QSW-M7308R-4X

User Guide

Document Version: 2
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1. Important Information

Original Packaging

Please keep the original packaging and packaging materials. If you want to return the product or send it for repairs, please use the original packaging to avoid damage.

QNAP reserves the right not to provide a refund or warranty service for products that are damaged due to improper packaging.

Hardware Defects

If your QNAP product has hardware defects, return the product to QNAP or a QNAP-authorized service center for maintenance or replacement. Any attempt to repair or perform maintenance procedures on the product by you or an unauthorized third party invalidates the warranty.

QNAP is not responsible for any damage or data loss caused by unauthorized modifications and installation of unsupported third-party applications.

For details, see the QNAP Warranty Terms and Conditions.

Safety information

The following instructions help ensure personal safety and environmental safety. Read these instructions carefully before performing any operation.

General Instructions

- The device should be stored in a secure location with restricted access, controlled through the use of a tool, lock and key, or any means of security.
- Only qualified, skilled, and authorized persons with knowledge of all restrictions, safety precautions, and installation and maintenance procedures should have physical access to the device.
- To avoid potential injury or damage to components, ensure that the drives and other internal system components have cooled before touching them.
- Observe electrostatic discharge (ESD) procedures to avoid potential injury or damage to components.

Power

- To reduce the risk of fire or electric shock, ensure that you only connect the power cord to a properly grounded electrical outlet.
- To avoid serious injuries, a trained service technician must disconnect all PSU cords from the device before installing or replacing system components.

System Battery

- This product contains a button battery.
- If swallowed, a lithium button battery can cause severe or fatal injuries within 2 hours.
- Keep batteries out of reach of children.
- If you think batteries may have been swallowed or placed inside any part of the body, seek immediate medical attention.

- To avoid potential battery explosion, causing injury or damage to components, ensure that you replace the existing battery with a battery of the same type.
- Dispose of used batteries properly according to local regulations or the instructions of the battery manufacturer.

Moving Parts

- 

  Moving fan blades: Keep your body parts away from moving fan blades while the device is connected to a power source.

- 

  Moving components: Keep your body parts away from other moving components.

- The device is not suitable for use in locations where children are likely to be present.

2. Product Overview

This chapter provides basic information about the QNAP QSW-M7308R-4X switch.

About the QSW-M7308R-4X

The QSW-M7308R-4X switch is engineered with advanced networking abilities, providing a smooth experience for users in need of fast and dependable network performance. By utilizing four 100 GbE QSFP28 ports for rapid data transfers and the versatility of eight 25 GbE SFP28 ports, the QSW-M7308R-4X managed switch is an ideal option for users aiming to improve their network infrastructure. Users can access the QSS operating system to configure and control network and system settings of the switch.

Hardware specifications

Tip
Model specifications are subject to change without prior notice. To see the latest specifications, go to https://www.qnap.com.

Component	QSW-M7308R-4X
Processor	
CPU	Marvell® 88F6821
Chipset	Marvell® 98DX7324
Memory	8 GB
Network interfaces	• 4 x 100G/25G QSFP28 ports • 8 x 25G/10G/1G SFP28 ports
Management interfaces	• Console ports: 1 x RJ45 port • Management ports: 1 x Marvell® 88E1512 1 GbE port
Interface	
Buttons	Switch reset
LEDs	
System	• Status • Locator
Ports	• Speed • Link • Activity
Dimensions	
Form factor	1U half-width Rackmount
Dimensions (H x W x D)	43.3 x 207 x 248.8 mm (1.7 x 8.15 x 9.8 in)
Net weight	1.78 kg (3.92 lbs)
Others	
Power supply unit	100-240V, 50/60 Hz
Maximum power consumption	51.9 W
Fans	2 x 40 mm fans

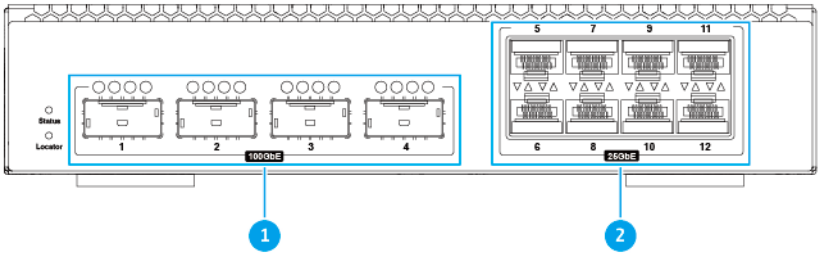
Component	QSW-M7308R-4X
Operating temperature	0˚C to 40˚C (32˚F to 104˚F)
Relative humidity	• Non-condensing relative humidity: 5% to 95% • Wet-bulb temperature: 27˚C (80.6˚F)

