

Catalyst 9300/X/L-M Series Installation Guide

About this Guide

This guide provides instruction on how to install and configure your Catalyst 9300/X/L-M series switches in the Meraki-managed mode.

Product Overview

Models

Model number	Description	Uplink Configura
C9300-24T-M	24 port Gbe Data Only	Modular U
C9300-24P-M	24 port Gbe Data with 30W PoE+	Modular U
C9300-24U-M	24 port Gbe Data with 60W UPOE	Modular U
C9300-24UX-M	24 port mGig Data with 60W UPOE (10G/5G/2.5G/1G/100M)	Modular U
C9300-48T-M	48 port Gbe Data Only	Modular U
C9300-48P-M	48 port Gbe Data with 30W PoE+	Modular U
C9300-48U-M	48 port Gbe Data with 60W UPOE	Modular U
C9300-48UXM-M	48 port Cisco UPOE, 36 ports 100M/1G/2.5G + 12 ports Multigigabit (10G/5G/2.5G/1G/100M)	Modular U
C9300-48UN-M	48 port 5Gbps Multigigabit UPOE ports (5G/2.5G/1G/100M)	Modular U
C9300-24S-M	24 port 1Gbe SFP	Modular U
C9300-48S-M	48 port 1Gbe SFP	Modular U
C9300X-12Y-M	12 port 25G/10G/1G SFP28	Modular U

C9300X-24Y-M	24 port 25G/10G/1G SFP28	Modular U
C9300X-48TX-M	48 port Data, 48x 10G Multigigabit (10G/5G/2.5G/1G/100M)	Modular U
C9300X-24HX-M	24 port Cisco UPOE+, 24x 10G Multigigabit (10G/5G/2.5G/1G/100M)	Modular U
C9300X-48HX-M	48 port Cisco UPOE+, 48x 10G Multigigabit (10G/5G/2.5G/1G/100M) with 90W UPOE+	Modular U
C9300X-48HXN-M	48 port Cisco UPOE+, 8x 10G Multigigabit (10G/5G/2.5G/1G/100M) + 40x 5G Multigigabit (5G/2.5G/1G/100M)	Modular U
C9300L-24T-4X-M	24 port Data Only	Fixed Up 4x 10G/
C9300L-48T-4X-M	48 port Data Only	Fixed Up 4x 10G/
C9300L-24P-4X-M	24 port Data with 30W PoE+	Fixed Up 4x 10G/
C9300L-48P-4X-M	48 port Data with 30W PoE+	Fixed Up 4x 10G/
C9300L-48PF-4X-M	48 port Data with 30W PoE+ (Full Power)	Fixed Up 4x 10G/
C9300L-24UXG-4X-M	24 port Cisco UPOE, 8 ports Multigigabit (10G/5G/2.5G/1G/100M) + 16 ports 1G (1G/100M/10M)	Fixed Up 4x 10G/
C9300L-48UXG-4X-M	48 port Cisco UPOE, 12 ports Multigigabit (10G/5G/2.5G/1G/100M) + 36 port 1G (1G/100M/10)	Fixed Up 4x 10G/

Note: For Japan, the recommendation is to deploy the switch with 200V+ outlets. The 1100/1900W power supplies will not operate on 100V. Please see the following chart for the appropriate 250VAC power cable.

<https://www.cisco.com/c/en/us/td/doc...e-powercords-2>

Technical Specifications

- Each model has 1 dedicated management interface (local status page access)
- The 9300 model has two stack ports supporting (480G), the 9300X supports 1Tbps stacking and is backward compatible with 9300.
- The 9300 and 9300X can stack together at 480G. The 9300L can only stack with other 9300L switches.
- The 9300 and 9300X modular uplinks are model specific (modules are not interchangeable between the 9300 and 9300X)
- Operating temperature for each of the model: -5°C to 45°C
- Storage and Transportation Temperature: -20°C - 70°C
- Humidity: 5 to 90%

