

MS22 & MS42 Cloud Managed Switch Families



Overview

The Meraki MS is the world's first cloud-managed switch bringing the benefits of the cloud: simplified management, reduced complexity, network wide visibility and control, and lower cost for branch and campus deployments.

A Fresh Approach

Meraki switches are built from the ground up to be easy to manage without compromising any of the power and flexibility traditionally found in enterprise-class switches.

Meraki switches are managed through an elegant, intuitive cloud interface, rather than a cryptic command line. To bring up a Meraki switch, just plug it in; there's no need for complicated configuration files — or pre-staging.

In addition, Meraki's centralized management system gives administrators deep visibility into the network and how it's used. See which switches are near capacity across hundreds of sites. Find all configuration changes made by a certain person with instant search.

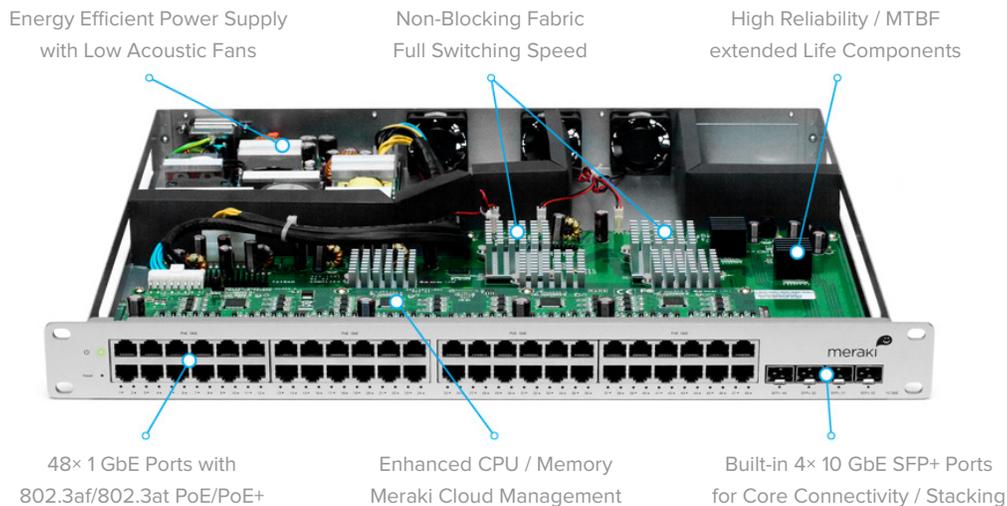
Industry-Leading Cloud Management

Cloud management has a number of benefits that make it easier to build networks large and small:

- Single pane of glass management of distributed switch deployments, wireless APs, and firewalls across multiple sites through the browser.
- Virtual stacking: manage up to tens of thousands of ports from a single pane of glass.
- Layer 7 OS, client, and hostname fingerprinting.
- Powerful Live Tools such as cable test to isolate physical layer issues.
- E-mail and SMS (text) alerts upon power loss, downtime, or configuration changes.¹
- Role-based administration and automatic, scheduled firmware upgrades over the web.
- Regular feature updates and enhancements delivered on demand from the Meraki cloud.
- No staging deployments

Inside the Meraki MS

MS42P shown, features vary by model



Enterprise-Class Hardware

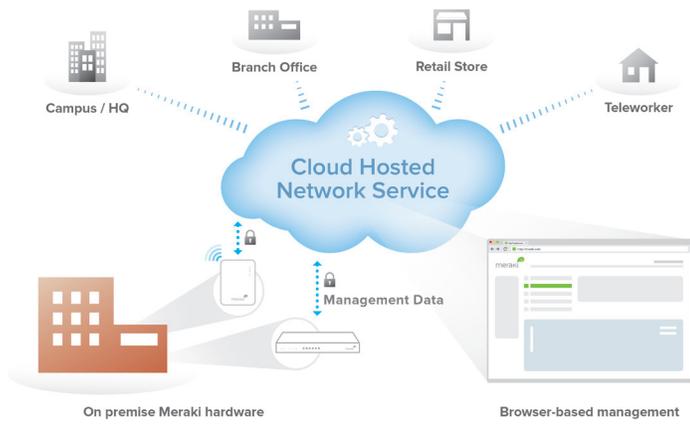
Meraki switches feature high-end hardware without the high-end price, including:

- Four built-in small form-factor pluggable transceivers (SFP / SFP+),
- GbE and 10 GbE uplink ports for high-speed connectivity to aggregation layer switches or other upstream devices
- Wire-speed switch fabric (up to 176 Gbps) and QoS queues per port for converged voice, video, and data deployments
- Low power consumption, quiet acoustic designs, and shallow rack depth, which enable flexible deployment in wiring closets as well as offices and classrooms
- Fanless design on MS22 models
- 380 watt PoE budget with PoE+ support for powering APs, phones, cameras, and other PoE enabled devices
- Lifetime hardware warranty and advanced replacement at no additional cost

Full Enterprise Feature Set

Meraki switches include all of the traditional Ethernet features found on the highest end products, including:

- Quality-of-Service (QoS) to prioritize mission critical traffic such as voice and video
- IEEE 802.1X support for port based network access control
- MAC-based RADIUS auth and MAC whitelisting
- Voice VLAN support for simplified VoIP deployments
- Port Mirroring to monitor network traffic
- DHCP snooping to prevent users from adding unauthorized DHCP servers on the network
- IGMP Snooping to optimize network performance with multicast traffic
- Link Aggregation Control Protocol (LACP) for high-capacity trunking, stacking, and increased availability
- Broadcast storm protection, spanning tree, BPDU guard, root guard, and other safeguards to guard against misconfigurations and reduce convergence time
- Per port VLAN configuration
- Multiple administrative roles with sophisticated security policy management



Meraki Cloud Management Architecture

Switch ports

Search: [Advanced search »](#) [Help](#)

<input type="checkbox"/>	Switch ^	Port#	Name	Type	VLAN	Link	POE	Enabled	ⓘ
<input type="checkbox"/>	3rd Floor - #1 - POE	1		access	20	auto	enabled	enabled	●
<input type="checkbox"/>	3rd Floor - #1 - POE	2		access	20	auto	enabled	enabled	●
<input type="checkbox"/>	3rd Floor - #1 - POE	3		access	20	auto	enabled	enabled	●
<input type="checkbox"/>	3rd Floor - #1 - POE	4		access	20	auto	enabled	enabled	●
<input type="checkbox"/>	3rd Floor - #1 - POE	5		access	20	auto	enabled	enabled	●
<input type="checkbox"/>	3rd Floor - #1 - POE	6		access	20	auto	enabled	enabled	●
<input type="checkbox"/>	3rd Floor - #1 - POE	7		access	20	auto	enabled	enabled	●
<input type="checkbox"/>	3rd Floor - #1 - POE	8		access	20	auto	enabled	enabled	●
<input type="checkbox"/>	3rd Floor - #1 - POE	9		access	20	auto	enabled	enabled	●
<input type="checkbox"/>	3rd Floor - #1 - POE	10		access	20	auto	enabled	enabled	●
<input type="checkbox"/>	3rd Floor - #1 - POE	11		access	20	auto	enabled	enabled	●
<input type="checkbox"/>	3rd Floor - #1 - POE	12		access	20	auto	enabled	enabled	●

Combined Views of Thousands of Ports

Firmware upgrades

Upgrade window ⓘ Two hours starting:

[What is this?](#)

Firmware upgrade New firmware is available for your Meraki devices. They are scheduled to upgrade automatically on January 29 at 2:00 AM PST.

Scheduled Firmware Updates

Network alerts

Enabled alerts

Send an email alert if:

- A switch goes offline for more than minutes
- A switch port tagged "uplink" goes down for more than minutes
- Any switch port detects a cable error
- A switch port tagged "uplink" changes link speed
- Configuration settings are changed

[Switch ports](#) page.

Automatic E-mail Alerts

Simplified Management and Operations

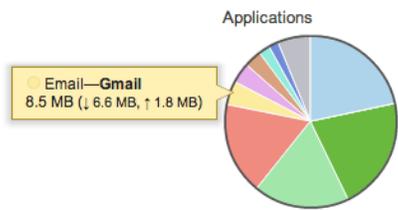
Meraki's cloud managed architecture makes it simpler than ever to quickly provision and reconfigure switch ports with security, QoS, and other parameters. The Meraki dashboard provides unified policies, event logs, and monitoring, which make it easy to manage and grow large network deployments.

By providing a complete, powerful set of management functions over the web, Meraki's cloud-based management eliminates the need for proprietary command line configuration interfaces which require expensive and time consuming certifications. Meraki MS switches can be fully deployed and provisioned in minutes, without requiring any local configuration or staging. Additional or replacement switches can be sent to remote offices and installed by non-technical staff, saving thousands of dollars in time and travel expenses.

