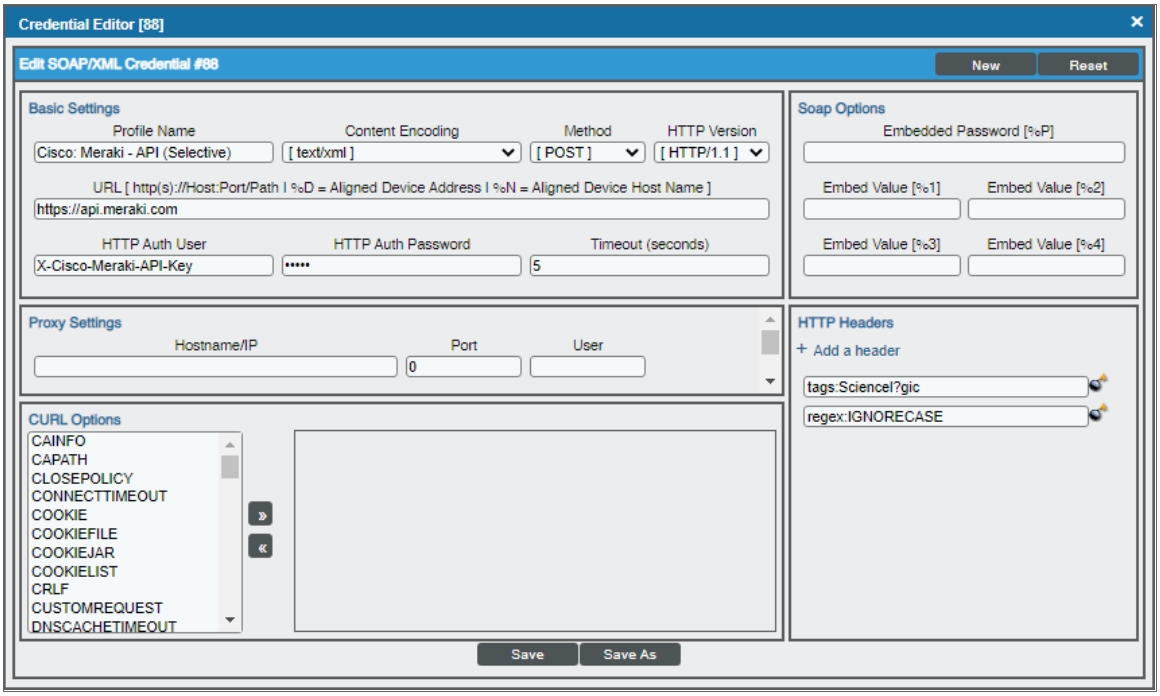
Similarly, if you want to discover only some selected devices, you can create a SOAP/XML credential that specifies tag values that the Dynamic Applications in the *Cisco: Meraki [API]* PowerPack can use to determine which devices should be discovered.

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



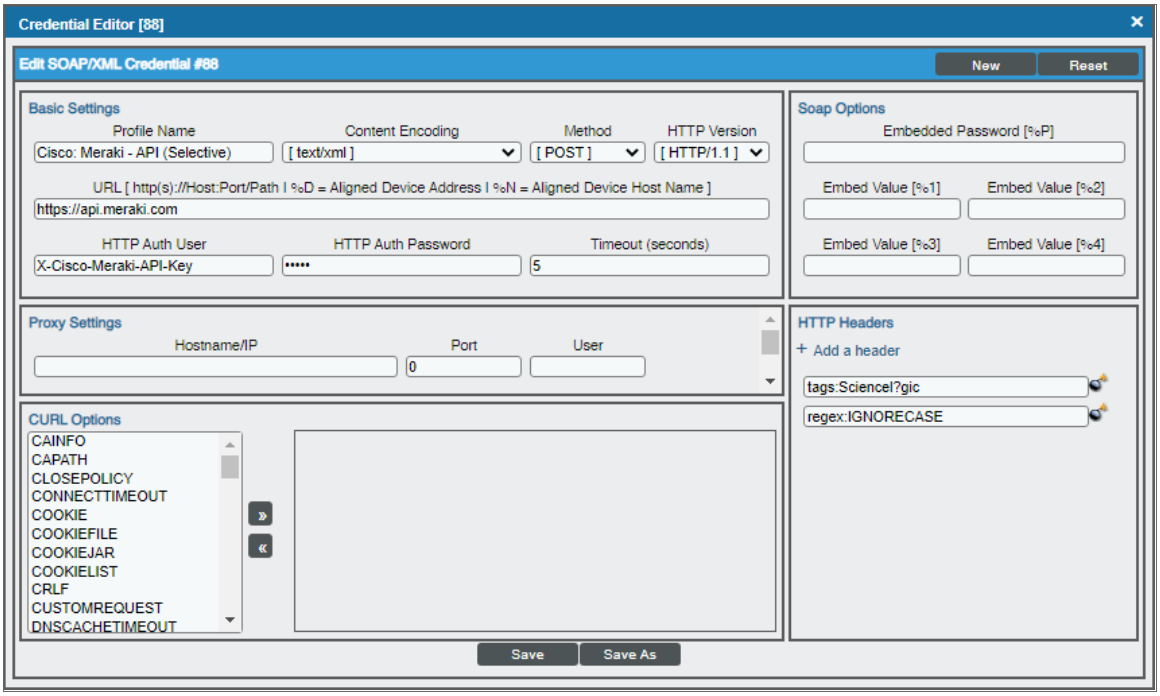

- **Cisco: Meraki - API (Selective)**, for users who want to discover only some selected devices based on tag values




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.