Model	Interfaces	PoE/ UPoE Capabilities	Power Load (idle/ max)	Available PoE	Hot Swap Power Supply
C9300-24T-M	24 x 1GbE RJ45	n/a	79.2 / 99 W	-	Yes, Dual
C9300-24P-M	24 x 1GbE RJ45	PoE	84.1 / 554.4 W	445W	Yes, Dual
C9300-24U-M	24 x 1GbE RJ45	UPoE/802.3bt	85.4 / 990.3 W	830W	Yes, Dual
C9300-24UX-M	24 x mGbE RJ45	UPoE/802.3bt	162.7 / 809.9 W	560W	Yes, Dual
C9300-48T-M	48 x 1GbE RJ45	n/a	83.9 / 109.9 W	-	Yes, Dual
C9300-48P-M	48 x 1GbE RJ45	PoE	92.6 / 555 W	437W	Yes, Dual
C9300-48U-M	48 x 1GbE RJ45	UPoE/802.3bt	145 / 844.9 W	822W	Yes, Dual
C9300-48UXM-M	36 x 100M/1G/2.5G + 12 x 100M/1G/2.5G/5G/10G	UPoE/802.3bt	218.5 / 785.5 W	490W	Yes, Dual
C9300-48UN-M	48 x 100M/1G/2.5G/5G	UPoE/802.3bt	157.9 / 843.8 W	645W	Yes, Dual
C9300-24S-M	24 x 1GbE SFP	n/a	84.6 / 124.3 W	-	Yes, Dual
C9300-48S-M	48 x 1 GbE SFP	n/a	88.9 / 158.3 W	-	Yes, Dual
C9300X-12Y-M	12 x 1/10/25 GbE SFP28	n/a	97.1 / 157.3 W	-	Yes, Dual
C9300X-24Y-M	24 x 1/10/25 GbE SFP28	n/a	139.6 / 243.7 W	-	Yes, Dual
C9300X-48TX-M	48 x 100M/1G/2.5G/5G/10G	n/a	184.3 / 269.8 W	-	Yes, Dual
C9300X-24HX-M	24 x 100M/1G/2.5G/5G/10G	UPoE+/802.3bt	127.2 / 912.6 W	735W	Yes, Dual
C9300X-48HX-M	48 x 100M/1G/2.5G/5G/10G	UPoE+/802.3bt	178.9 / 672 W	590W	Yes, Dual
C9300X-48HXN-M	8 x 100M/1G/2.5G/5G/10G 40 x 100M/1G/2.5G/5G	UPoE+/802.3bt	127.2 / 912.6 W	690W	Yes, Dual
C9300L-24T-4X-M	24 x 1GbE RJ45 4 x 1G/10G SFP+ Uplink	n/a	56.85 / 73.54 W	-	Yes, Dual
C9300L-48T-4X-M	48 x 1GbE RJ45 4 x 1G/10G SFP+ Uplink	n/a	60.97 / 86.77 W	-	Yes, Dual
C9300L-24P-4X-M	24 x 1GbE RJ45	PoE+/802.3bt	63.70 / 607 W	505W	Yes, Dual

	4 x 1G/10G SFP+ Uplink				
C9300L-48P-4X-M	48 x 1GbE RJ45 4 x 1G/10G SFP+ Uplink	PoE+/802.3bt	67.40 / 598 W	505W	Yes, Dual
C9300L-48PF-4X-M	48 x 1GbE RJ45 4 x 1G/10G SFP+ Uplink	PoE+/802.3bt	67.38 / 1023.56 W	890W	Yes, Dual
C9300L-24UXG-4X-M	8 x 100M/1G/2.5G/5G/10G mGig 16 x 1G (1G/100M/10M) GbE RJ45 4 x 1G/10G SFP+ Uplink	UPoE/802.3bt	68.98 / 1049.47 W	880W	Yes, Dual
C9300L-48UXG-4X-M	12 x 100M/1G/2.5G/5G/10G mGig 36 x 1G (1G/100M/10M) GbE RJ45 4 x 1G/10G SFP+ Uplink	UPoE/802.3bt	104.56 / 875.3 W	675W	Yes, Dual

Product View and Physical Features

Front Panel Components



Inactive components: When operating in the Meraki-managed mode, the C9300 will disable the STAT, Duplex, Speed, Stack, PoE, XPS and Console LEDs, as well as the USB Type-A storage and the USB Type-B console ports.