Package contents

Item	Quantity
QSW-M7308R-4X	1
Power cord	1
Rail brackets	2
Screws for rail brackets	6
Rubber feet	4
Quick Installation Guide (QIG)	1

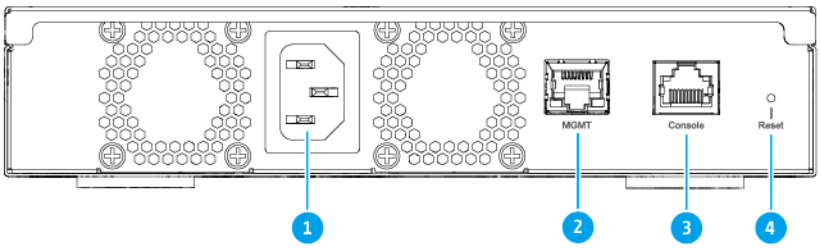
Components

Front panel



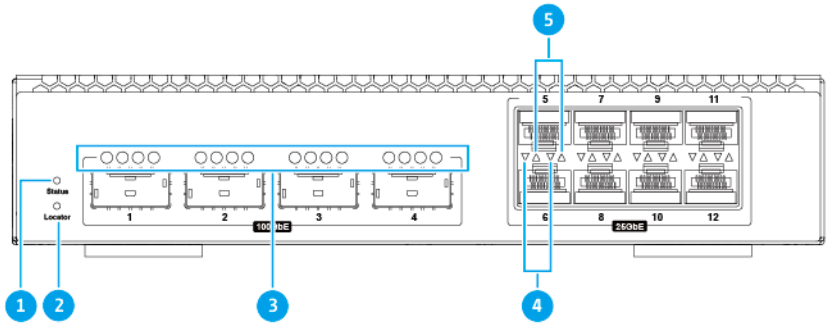
No.	Component	No.	Component
1	100 Gigabit Ethernet ports (QSFP28)	2	25 Gigabit Ethernet ports (SFP28)

Rear panel



No.	Component	No.	Component
1	Power input	3	Console port
2	Management port	4	Reset button

Front panel LEDs



Note
The upward LED arrows represent the ports on the top row, and the downward LED arrows represent the ports on the bottom row for 25 Gigabit SFP28 LEDs.
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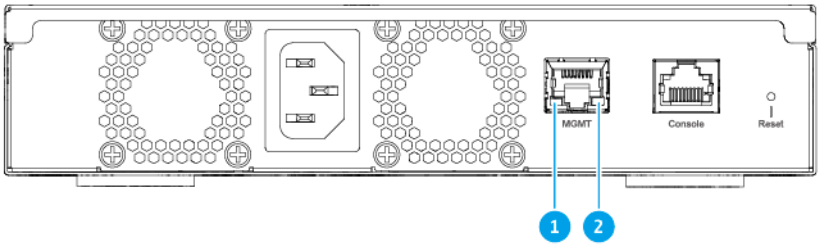
No.	Component	No.	Component
1	Status LED	4	Bottom row 25 Gigabit SFP28 LEDs: • 25G speed (Green) • 10/1G speed (Green)
2	Locator LED	5	Top row 25 Gigabit SFP28 LEDs: • 25G speed (Green) • 10/1G speed (Green)
3	100 Gigabit QSFP28 LEDs: 100G speed	-	-

Rear panel LEDs



No.	Component	No.	Component
1	Management port speed LED	2	Management port activity LED

3. Installation and Access

This chapter provides specific hardware installation and switch access steps.