The Meraki MS family also includes several remote diagnostic features, from network connectivity and cable integrity tests to latency measurement tools. For deep client troubleshooting, administrators can even perform per-port remote pcap packet captures without any additional probes or hardware on site.

Layer 7 Visibility

Meraki is the only switch to include Layer 7 fingerprinting. Identify hundreds of applications from business apps to BitTorrent and YouTube. User fingerprinting with Google-like search allows administrators to easily identify and control individual users, PCs, iPads, Androids, and other devices. This unprecedented visibility allows you to optimize network resources and maintain optimal network performance.



Applications details

#	Description	Group	Usage	% Usage	Group usage ▼	Group % usage
1	Dropbox	Online backup	272.27 GB	5.7%	291.65 GB	6.2%
2	Gmail	Email	69.94 GB	1.5%	125.05 GB	2.6%
3	YouTube	Video	27.19 GB	0.6%	32.09 GB	0.7%
4	Netflix	Video	4.21 GB	0.1%	32.09 GB	0.7%
5	Non-web TCP	---	454.98 GB	9.6%	454.98 GB	9.6%
6	Miscellaneous web	---	307.19 GB	6.5%	307.19 GB	6.5%
7	Dropbox	Online backup	272.27 GB	5.7%	291.65 GB	6.2%

Cable test

Warning: this test will disrupt traffic to 100 or 10 Mbit devices.

Ports (eg. 1 or 1,2,3 or 1 - 3):

Port ^	Link speed	Length	Status	Pair 1	Pair 2	Pair 3	Pair 4
5	down	33 m	-	open	open	open	open
6	100fdx	36 m	OK	ok	ok	abnorm	abnorm
7	100fdx	72 m	OK	ok	ok	short	short
8	100fdx	27 m	OK	ok	ok	abnorm	ok

Integrated Remote, Live Tools

Device Information

Port Information

Historical Usage

Detailed Views of Individual Devices

Converged Voice, Video and Data Environments

The Meraki switch family is designed to unify data, voice, and video onto a single IP backbone. All Meraki switches support rich quality-of-service (QoS) functionality for prioritizing data, voice, and video traffic. The switches support eight class-of-service (CoS) queues on every port, enabling them to maintain end-to-end traffic prioritization.

PoE models provide 15.4 watts of power per port for VoIP telephones, IP security cameras, wireless access points (APs), and other IP devices. The Meraki MS switches also support standards-based 25.5 watt (30 watt max per port) IEEE 802.3at for powering networked devices like multiple radio IEEE 802.11n APs and video phones that may require more power than available with IEEE 802.3af. In addition, using LLDP, PoE power is intelligently budgeted to maximize the number of PoE clients supported.

To ease deployment, Meraki switches support the industry-standard Link Layer Discovery Protocol (LLDP), enabling switches to automatically discover Ethernet-enabled devices, determine their power requirements and join the correct virtual LAN (VLAN).

Meraki's Unified Software Architecture

Meraki switches run the same Meraki operating system used by Meraki's firewalls and wireless LAN products. The use of a common operating system allows Meraki to deliver a consistent experience across all product lines.

Designed for Reliability & Environmental Efficiency

The Meraki switch family was designed for reliable, long-lived operation in wiring closet environments, which may be prone to high temperatures and limited ventilation. By minimizing total component count and only using proven switching silicon, Meraki is able to deliver mean time between failure (MTBF) ratings of over 475,000 hours on products such as the Meraki MS22.

Each Meraki switch also operates with a split-plane architecture, where silicon-based switching and data forwarding are separated from software-based control and management. By decoupling the

underlying switching logic from control, each unit is able to deliver wire-speed switching even when advanced software features such as Layer 7 host and OS fingerprinting are enabled.

Finally, the highly integrated designs of Meraki switches result in power and cooling savings in large deployment environments of 30-60% when compared with similar managed Gigabit switches.