Item	Component	Purpose
1	Blue Beacon LED	Reports systems status (along with the System LED) Please refer to the LED indicators in the Meraki-managed mode table for details
2	Reset (Mode) button	Reset switch to factory settings. Please refer to the Factory Reset Process section for details
3	System LED	Reports status of the (along with the Blue Beacon LED)

4	Active LED	Identifies the switch's role in the stack
5	StackPower LED	Indicates StackPower operation states.

LED Indicators in the Meraki-managed mode

	System status	Blue Beacon LED	System LED
1	Switch is powered off or not receiving power.		Off
2	Switch is powered on and is loading the bootstrap firmware.		Solid amber
		Off	
3	Switch is loading the operating system.		Blinking green
4	System error: Switch failed to load operating system or bootstrap firmware.		Blinking amber
	Setting up local management and cloud-connectivity requirements.		
5	<i>Note: If the switch has not been assigned a static management IP previously, it will try to obtain an IP via DHCP in this stage.</i>	Flashing Blue	Cycling b/w green & amber (OR blinking green)
6	System error: Switch failed to complete local provisioning.		Solid amber
7	Switch is completely provisioned but unable to connect to Meraki cloud.		Solid amber
8	Firmware download / upgrade in progress		Blinking green
		Solid Blue	
9	There is a fault with the power supply, fan, or network module (not traffic-related)		Blinking amber
10	Switch is fully operational and connected to the Meraki cloud		Solid green

Back Panel Components



Inactive components: When operating in the Meraki-managed mode, the C9300 will disable the RJ45 console port.

Item	Component	LED Status	Description
------	-----------	------------	-------------

1	Management Interface (Aux Port)	Green	Connected, used for easy access to the local status page
2	Stack Ports	N/A	Stack Cables are connected here
3	Redundant Fans	Green	Active and operational
4	StackPower Ports	N/A	StackPower cables are connected here
5	Power Supplies	Green	Active and functional power supplies

Factory Reset Button

To perform a factory reset, keep the mode button pressed for 21 seconds or more. Release the button when you see the LED lights stop flashing. The switch will reboot and revert to its original factory settings.

Safety and Warnings

These operations are to be taken with respect to all local laws. Please take the following into consideration for safe operation:

- Power off the unit before you begin. Read the installation instructions before connecting the system to the power source.
- Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents.
- Read the mounting instructions carefully before beginning installation. Failure to use the correct hardware or to follow the correct procedures could result in a hazardous situation to people and damage to the system.
- This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than: 15 A, 125 Vac, or 10A, 240 Vac.
- Please only power the device with the provided power cables to ensure regulatory compliance.

Catalyst 9300-M Deployment Best Practices

Before powering on devices or connecting an uplink port to the LAN, ensure to follow the steps outlined below or watch this [short video](#).



The above video will link to a MS390 but the steps and information are the same for the C9300-M.

Configure your Dashboard Network

To add devices to your Meraki dashboard network please refer to the [Creating a Dashboard Account and Organization](#) document.

Check and Set Network Firmware

Ensure that the switch network is set to the correct firmware version. As of Feb 2024 CS16(GA) is the recommended version. Recommended versions are subject to change and are available in each dashboard by navigating to Organization > Firmware Upgrades

You can refer to [Managing Firmware Upgrades](#) for steps to set network firmware to the desired version.

Check and Configure Upstream Firewall Settings

If a firewall is in place, it must allow outgoing connections on particular ports to particular IP addresses. The most current list of outbound ports and IP addresses for your particular organization can be found under Help → Firewall info. The help button is located on the top right corner of any dashboard page. For more information refer to [Upstream Firewall Rules for Cloud Connectivity](#).

Stacking

For stacking please refer to this section [Stack Cabling Installation](#)