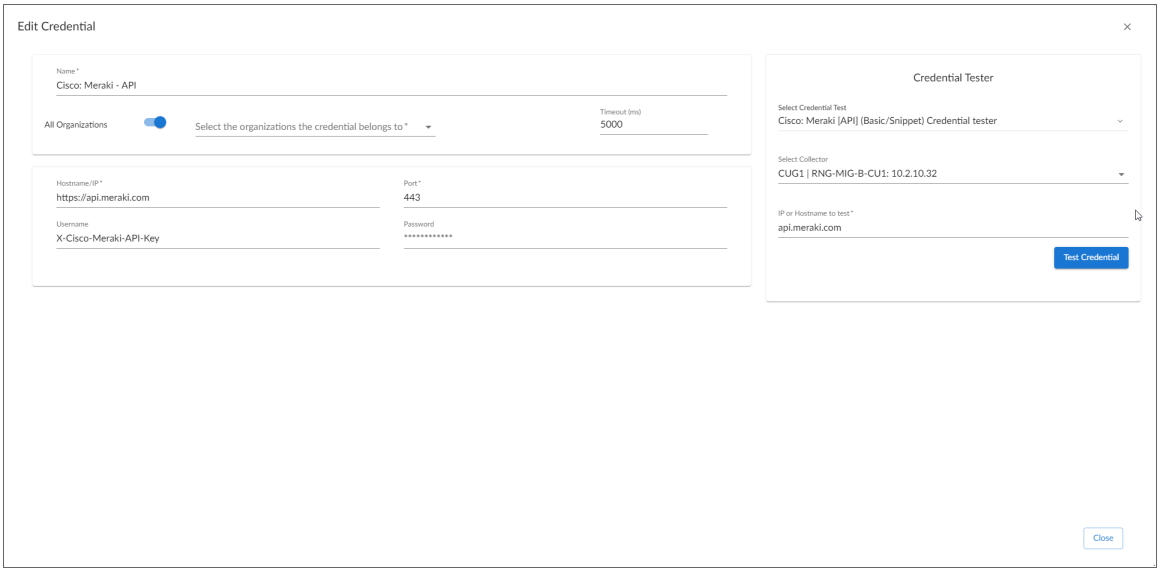
- ***Test Meraki Organization Request***. Performs a check to see if the Meraki organization request has been collected appropriately.

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

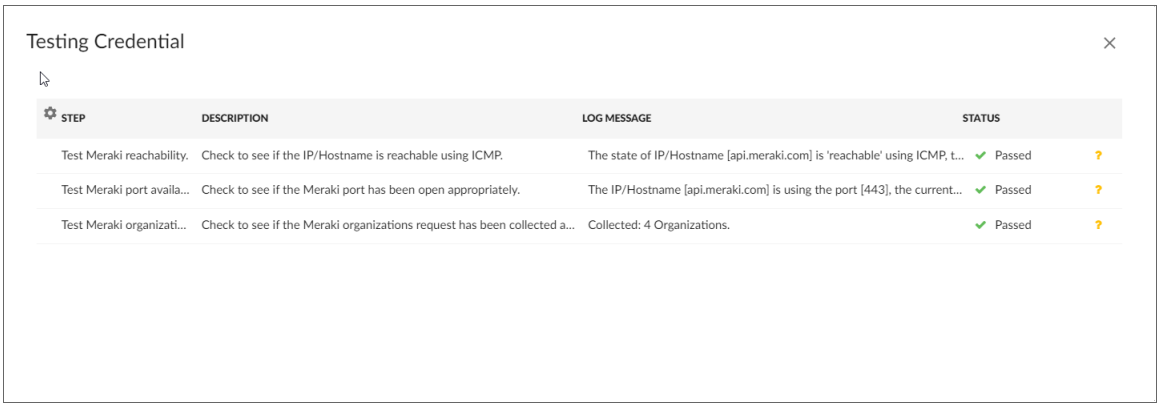
- ***Test Meraki Reachability***. Performs an ICMP ping request to the host specified in the credential.
- ***Test Meraki Port Availability***. Performs an NMAP request to the TCP port specified in the credential on the host specified in the credential.
- ***Test Meraki Organization Request***. Performs 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.




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.

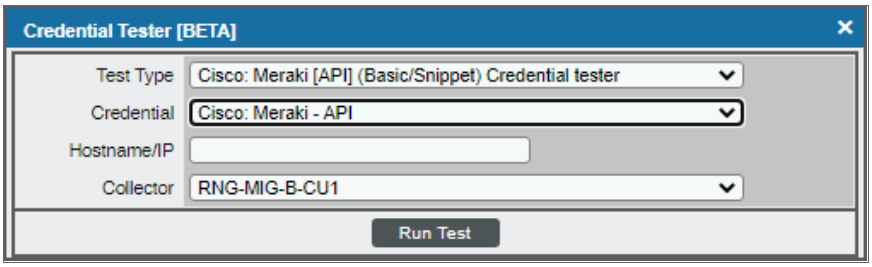
The **Cisco: Meraki [API] (SOAP/XML) Credential tester** performs the following steps:

- ***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.

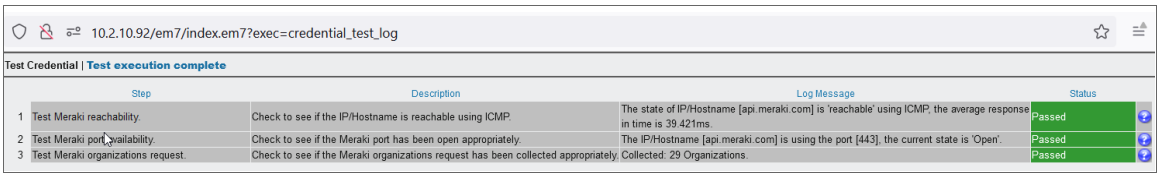
- ***Test Meraki Organization Request***. Performs a check to see if the Meraki organization request has been collected appropriately.

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 **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".