Installation requirements

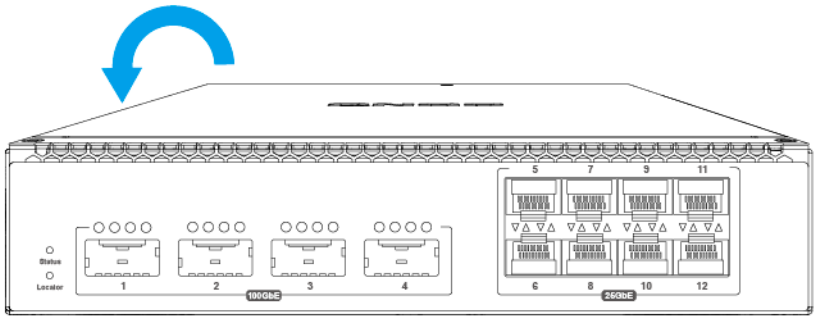
Category	Item
Environment	• Room temperature: 0˚C to 40˚C (32˚F to 104˚F) • Non-condensing relative humidity: 5% to 95% • Wet-bulb temperature: 27˚C (80.6˚F) • Flat, anti-static surface without exposure to direct sunlight, liquids, or chemicals • Free from objects that may obstruct device ventilation or apply pressure to the device or power cord
Hardware and peripherals	• Computer or NAS • Network cable
Tools	• Phillips #1 or #2 screwdriver • Flat head screwdriver • Anti-static wrist strap

Setting up the switch

1. Place your switch in an environment that meets the requirements.
   For details, see Installation requirements.
2. Power on the switch.
3. Connect the switch to a computer or network.
   For details, see Connecting the switch to a computer or network.
4. Log in to QSS.

Attaching rubber feet

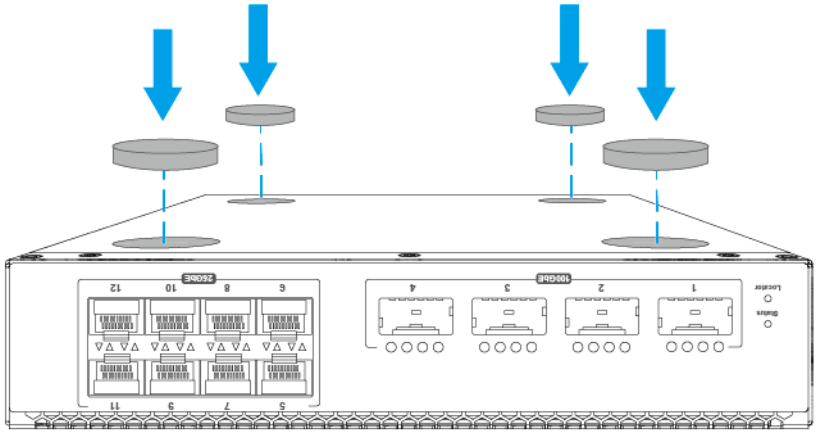
1. Power off the device.
2. Disconnect the power cord from the electrical outlet.
3. Disconnect all cables and external attachments.
4. Turn the device upside down.



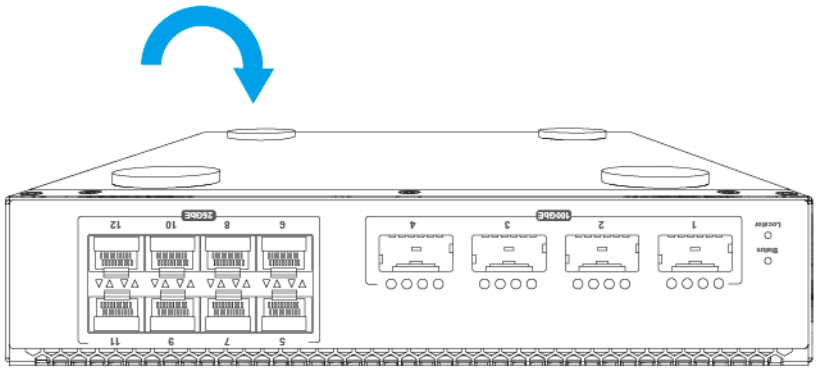
5. Attach the rubber feet.

   a. Remove the protective film from the rubber feet.

   b. Attach the rubber feet.



   c. Place the device in its normal upright position.



6. Connect all cables and external attachments.
7. Connect the power cord to the electrical outlet.
8. Power on the device.