Assigning an IP Address

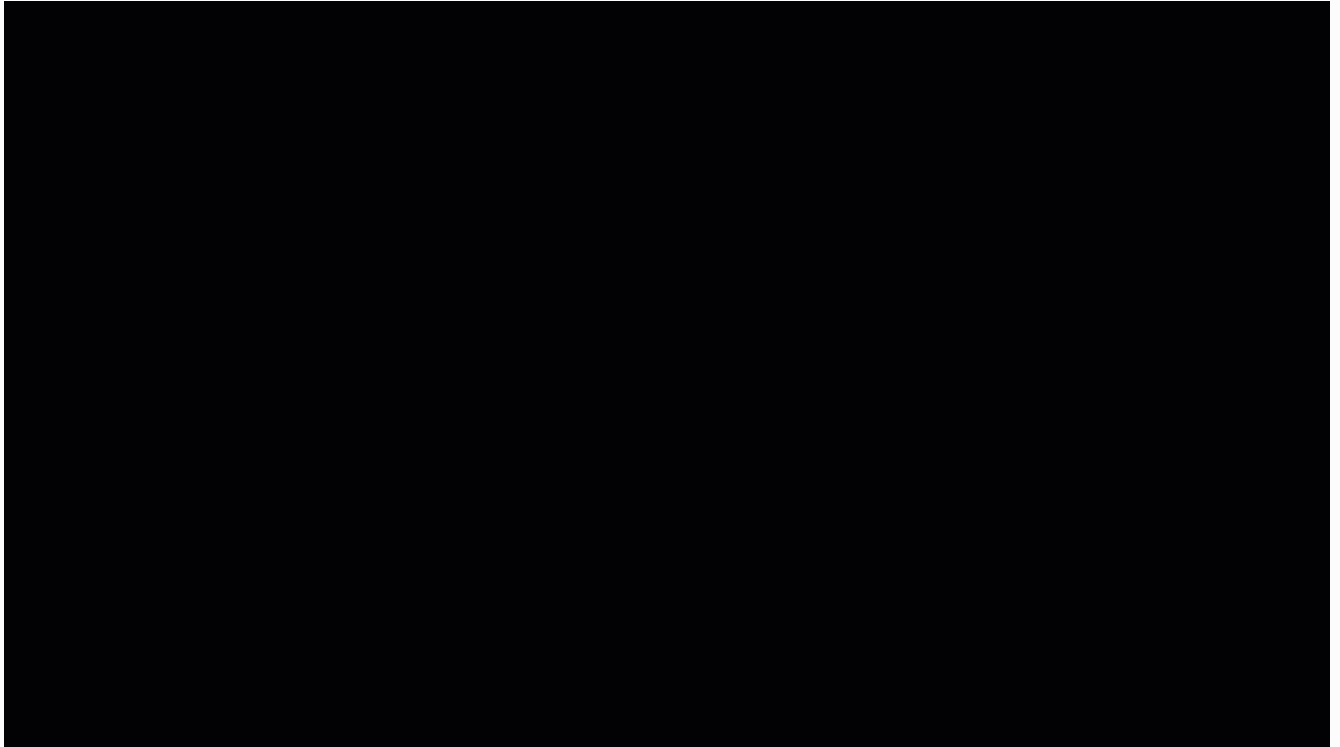
All switches must be assigned routable IP addresses. These IP addresses can be dynamically assigned via DHCP or statically assigned. C9300 switches can support a total count of 1000 VLANs per stand-alone switch or switch stack. VLAN ID 1-1000 are configured by default, however, the active VLANs can be changed via the local status page or dashboard. When installing an C9300, it is important to ensure that any DHCP services or IP address assignments used for management fall within the active VLAN range.



Note: To utilize any VLANs outside of 1-1000 on a Catalyst Meraki C9300, the switch or switch stack must have ALL of its trunk interfaces set to an allowed vlan list that contains a total that is less than or equal to 1000 VLANs, including any of the module interfaces that are not in use. For example: If a switch needs to utilize VLANs **1,100-200,300-400,2100-2200,3000-3100**, **EVERY** trunk interface on that switch must be configured with that allowed VLAN list or a subset of it.

The easiest method to do this is to perform the following:

1. Navigate to **Switch > Switch ports**
2. in the search bar use the following search term depending on if it is a stack or a single switch:
 1. **switch:"{name of switch}" is:trunk**
 2. **stack:"{name of stack}" is:trunk**
3. Select all trunks configured with the allowed VLANs of 1-1000
4. set to new list including new range of VLANs. (example: 1,100-200,300-400,2100-2200,3000-3100)
5. Click Update



Dynamic Assignment

When using DHCP, the DHCP server should be configured to assign a static IP address for each MAC address belonging to a Meraki switch. Other features of the network, such as 802.1X authentication, may rely on the property that the switches have static IP addresses.

Please make sure that the DHCP server used for providing a management IP address to the switch has an available address pool that falls within the active VLAN range.

Static Assignment

Static IPs can be assigned using the local status page on each switch. For more information on how to configure static IP from the local status page refer to this [documentation](#).

Static IP via DHCP Reservations

Instead of associating each Meraki switch individually to configure static IP addresses, an administrator can assign static IP addresses on the upstream DHCP server. Through "DHCP reservations," IP addresses are "reserved" for the MAC addresses of the Meraki switches. Please consult the documentation for the DHCP server to configure DHCP reservations.

Check upstream VLAN configuration

Ensure the upstream switch/router port is configured properly and there is no VLAN mismatch.

Check STP configuration

Meraki-managed C9300 series switches run a single instance of MST out of the box. Please read [MS Best Practices](#) prior to deployment.



NOTE: If you plan to deploy Meraki switches into an existing Catalyst network running PVST/PVST+/Rapid-PVST, please refer to this document for [interoperability](#). To migrate your existing Catalyst switches to MSTP, please see [Configuring Spanning Tree on Meraki MS Switches](#) for more information.