# 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.

# Cisco: Meraki [API] Dynamic Applications Enabled and Alignment Status

Certain Dynamic Applications in the Cisco: Meraki [API] PowerPack are disabled by default. In order for these Dynamic Applications to begin collecting data, they must first be enabled. Others need to be manually aligned in order to collect data.

The table below displays the list of Dynamic Applications and whether they need to be manually enabled or aligned:

| Dynamic Applications | Enabled by Default? | Aligned Automatically on Fresh Install (v113.5)? | Aligned Automatically on Upgrade (v112)? | Aligning \| Enabling / Unaligning \| Disabling saves API calls? |
|---|---|---|---|---|
| Cisco: Meraki API Error | Yes | Yes | Yes | No |

| Dynamic Applications | Enabled by Default? | Aligned Automatically on Fresh Install (v113.5)? | Aligned Automatically on Upgrade (v112)? | Aligning \| Enabling / Unaligning \| Disabling saves API calls? |
|---|---|---|---|---|
| Stats [API] | | | | |
| Cisco: Meraki Component Counts [API] | Yes | Yes | Yes | No |
| Cisco: Meraki Device Configuration [API] | Yes | Yes | Yes | No |
| Cisco: Meraki Device Discovery [API] | Yes | Yes | Yes | No |
| Cisco: Meraki Network Component Counts [API] | Yes | Yes | Yes | No |
| Cisco: Meraki Network Configuration [API] | Yes | Yes | Yes | No |
| Cisco: Meraki Network Discovery [API] | Yes | Yes | Yes | No |
| Cisco: Meraki Organization Discovery [API] | Yes | **No** | **No** | No |
| Cisco: Meraki Organization License Configuration [API] | Yes | Yes | Yes | No |
| Cisco: Meraki Request Manager [API] | Yes | Yes | Yes | No |
| Cisco: Meraki Switch Ports Configuration [API] | Yes | Yes | N/A (Not available) | **Yes** |
| Cisco: Meraki Switch Port Status Performance [API] | **No** | **No** | N/A (Not available) | No |
| Cisco: Meraki Switch Ports Status Configuration [API] | **No** | **No** | N/A (Not available) | **Yes** |
| Cisco: Meraki Uplink Performance [API] | Yes | Yes | Yes | No |
| Cisco: Meraki Uplink Status [API] | Yes | Yes | Yes | No |
| Cisco: Meraki Appliance Uplinks Usage Performance | **No** | **No** | N/A (Not available) | No |

| Dynamic Applications | Enabled by Default? | Aligned Automatically on Fresh Install (v113.5)? | Aligned Automatically on Upgrade (v112)? | Aligning \| Enabling / Unaligning \| Disabling saves API calls? |
|---|---|---|---|---|
| [API] | | | | |
| Cisco: Meraki VPN Status [API] | Yes | **No** | Yes | **Yes** |

# Manually Aligning the Cisco: Meraki Organizations Discovery Dynamic Application

After creating the Cisco Meraki virtual device, you must manually align the "Cisco: Meraki Organizations Discovery [API]" Dynamic Application to the Cisco Meraki virtual device.

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 "Cisco: Meraki Organizations Discovery [API]" 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 Organizations Discovery [API]" Dynamic Application, your Cisco Meraki component devices will be discovered and classified.

**NOTE:** The ***Poll Frequency*** of the "Cisco: Meraki Organizations Discovery [API]" 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 Organizations Discovery Dynamic Application in the SL1 Classic User Interface

After creating the Cisco Meraki virtual device, you must manually align the "Cisco: Meraki Organizations Discovery [API]" Dynamic Application to the Cisco Meraki virtual device.

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 Organizations Discovery [API]" 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 Organizations Discovery [API]" 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 Organizations Discovery [API]" Dynamic Application should be set to 5 minutes.

## Bulk Unaligning a Dynamic Application from Devices

You can unalign a Dynamic Application from devices manually, or bulk unalign the Dynamic Application from multiple devices.

IMPORTANT: Upgrading from a prior version of the Cisco: Meraki API PowerPack to version 112 will align the "Cisco: Meraki Uplink Performance [API]" Dynamic Application to both Meraki networks and network devices. To avoid this, ScienceLogic recommends unaligning the "Cisco: Meraki Uplink Performance [API]" Dynamic Application from Meraki networks before upgrading to version 112.

CAUTION: Upgrading to version 112 will cause you to lose historical data for the "Cisco: Meraki Uplink Performance [API]" Dynamic Application. Additionally, Dynamic Applications aligned to "network" devices will stop collecting.

To bulk unalign a Dynamic Application from multiple devices:

1. Go to the **Dynamic Applications Manager** page (System > Manage > Applications).
2. Type "Cisco: Meraki uplink Performance [API]" in the ***Dynamic Application Name*** column.
3. Click the wrench icon (  ) and then select the **[Subscribers]** tab. The Application Subscribers page appears.
4. Select the checkbox for each device you want to apply the action to. To select all checkboxes for all devices, select the checkbox icon (  ) at the top of the page.
5. In the ***Select Action*** drop-down list, select *Unalign Device and Remove Collection Data*. This option unaligns the selected device from the Dynamic Application and deletes all historical data collected by the Dynamic Application from the device. The device is no longer considered a subscriber to the Dynamic Application. If you perform this option and later want to subscribe to this Dynamic Application again, you must re-align the device with the Dynamic Application.
6. Click the **[Go]** button to apply the action to all selected devices.

## 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 it's ***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]**.