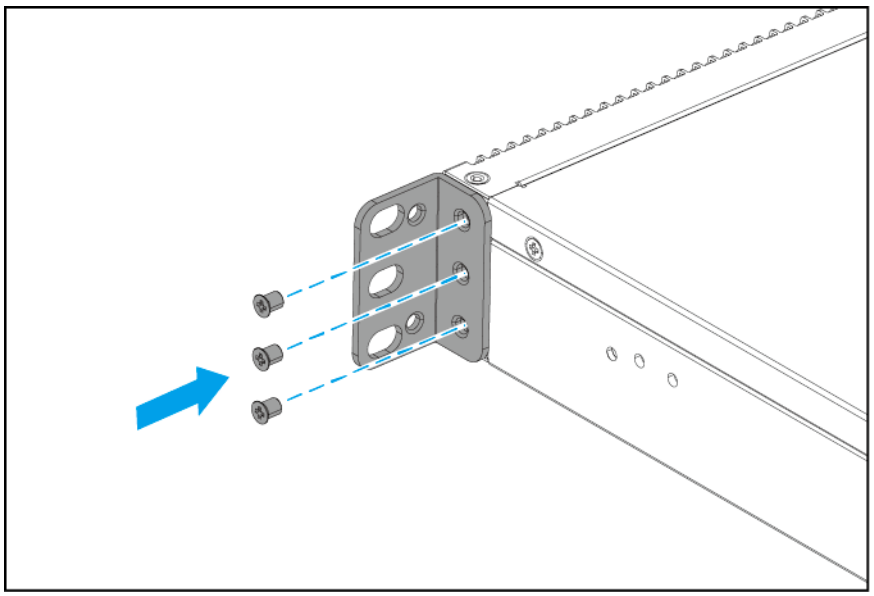
Installing handles

Installing handles enables you to better grip and secure the device on a rack.

1. Power off the device.
2. Disconnect the power cord from the electrical outlet.
3. Disconnect all cables and external attachments.
4. Install the angle bracket on the device.
    a. Align the holes on the angle bracket with the holes on the chassis.

Note
Ensure that the handle faces the same direction as the front panel.

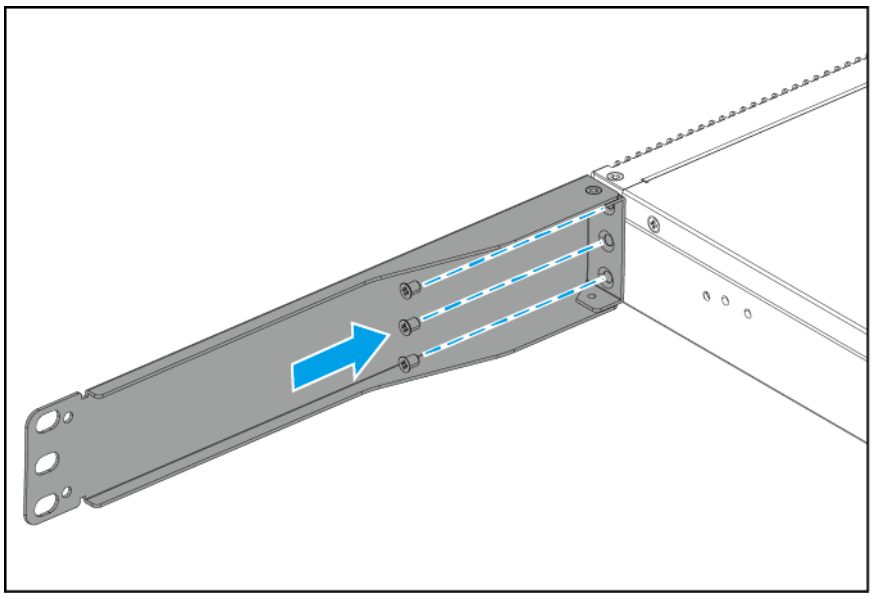
    b. Attach the screws to lock the angle bracket to the chassis.



5. Install a second handle on the other side of the chassis.
6. Optional: Install the long bracket on the device.
   a. Align the holes on the long bracket with the holes on the chassis.

Note
Ensure that the handle faces the same direction as the front panel.

   b. Attach the screws to lock the long bracket to the chassis.



7. Install a second handle on the other side of the chassis.
8. Connect all cables and external attachments.
9. Connect the power cord to the electrical outlet.