Device reboot/ reset precaution

After powering on the unit or a device reboot, the power LED goes through the following cycle -

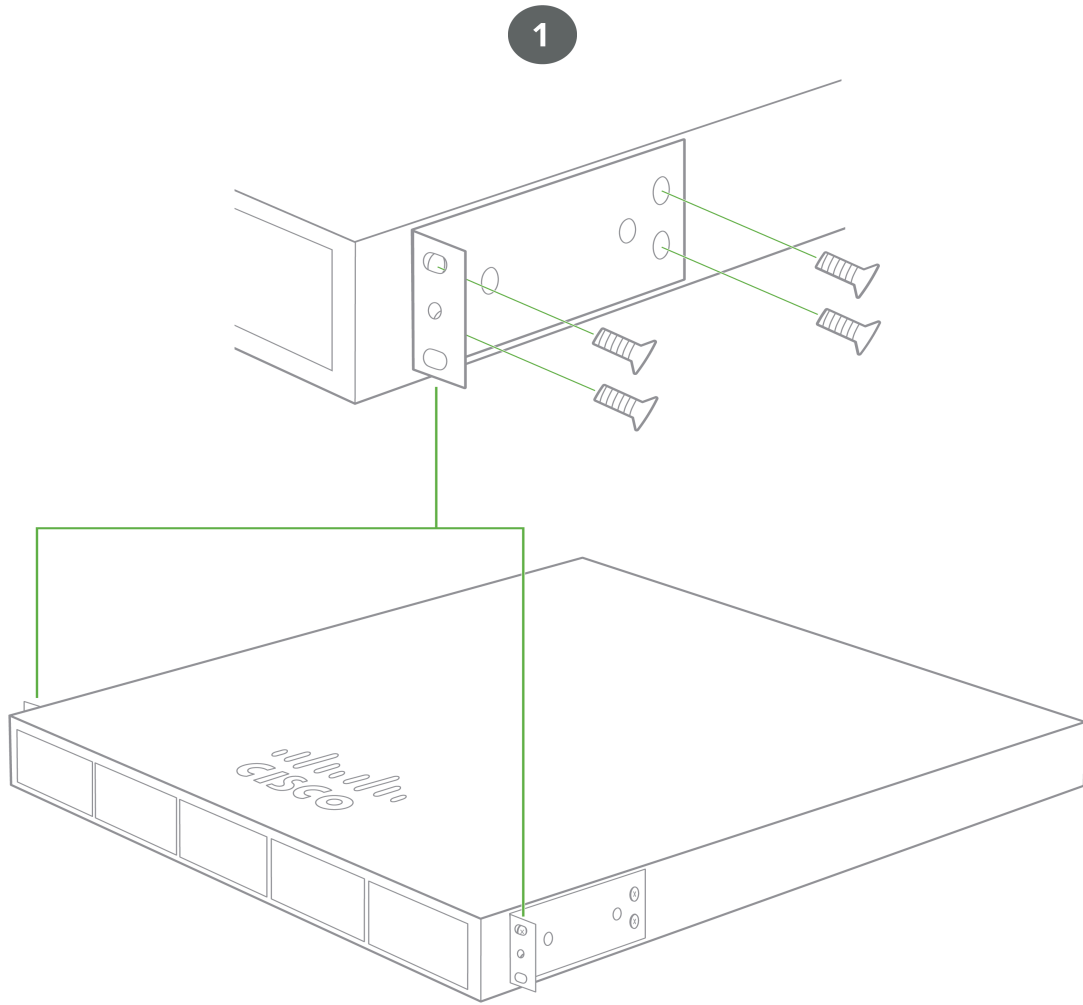
1. Solid amber
2. Cycle through different colors
3. Solid white if dashboard connectivity is successful or, remain solid amber if dashboard connectivity is unsuccessful. Different power LED colors and their interpretation are listed under this [section](#). It may take some time for a device to boot up so refer to the power LED indicators to understand what the switch is doing during boot up. Be patient and let the switch complete the whole boot-up process and connect to the Meraki cloud.

Do not power down or reset the device during a firmware upgrade. A device which has its power LED blinking white is indicating that it is going through a firmware upgrade.