## Disabling the Encoding Fix in the Cisco: Meraki Request Manager [API] Dynamic Application

As of version 113.5 of the PowerPack, a new "encoding" method was added within the "Request Manager" snippet of the "Cisco: Meraki Request Manager [API]" Dynamic Application in order to avoid the default SL1 behavior of displaying hex code for some characters outside the ASCII character set for Meraki network and device names. Additionally, this encoding change can be toggled off for the "Cisco: Meraki Organization Discovery [API]" Dynamic Application whereas it was previously always on. The "encoding" function passed is used to translate non-ASCii characters to their approximate ASCii equivalents using the "fix_encoding" method in the silo-apps library. For any characters that cannot be converted directly by the method above, the snippet "encoding" function also allows you to specify additional replacements, as defined in the "prefix_encoding" dictionary.

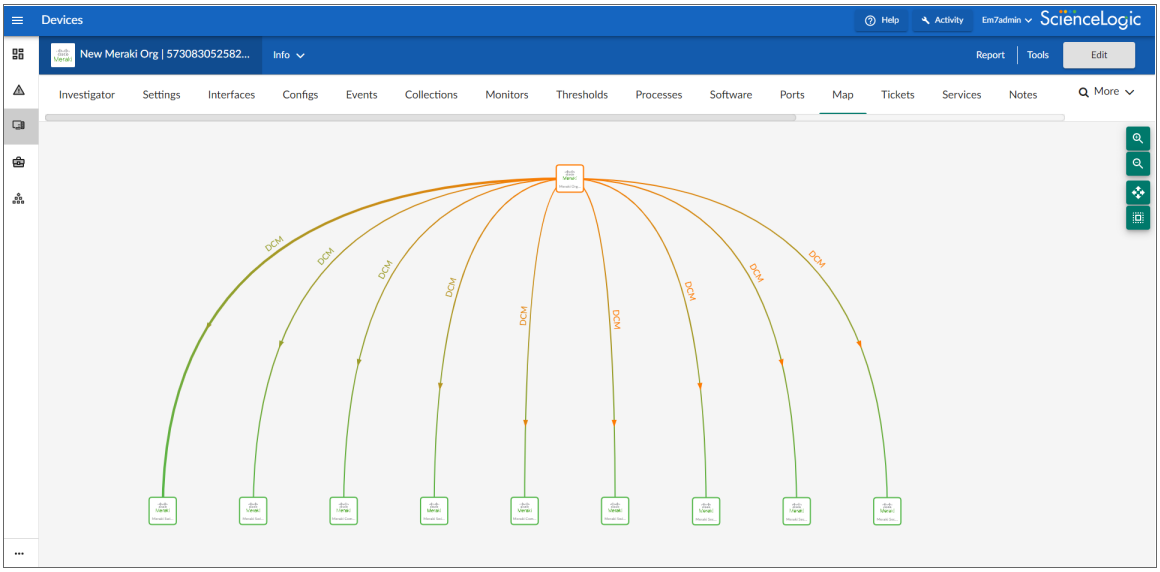
The encoding fix can be disabled within the snippet of the Dynamic Application:

1. Go to the **Dynamic Applications Manager** page (System > Manage > Applications).
2. Type "Cisco: Meraki Request Manager [API]" in the ***Dynamic Application Name*** column.
3. Click the wrench icon ( ) and then select the **[Snippets]** tab. The **Snippet Editor & Registry** page appears.
4. Click the wrench icon ( ) next to ***Request Manager***.
5. Remove `,encoding=encoding` from the end of the snippet.
6. Click **[Save]**.

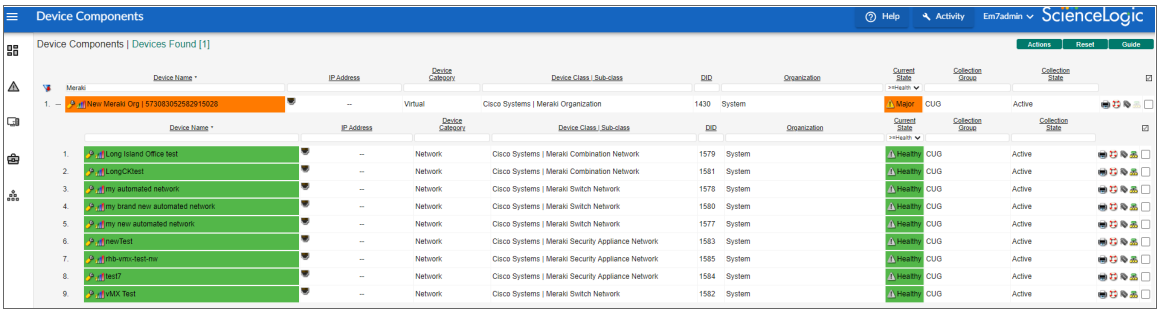
# Viewing Cisco Meraki Component Devices

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

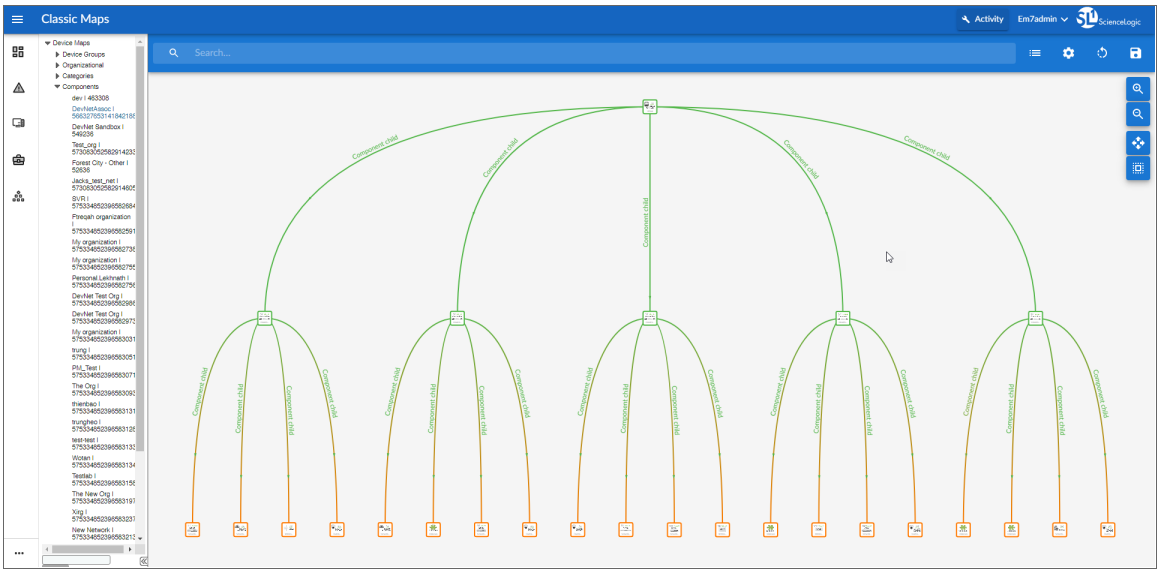
- The **Device Investigator** Map page (click **Map** in the **Device Investigator** page) displays a map of a particular device and all of the devices with which it has parent-child relationships. Double-clicking any of the listed devices reloads the page to make the selected device the primary device.