Distributed Branches & Remote Sites

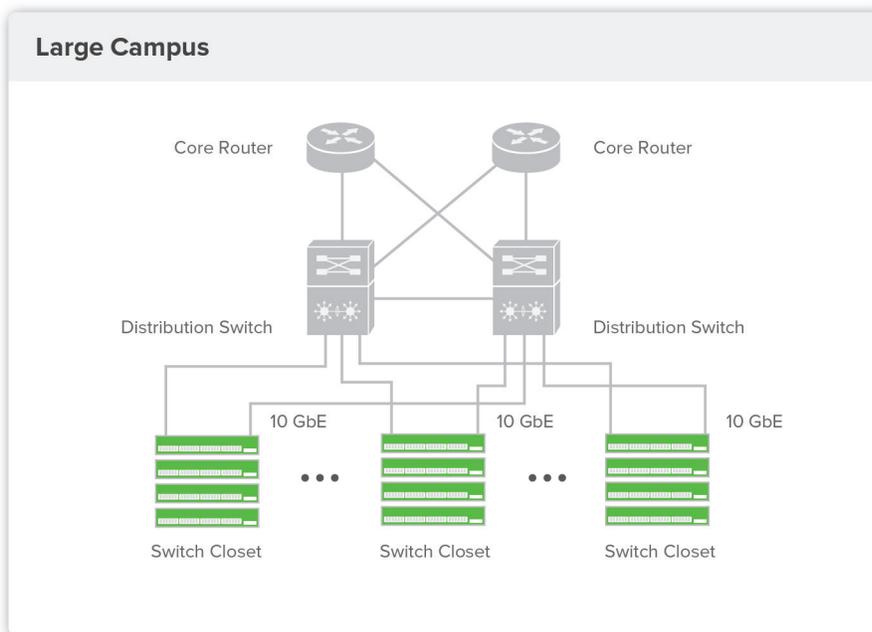
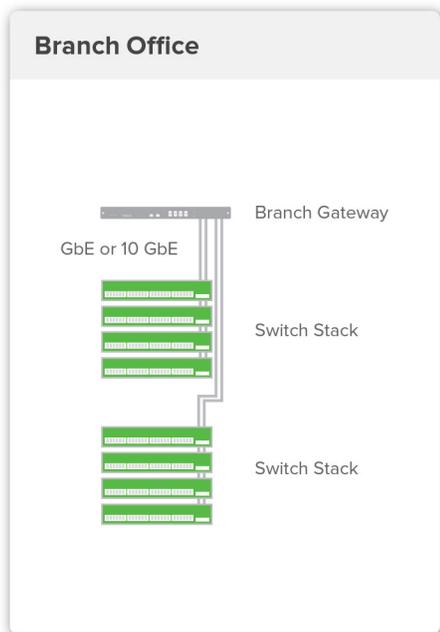
Meraki's cloud-based system makes it easy to manage a single switch, or thousands of distributed switches, from a single interface.

- Troubleshoot problems remotely, e.g., find which port has a bad cable attached.
- Add or replace switches without having to send a technician onsite. Switches automatically download their current configuration as soon as they are connected to the network.
- Receive email alerts or SMS messages whenever there's a problem at a remote site.¹

Campus Edge

MS switches are ideal for small and large scale campus deployments, where reliability, scalability, and managability are top priorities.

- Virtual Stacking lets administrators manage up to tens of thousands of ports in a single interface without having to physically connect stack members.
- 10 GbE cable SFP+ ports with link aggregation provide high speed connectivity to distribution or core switches.
- Get alerts when any switch fails or goes offline, before users complain.





Lifetime Warranty with Next-day Advanced Replacement

Meraki MS switches include a limited lifetime hardware warranty that provides next-day advance hardware switch replacement as long as the original purchaser owns the product. Meraki’s simplified software and support licensing model also combines all software upgrades, centralized systems management and phone support under a single, easy-to-understand model.

For complete details, please visit www.meraki.com/support

Accessories

The Meraki MS support pluggable optics for high-speed stacking and core connectivity. Meraki offers several standards-based Gigabit and 10 Gigabit pluggable modules. Each appliance has also been tested for compatibility with several third-party modules.

Accessories / Optics

Supported Meraki accessory modules for MS Switches (no lock-out of third-party optics):

Model	Description	Standard	Range	Compatibility
SFP-1GB-SX	Meraki 1 GbE SFP SX Multi-Mode Fiber Module	1000BASE-SX	550m	MS22/P / MS42/P
SFP-10GB-SR	Meraki 10 GbE SFP+ SR Multi-Mode Fiber Module	10GBASE-SR	400m	MS42 / MS42P
CBL-TA-1M	Meraki 10 GbE Twinax Cable with SFP+ Connectors	10GSFP+Cu	1m	MS42 / MS42P
SFP-1GB-LX10	Meraki 1 GbE SFP LX10 Single-Mode Fiber Module	1000BASE-LX10	10km	MS22/P / MS42/P
SFP-10GB-LR	Meraki 10 GbE SFP+ LR Single-Mode Fiber Module	10GBASE-LR	10km	MS42 / MS42P

Note: Meraki SFP-1GB-SX, SFP-10GB-SR, SFP-1GB-LX10, and SFP-10GB-LR use LC connectors. Meraki does not guarantee third-party optic compatibility and support.