Once the devices are upgraded to the latest version continue configuring other switch features/settings. For details refer to the [MS documentation](#)

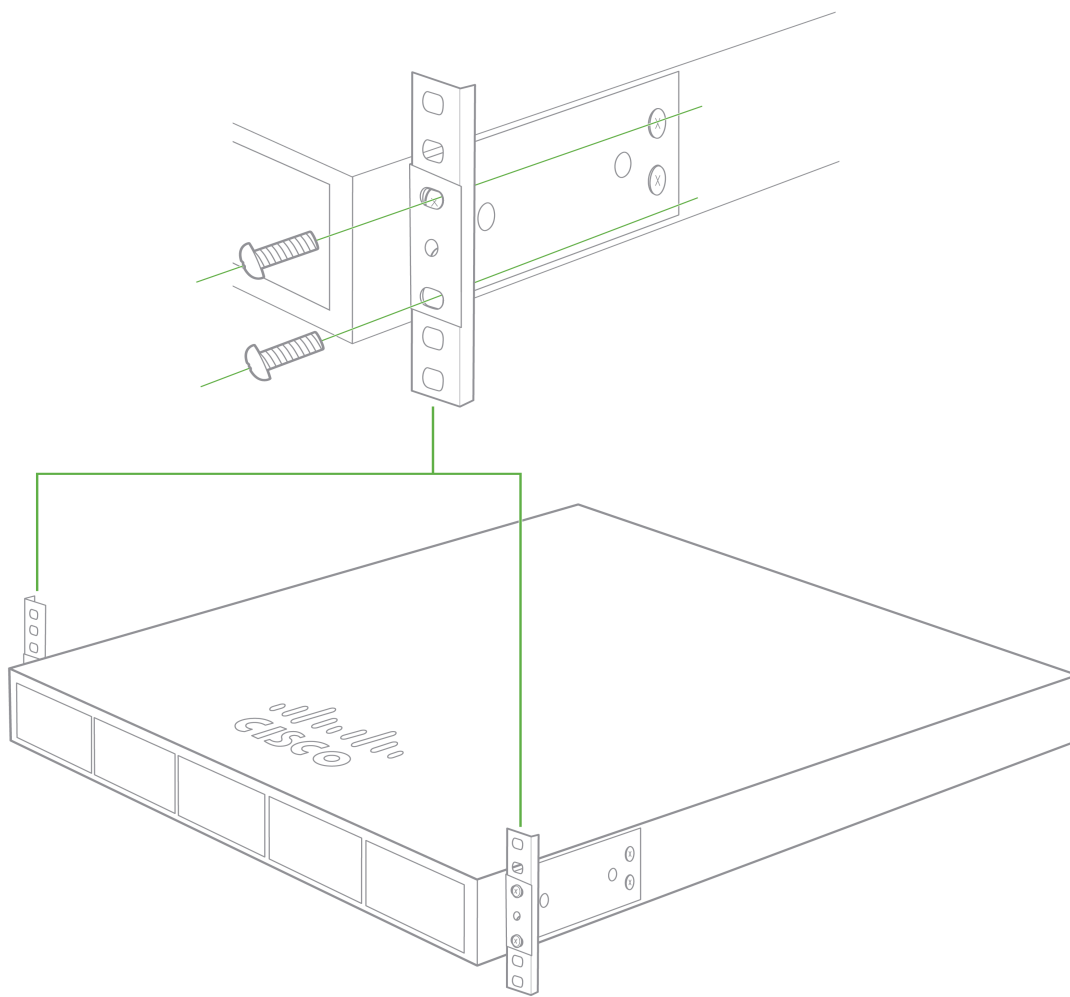
Installation Instructions

1. Attach the rack mount bracket to both sides of the switch as shown below:



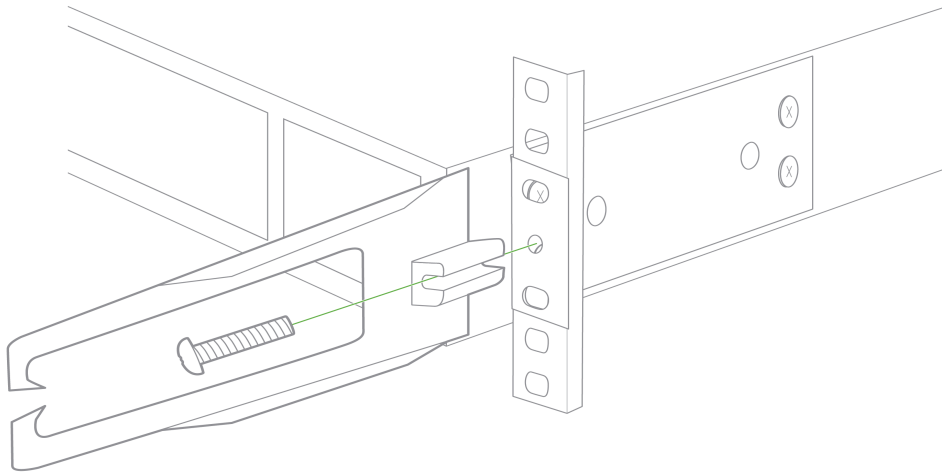
2. Align the rack mount brackets on the sides of the switch onto the rack.