- 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 (+).



- 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 **Emailer 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.

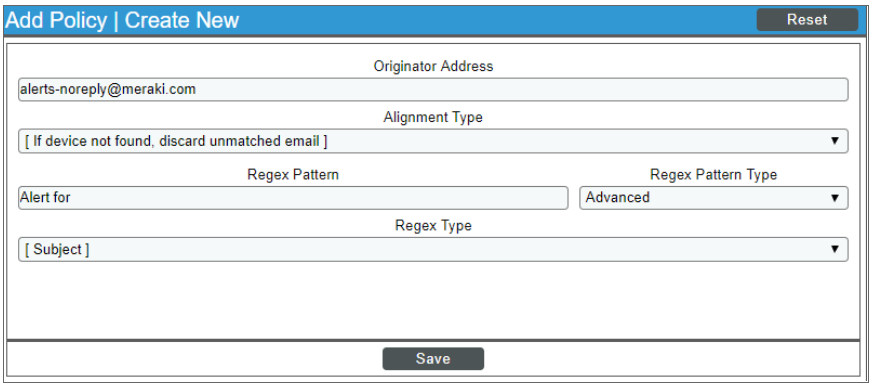
**NOTE:** You can specify how an Event from Email policy will match a RegEx to a device name in the **Behavior Settings** page (System > Settings > Behavior). For more information, see the ***Configuring Inbound Email*** manual.

## 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 **Emailer 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:




- ***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.

# Configuring Cisco: Meraki Webhooks

Please be sure to meet the following requirements before configuring webhooks for Cisco: Meraki:

- **SL1 version**: 11.2.0 or later. For details on upgrading SL1, see the appropriate SL1 Release Notes.
- The webhook handler is built to match alerts to a device based on their hostname, so you must have unique hostnames for devices across the organization.
- Message Collector with a static public IP address
- CA signed certificate for the Message Collector
- Custom webhook handler and libraries

IMPORTANT: The custom webhook handler and libraries are not included in the PowerPack. For additional information, please reach out to your Client Success Manager.

**NOTE:** The following steps are just one way to configure Meraki Webhooks and these steps are not the only way to configure this integration. The Cisco: Meraki [API] PowerPack is not needed to configure webhooks. For more information, please see the ***Events*** manual.

1. In the classic SL1 user interface, go to the **Process Manager** page (System > Manage > Applications).
2. Enable the Webhook Collector Process. For more information about this, see the ***Events*** manual.
3. Configure the Message Collector for Webhooks. For more information about this, see the ***Events*** manual.
4. Upload the CA signed certificate to the Message Collector to the path below and update the SSL configuration to use the new certificate:

```
cd /etc/nginx
```

```
sudo sed -i 's/silossl/cert_file_name/g' /etc/nginx/conf.d/em7_
webhook_collector.conf
```

5. Go to the Collector Groups page (System > Settings > Collector Groups).
6. Align the Message Collector to the Collector Groups. For more information about this, see the ***Events*** manual.
7. Add a Library with Webhook Handlers. For more information about this, see the ***Events*** manual.

**NOTE:** You must write your own library or contact your Client Success Manager for details on how to get a library from ScienceLogic.

1. Go to the **Device Manager** page Registry > Devices > Device Manager.
2. From the **[Actions]** menu, select *Create Virtual Device*.

3. The **Create Virtual Device** modal appears.
4. Supply a value in each of the following fields:
    - ***Device Name***. Name of the virtual device. Can be any combination of alphanumeric characters, up to 32 characters in length.
    - ***Organization***. Organization to associate with the virtual device. Select from the drop-down list of all organizations in SL1.
    - ***Device Class***. The device class to associate with the virtual device. Select from the drop-down list of device classes. Only device classes with a device category of "virtual" and a collection type of "virtual" appear in the list.
    - ***Collector***. Specifies which instance of SL1 will perform auto-discovery and gather data from the device. Can also specify a "virtual" poller. Select from the drop-down list of all collectors in SL1.
5. Select the **[Add]** button to save the new virtual device. Create a virtual device for each organization.

**NOTE:** If devices are in user disabled or maintenance mode, a webhook alert generated for those devices will get aligned to the webhook virtual device instead of the devices themselves. ScienceLogic recommends adding these webhook virtual devices in the suppression section for the webhook event policies to avoid false alerts during maintenance activities for these devices.

1. Go to the **Webhooks** page (Registry > Monitors > Webhooks)
2. Click the **[Create]** button. The **Create New Webhook** modal appears.
3. On the **Create New Webhook** modal, select the virtual device that you want to align to the new webhook receiver by clicking its device icon (  ).
4. On the **Create New Webhook** modal, select the *webhook_handler_example* Library by clicking its library icon ().