Product Options

Switch models available (see Specifications for additional details):

Model	Description	PoE Power	Idle Power	Full Load Power
MS22-HW	Cloud-Managed 24 Port Gigabit Switch	–	12W	22W
MS22P-HW	Cloud-Managed 24 Port Gigabit PoE Switch	380W	32W	465W
MS42-HW	Cloud-Managed 48 Port Gigabit Switch with 10G uplink	–	37W	58W
MS42P-HW	Cloud-Managed 48 Port Gigabit PoE Switch with 10G uplink	380W	53W	491W

Ordering Information: Software Licenses and Support

Model	1 Year	3 Years	5 Years	7 Years	10 Years
MS22/42 Families	LIC-MS-ENT-1YR	LIC-MS-ENT-3YR	LIC-MS-ENT-5YR	LIC-MS-ENT-7YR	LIC-MS-ENT-10YR

Specifications

Management

Managed via the Web via the Meraki cloud management platform

Integrated with Meraki wireless, security appliance, and device management

Zero-touch remote deployment (no staging needed)

Detailed historical per-port and per-client usage statistics

DHCP, client, and hostname fingerprinting

SNMPD allows integration with third party network management solutions

Automatic firmware upgrades

Remote Diagnostics

Email and SMS (text) alerts ¹

Cable testing

Live remote packet capture

Aggregated event and configuration change logs with instant search

Scalable Stacking

Unified configuration and monitoring of all switches

Virtually Stacking supports thousands of switch ports in a single logical stack for unified management, monitoring, and configuration

Ethernet Switching Capabilities

802.1p Quality of Service prioritization

802.1Q VLAN tagging for up to 4,095 VLANs

802.1D Spanning Tree Protocol (STP) and 802.1w Rapid Spanning Tree

Broadcast storm control

802.1ab Link Layer Discovery Protocol (LLDP)

802.3ad Link aggregation with up to 8 ports per aggregate

Port mirroring

IGMP snooping for multicast filtering

MAC forwarding entries: MS22/MS22P: 8,000; MS42/MS42P: 32,000

Security

Integrated two-factor authentication

Role-based administration

Corporate wide password policy enforcement

IEEE 802.1X port-based security

MAC-based RADIUS authentication

MAC whitelisting

BPDU guard

Root guard

Performance

Non-blocking fabric

176 Gbps switching capacity on MS42 models; 48 Gbps on MS22

2.5 microsecond latency

Jumbo frame support (9600 byte Ethernet frame)

Interfaces on MS42/42P

48 x 10/100/1000BASE-T Ethernet RJ45

4 x SFP+ for Gigabit or 10 Gigabit uplink

Auto negotiation and crossover detection (auto-MDIX crossover)

Interfaces on MS22/22P

24 x 10/100/1000BASE-T Ethernet RJ45 (4 shared with SFP)

4 x SFP for Gigabit uplink

Auto negotiation and crossover detection (auto-MDIX crossover)

Power over Ethernet (PoE Models):

802.3af (PoE) 15.4W per port and 802.3at (PoE+) 25.5W per port (30W max per port)

Maximum PoE output on MS22P and MS42P: 380W; all ports PoE capable

Pre-standard PoE: supports pre-standard PoE devices

¹ Requires carrier-supported email to SMS gateway. For more information visit: <http://bit.ly/LlkOSQ>.

Power

Power input: 100 - 240 VAC, 47-63 Hz

Power consumption: 5 - 500W

Mounting

Rack-mountable with included rack mount hardware

Desktop-mountable with included feet

Environment

Operating temperature: 32 °F to 104 °F (0 °C to 40 °C)

Humidity: 5 to 95% non-condensing

Low acoustic noise for office environments; fanless for MS22

Physical Dimensions

Weight: 6.1/9/7.5/10.6 lb. (3/2.8/4.2/3.4/4.8 kg) for MS22/22P/42/42P

Size: 17.4" (w) x 11.7" (l) x 1.8" (h) (44.1 x 29.9 x 4.4 cm) for MS22/MS42

Size: 17.4" (w) x 15.0" (l) x 1.8" (h) (44.1 x 38.1 x 4.4 cm) for MS22P/MS42P

Regulatory

CSA (US)

IC (Canada)

CE (Europe)

C-Tick (Australia/New Zealand)

RoHS

Warranty

Full lifetime hardware warranty with next-day advanced replacement included

MTBF: 475,000/310,000 hours (MS22/MS22P), 172,000/200,000 hours (MS42/MS42P)