2

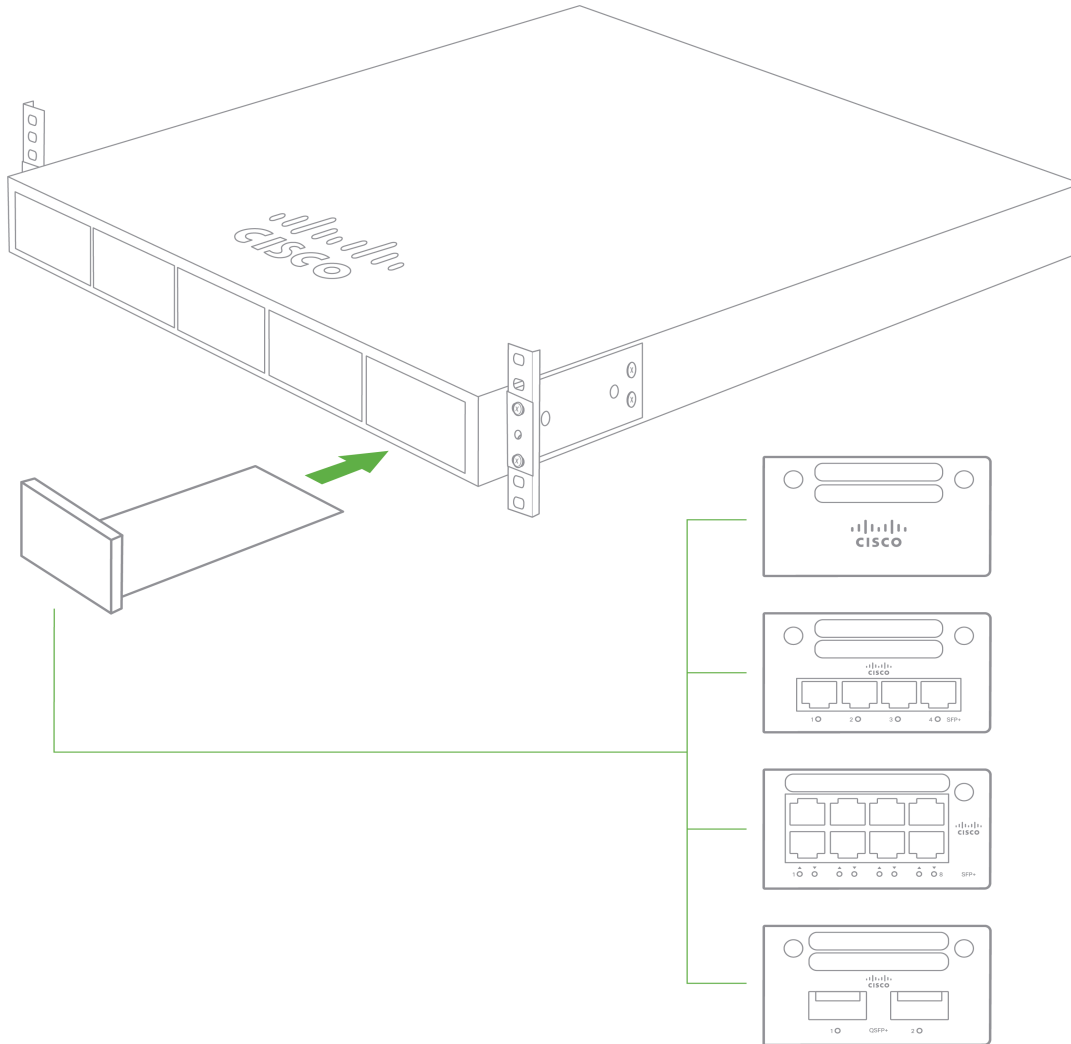


3. Secure and screw in the rack mount bracket on to the rack.

3



4. Insert the Uplink module.



Note: The C9300/X uplink modules are hot-swappable and can be inserted/removed while powered.