5. On the **Create New Webhook** modal, complete the following fields:
    - ***Device***. Displays the device that you selected to align to the webhook receiver. Click **[Change Selected Device]** to select a different device.
    - ***Webhook Name***. Type a unique name for the webhook receiver.
    - ***Webhook URL Suffix***. Type a unique URL suffix for the webhook receiver.
    - ***Available Webhook URL***. Displays the auto-generated full URL of the webhook receiver. The webhook URL consists of the IP address and port number of the Message Collector that is associated with the selected device's collector group, the static URL fragment "/api/v1/webhook", and the webhook URL suffix, in the following format:

      ```
      https://<IP address>:<port number>/api/v1/webhook/<webhook URL suffix>
      ```

      For example: `https://10.2.20.56:8888/api/v1/webhook/test_webhook_url`

    - ***Library***. Displays the ScienceLogic Library that you selected to align to the webhook receiver. Click **[Change Selected Library]** to select a different ScienceLogic Library.
    - ***Import Module***. Type *webhook_handler_example.meraki_example* in this field. This is the Python handler module that you want to import from the selected ScienceLogic Library.
    - ***Import Handler***. Type *meraki_default_template* in this field. This is the name of the Python handler function that you want to import from the selected ScienceLogic Library.
6. Copy the ***Available Webhook URL***. You will need this to configure the webhooks on the Meraki portal. Replace the <IP address> with the Public IP address or the DNS name of the Message Collector.
7. Click **[Save]**.
8. Go to the **Alerts** page on the Meraki portal. (Organization > Network-wide > Configure > Alerts)
9. Under ***Webhooks***, paste the Available Webhook URL you copied in step 18.
10. Under ***Alerts Settings***, add the Webook Name as one of the default recipients. This step must be completed for each network under each organization.
11. Make sure the webhook configuration synced with the Message Collector by executing the commands below in the Message Collector. This may take a while depending on the health of the system and the infrastructure:

    ```
    silo_mysql -e 'SELECT * from master.webhook_definition;'
    ```

    ```
    silo_mysql -e 'SELECT * from master.webhook_ingest;'
    ```

    ```
    silo_mysql -e 'SELECT did FROM collector_state.V_device where did=virtual_device_id'
    ```

12. For examples of Meraki webhook alerts, see the Cisco Meraki documentation.

There is nothing to facilitate webhooks included in the Cisco: Meraki [API] PowerPack

# Managing the Cisco: Meraki Update Switch Configuration [API] Run Book Action Policy

The "Cisco: Meraki Update Switch Configuration [API]" run book action policy is intended to be an example of how to use SL1 run book actions to automate actions within Meraki. Before being modified, this run book action policy contains code to push configuration changes to Meraki switches. Specifically, this run book action policy contains code to update the POE status of a port on a switch. This automation is intended to be easily modified to perform *any* Meraki API call as a result of an event occurring in SL1. This automation can be run manually for testing purposes or triggered automatically by an event that has the required information in the event message. The "Cisco: Meraki Switch Port POE has been disabled" alert and event policies are provided as examples of what events can be used to trigger this automation.

Run book automation policies:

- Cisco: Meraki Update Switch Port Config
- Cisco: Meraki Update Switch Port Config [Manual Execution]

Automation action policy:

- Cisco: Meraki Update Switch Configuration [API]

Example Alert:

- Cisco: Meraki Switch Port POE has been disabled

Example Event Policy:

- Cisco: Meraki Switch Port POE has been disabled

In an unmodified state, the "Cisco: Meraki Update Switch Configuration [API]" action policy needs 4 entities to push the configuration to the switch:

- Serial ID of the switch (This comes from the alert.)
- Port ID (This comes from the alert.)
- Switch Port Attribute (This is manually added in the "Cisco: Meraki Update Switch Configuration [API]" run book action policy.)
- Switch Port Attribute Value (This is manually added in the "Cisco: Meraki Update Switch Configuration [API]" run book action policy.)

**WARNING:** The "Cisco: Meraki Update Switch Configuration [API]" run book action policy and its associated automation policies are all experimental and ScienceLogic recommends caution before enabling and using them. The related "Cisco: Meraki Switch Ports Configuration [API]" and "Cisco: Meraki Switch Ports Status Configuration [API]" Dynamic Applications require a large number of API calls, which may negatively impact performance.

# Executing the Cisco: Meraki Update Switch Configuration [API] Run Book Action Policy Automatically

To execute the "Cisco: Meraki Update Switch Configuration [API]" run book action policy automatically, you *can* use the "Cisco: Meraki Update Switch Port Config" run book automation policy.

1. Align the appropriate event created from the "Cisco: Meraki Switch Port POE has been disabled" alert to the "Cisco: Meraki Update Switch Port Config" automation policy. For more information about this, see the ***Run Book Automation*** manual.
2. If you would like to use this automation to change a value other than the Switch Port POE Status, configure the snippet code for the "Meraki Update Switch Configuration [API]" run book action policy. For more information about this, see the ***Run Book Automation*** manual.
    - Go to the `get_event_action_fields()` function and replace the `<switchPortAttribute> : <attributeValue>` with the switch port attribute that needs to be configured and its appropriate value under the `payload` attribute.
3. Enable the "Cisco: Meraki Update Switch Configuration [API]" run book action policy. For more information about this, see the ***Run Book Automation*** manual.
4. Enable the "Cisco: Meraki Update Switch Port Config" run book action policy. For more information about this, see the ***Run Book Automation*** manual.

## Enabling and Configuring the Alert

The "Cisco: Meraki Switch Port POE has been disabled" alert is an example alert that is triggered when the POE status on a switch is disabled. This alert and its associated event *can* be used to change the PoE Status configuration from "False" to "True".

1. Go to the **Dynamic Applications Manager** page (System > Settings > Processes).
2. Type "Cisco: Meraki Switch Ports Status Configuration [API]" in the ***Dynamic Application Name*** column.
3. Click the wrench icon ( ) and then select the **[Alerts]** tab. The **Alert Objects** page appears.
4. Click the wrench icon ( ) next to the ***Policy Name*** in the Alert Object Registry.
5. In the ***Active State*** field, select *Enabled*.
6. Click **[Save]**.

# Manually Executing the Cisco: Meraki Update Switch Configuration [API] Run Book Action Policy

To manually execute the "Cisco: Meraki Update Switch Configuration [API]" run book action policy , you *can* use the "Cisco: Meraki Update Switch Port Config [Manual Execution] [API]" run book automation policy. When using the user initiated automation policy, the Serial ID, Port ID, Switch Port Attribute, Attribute Value, and SL1 Credential ID are all added manually in the run book action policy.

1. Configure the snippet code for the "Meraki Update Switch Configuration [API]" run book action policy. For more information about this, see the ***Run Book Automation*** manual.
    - In the ***Snippet Code*** field, go to the `get_event_action_fields()` function and locate `get_user_action_fields()`.
    - Add the `<switchPortAttribute> : <attributeValue>` , the `serial`, `portId` and `credentialId`. Uncomment the `switchPortAttribute` and `portId` lines and changes the values as necessary. The key/value pair for the switchPortAttribute line in the payload section should follow the format provided by the Cisco Meraki documentation.
2. Go to the **Events** page.
3. Choose any event in the list and click on the message under the ***Message*** column. This will open the event.
4. Select the *Cisco: Meraki Update Switch Port Config [Manual Execution]* policy from the ***Tools*** drop-down menu. The ***View Logs*** link will appear.
5. Click ***View Logs*** to verify that the action policy was executed correctly. In the window that appears, all action policies that have been executed are listed for review.
6. Once the policy and action are enabled , go back to Device Components (Registry > Devices > Device Components).
7. Click the wrench icon (  ) next to the switch device that triggered the alert and click the **[Logs]** tab.
8. If the run book action policy has executed correctly, an email icon (  ) will display next to the ***Count*** column. Click the icon to check the execution state.

# Managing the Cisco: Meraki Reboot Device Run Book Action Policy

The "Cisco: Meraki Reboot Device " run book action policy allows you to reboot a Meraki device. This action policy is disabled by default.

> **WARNING:** The "Cisco: Meraki Reboot Device" run book action policy will allow SL1 to reboot devices. This action policy is experimental and should be turned on only by a user with extensive knowledge of the effects that these actions will have on your network and devices. ScienceLogic recommends caution when enabling this action policy in a production environment.

In order to execute this experimental action policy, you need to meet the following prerequisites:

- Enable the "Cisco: Meraki Reboot Device" run book action policy
- Enable the "Cisco: Meraki Reboot Automation [Manual Execution]" or "Cisco: Meraki Reboot Automation" run book automation policy
- Meraki credentials with the permissions to perform an http POST request

## Manually Executing the Cisco: Meraki Reboot Device Run Book Action Policy

The "Cisco: Meraki Reboot Device" run book action has two policies:

- Cisco: Meraki Reboot Automation [Manual Execution]
- Cisco: Meraki Reboot Automation

To manually execute the "Cisco: Meraki Reboot Device [Manual Execution]" run book action policy:

1. Enable the "Cisco: Meraki Reboot Automation [Manual Execution]" or the "Cisco: Meraki Reboot Automation" run book automation policy depending upon your use case scenario. For more information about this, see the ***Run Book Automation*** manual.
2. Modify the snippet code in the "Cisco: Meraki Reboot Device" action policy to manually reboot devices. For more information about this, see the ***Run Book Automation*** manual.
    - In the ***Snippet Code*** field, go to the "Update Values Here to Run Manually" section.
    - Enter the following details:
        - `user_serial_id`, for example: `user_serial_id='QBSB-X4HM-KJVV`
        - `user_cred_id`, for example: `user_cred_id='104'`
3. Enable the "Cisco: Meraki Reboot Device" run book action policy. For more information about this, see the ***Run Book Automation*** manual.
4. Go to the **Events** page.
5. Choose any Event in the list to align to the run book action and click on the message under the ***Message*** column. This will open the event.
    - This event will provide the serial number of the device that needs to be rebooted.
    - The run book action will do a reboot (HTTP put) on the serial ID.
6. Disable the "Cisco: Meraki Reboot Device" run book action and the automation policy "Cisco: Meraki Reboot Device [Manual Execution]" or the "Cisco: Meraki Reboot Automation".
   Select the *Cisco: Meraki Reboot Automation [Manual Execution]* policy from the ***Tools*** drop-down menu. The ***View Logs*** link will appear.
7. Click ***View Logs*** to verify that the action policy was executed correctly. In the window that appears, all action policies that have been executed are listed for review.

## Executing the Cisco: Meraki Reboot Device [API] Run Book Action Policy Automatically

To execute the "Cisco: Meraki Reboot Device [API]" run book action policy automatically, you must use the " Cisco: Meraki Reboot Device " run book automation policy.

1. In the "Cisco: Meraki Reboot Device" automation policy, select the event you would like to trigger this automation from. This event must contain the serial number for the device being rebooted in the event message. For more information about this, see the SL1: Administration and Accounts manual. For more information about this, see the ***Run Book Automation*** manual.

2. Enable the "Cisco: Meraki Reboot Device" run book action policy. For more information about this, see the ***Run Book Automation*** manual.
3. Enable the "Cisco: Meraki Reboot Automation" run book automation policy. For more information about this, see the ***Run Book Automation*** 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.