Stack Cabling Installation

- Connect the cable to the stack port on the switch back panel (as shown in the back panel diagram). Align the connector and connect the stack cable to the stack port on the switch back panel and finger-tighten the screws (clockwise direction). Make sure the Cisco logo is on the top side of the connector.
- Connect the other end of the cable to the port on the other switch and finger-tighten the screws. Avoid over tightening the screws.



Please refer to these instructions [here](#) before stacking C9300 out of the box.

Note: Stackwise Stacking cables are NOT hot-swappable.

StackPower Cabling Installation

- StackPower on C9300 and C9300X switches supports a ring topology of up to 4 switches.
- Connect the end of the cable with a green band to either StackPower port on the first switch (see back panel diagram to locate the StackPower ports). Align the connector correctly, and insert it into a StackPower port on the switch rear panel.
- Connect the end of the cable with the yellow band to another switch. Hand-tighten the captive screws to secure the StackPower cable connectors in place.
- StackPower feature doesn't need any dashboard configuration but is automatically enabled when the cables are installed.



Basic Troubleshooting

The following steps can be used for troubleshooting basic connectivity issues with your switch.

- Soft Reset the switch by holding the factory reset button for 10-15 seconds (less than 20seconds)
- Factory Reset the switch by holding the factory reset button for > 21 seconds
- After a factory reset, the switch will re-download its firmware that can take a while on slow internet links. (Expect 1GB of firmware per switch/stack)
- Try switching cables, or testing your cable on another device

Reference <https://documentation.meraki.com/MS> for additional information and troubleshooting tips.

If you are still experiencing hardware issues, please contact Cisco Meraki support by logging in to dashboard and using the **Help** option near the top of the page,

then opening and email case or calling using the contact information on that page.


Warranty


MS Warranty coverage periods are as follows:

	Time Period	Comments
C9300 Series	Lifetime	Including 9300 / 9300X / 9300L models
MS Accessories	1 Year	The following are considered accessories: SFP Modules, twinax/SFP+ cables, stacking cables, all mounting kits and stands, interface modules, additional power cords, PoE injectors

Note: The above table is a general guideline for warranty terms and is not final. Warranty terms are subject to printed warranty information on the online [Meraki Returns and Policy](#) section.

If your Cisco Meraki device fails and the problem cannot be resolved by troubleshooting, contact support to address the issue. Once support determines that the device is in a failed state, they can process an RMA and send out a replacement device free of charge. In most circumstances, the RMA will include a pre-paid shipping label so the faulty equipment can be returned.

 In order to initiate a hardware replacement for non-functioning hardware that is under warranty, you must have access to the original packaging the hardware was shipped in. The original hardware packaging includes device serial number and order information, and may be required for return shipping.

 Meraki C9300 devices have been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. A digital device that is marketed for use in a residential environment notwithstanding use in commercial, business and industrial environments.

Additional warranty information can be found on: <https://meraki.cisco.com/support#process:warranty>

Support and Additional Information

If issues are encountered with device installation or additional help is required, **contact Meraki Support** by logging in to **dashboard.meraki.com** and opening a case by visiting the **Get Help** section.

- The equipment is intended for industrial or other commercial activities.
- The equipment is used in areas without exposure to harmful and dangerous production factors, unless otherwise specified in the operational documentation and/or on the equipment labeling.
- The equipment is not for domestic use. The equipment is intended for operation without the constant presence of maintenance personnel.
- The equipment is subject to installation and maintenance by specialists with the appropriate qualifications, sufficient specialized knowledge, and skills.
- Rules and conditions for the sale of equipment are determined by the terms of contracts concluded by Cisco or authorized Cisco partners with equipment buyers.

- Disposal of a technical device at the end of its service life should be carried out in accordance with the requirements of all state regulations and laws.
- Do not throw in the device with household waste. The technical equipment is subject to storage and disposal in accordance with the organization's disposal procedure.
- The equipment should be stored in its original packaging in a room protected from atmospheric precipitation. The permissible temperature and humidity ranges during storage are specified in the Operation (Installation) Manual.
- Transportation of equipment should be carried out in the original packaging in covered vehicles by any means of transport. The temperature and humidity during transportation must comply with the permissible established ranges of temperature and humidity during storage (in the off state) specified in the Operation Manual (Installation).

For additional information on Meraki hardware and for other installation guides, please refer to documentation.meraki.com.

Additionally, you may refer to [Cisco Catalyst 9300 Series Switches Hardware Installation Guide](#).