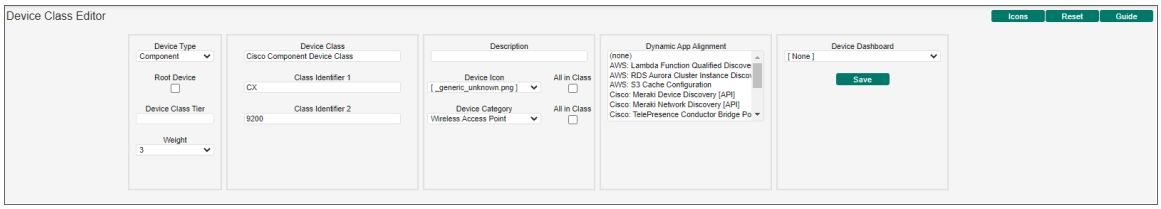
## Creating a Custom Component Device Class

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.




## 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.

# Troubleshooting

The following sections describe resolutions to some issues you might encounter when monitoring Cisco: Meraki [API]:

## Cisco: Meraki Uplink Performance [API] retrieves a NULL value

Currently, the behavior when the "Cisco: Meraki Uplink Performance [API]" Dynamic Application retrieves a value of "NULL" for the uplink is:

1. The string 'NoName' + Serial Number is added as the index for the graphs.
2. The 'lossPercent' value could be 100%, which may trigger alerts at the Network Device level in the component tree.
3. This behavior currently exists in the PowerPack, since it could not be determined what a "NULL" value for the uplink means and whether it is useful.
4. You can choose to alter your alert policies to ignore these "NULL" value uplinks.

## Meraki Organizations are not modeling

Currently, there is a known issue that prevents Meraki Organizations from being modeled if another device in SL1 has the same name. If this situation occurs, SL1 modifies the existing device's name and does not create a new device. To workaround this issue:

1. Run the "Cisco: Meraki Organization Discovery [API]" Dynamic Application in debug mode.
2. Identify the organization name where the failure is happening on by either looking into the logs in the SL1 user interface or the `/tmp/meraki_organization_creation.log` file.
3. Locate the device with the similar name, and change the name of the device if possible.
4. Once you have changed the name of the device, SL1 will no longer try to update the existing device and will continue to create a new Meraki device.

# Appendix

# 2

# Cisco: Meraki [API] API Endpoints

## Overview

This appendix describes the list of API endpoints being requested from and their matching Dynamic Applications as of Cisco: Meraki [API] PowerPack version 113.

## Cisco: Meraki [API] API Endpoints

The "Cisco: Meraki [API]" Dynamic Applications listed below make requests to the listed endpoints.

- Cisco: Meraki Organization Discovery [API]: `/api/v1/organizations`, List the organizations that the user has privileges on.
- Cisco: Meraki Network Discovery [API]: `/api/v1/<ORGANIZATION_ID>/networks` , List the networks that the user has privileges on in an organization.
- Cisco: Meraki Device Discovery [API]: `/api/v1/<ORGANIZATION_ID>/devices` , List the devices in an organization.
- Cisco: Meraki Device Configuration [API]: `/api/v1/<ORGANIZATION_ID>/devices/statuses` , List the status of every Meraki device in the organization.
- Cisco: Meraki Uplink Performance [API]: `/api/v1/<ORGANIZATION_ID>/devices/uplinksLossAndLatency` , Return the uplink loss and latency for every MX appliance in the organization from at least 2 minutes ago.
- Cisco: Meraki Organization License Configuration [API]: `/api/v1/<ORGANIZATION_ID>/licenses/overview` , Return an overview of the license state for an organization.
- Cisco: Meraki VPN Status [API]: `/api/v1/<ORGANIZATION_ID>/appliance/vpn/statuses` , Show VPN status for networks in an organization.

- Cisco: Meraki Uplink Status [API]: `/api/v1/<ORGANIZATION_ID>/appliance/uplink/statuses` , List the uplink status of every Meraki MX and Z series appliance in the organization.
- Cisco: Meraki Switch Ports Configuration [API]: `/api/v1/organizations/<ORGANIZATION_ID>/switch/ports/bySwitch`, List the switchports in an organization by switch
- Cisco: Meraki Switch Ports Status Configuration [API]: `/api/v1/devices/<DEVICE_SERIAL>/switch/ports/statuses`, Return the status for all the ports of a switch
- Cisco: Meraki Switch Port Status Performance [API]: `/api/v1/devices/<DEVICE_SERIAL>/switch/ports/statuses`, Return the status for all the ports of a switch
- Cisco: Meraki Appliance Uplinks Usage Performance [API]: `api/v1/organizations/{organizationId}/appliance/uplinks/usage/byNetwork \`, Return the sent and received bytes for each uplink of all MX and Z networks within an organization. If more than one device was active during the specified timespan, then the sent and received bytes will be aggregated by interface.

**NOTE:** The calls made to the endpoint used by the "Cisco: Meraki VPN Status [API]" Dynamic Application is only made if at least one instance of the Dynamic Application is aligned to a device. Additional instances of the Dynamic Application aligned to other devices does not add to the number of calls to the endpoint, and only one call is made per Polling Interval of the "Cisco: Meraki Request Manager [API]" Dynamic Application to get the VPN information for the entire organization.

**NOTE:** The calls made to the endpoints used by the "Cisco: Meraki Switch Ports Status Configuration [API]" Dynamic Application are only made if the Dynamic Application is manually aligned to a switch device.

The following endpoint is called by the "Cisco: Meraki Reboot Device" run book action policy instead of a Dynamic Application. Only one call is made per execution of the run book action policy:

- Cisco: Meraki Reboot Device: `/api/v1/devices/<SERIAL_ID>/reboot`, Reboot a device.

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