10. Power on the device.

Connecting the switch to a computer or network

You can connect the switch to a computer or local area network. For details, see the following topics:

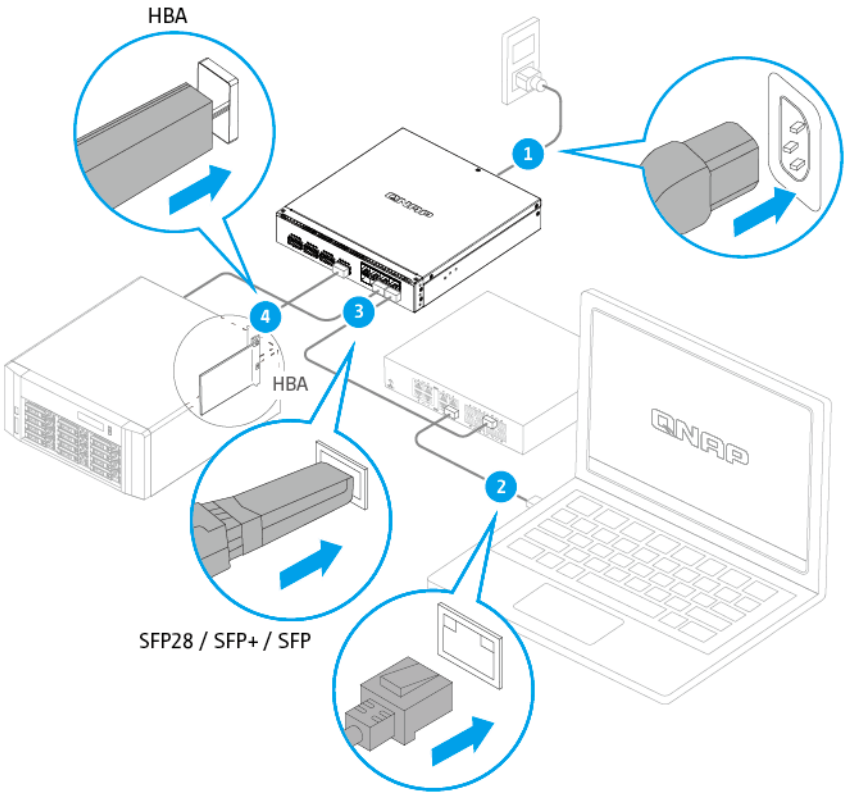
- Connecting the switch to a computer
- Connecting the switch to a network

Connecting the switch to a computer

Connecting the switch to a QNAP NAS allows you to expand storage capacity and back up data to another NAS through network cable connections to the management port on the switch. However, you must connect the switch to a computer to configure the settings.

Important
To ensure that your computer can connect to the QSW managed switch, please verify that it supports high-speed network ports such as 25 GbE or 100 GbE. If it does not, you will need to connect a bridge between the switch and your computer.

1. Power on the switch.
2. Connect the switch to a computer.
   a. Connect a network cable to a network port on the switch.
   b. Connect the network cable to a Gigabit network port on the computer.
   c. Optional: Connect the switch to the NAS.
   d. Optional: Connect the switch to the host bus adapter (HBA) on the NAS.



3. Verify that the computer recognizes the switch.
   a. Open Qfinder Pro on the host computer.

Note
To download Qfinder Pro, go to https://www.qnap.com/utilities.

   b. Locate the switch on the list.

Connecting the switch to a network

You can connect the switch to the local area network through the management port.

1. Power on the switch.
2. Connect the switch to your local area network using the management port.
3. Run Qfinder Pro on a computer that is connected to the same local area network.

Note
To download Qfinder Pro, go to https://www.qnap.com/utilities.

4. Locate the switch in the list and then double-click the name or IP address.
   The QSS login screen appears.
5. Enter your QSS login information.

6. Click **Log In**.

Switch access

Method	Description	Requirements
Web browser	You can access the switch using any computer on the same network if you have the following information: • Switch name (Example: http://example123/) or IP address • Login credentials of a valid user account For details, see Accessing the switch using a browser.	• Computer that is connected to the same network as the switch • Web browser
Qfinder Pro	Qfinder Pro is a desktop utility that enables you to locate and access QNAP devices on a specific network. The utility supports Windows, macOS, Linux, and Chrome OS. For details, see Accessing the switch using Qfinder Pro.	• Computer that is connected to the same network as the switch • Web browser • Qfinder Pro

Accessing the switch using a browser

You can access the switch using any computer on the network if you know its IP address and the login credentials of a valid user account. QNAP switches support DHCP client configuration by default for IP assignment. When connected to a network, the switch automatically obtains an IP address from a DHCP server.

Note

- If you do not know the IP address of the switch, you can locate it using Qfinder Pro.
- If the switch is not connected to a DHCP supported network, you can access the switch web interface by changing the IP address of the computer to 169.254.100.102.
- The default IP address of the switch is 169.254.100.101.

1. Verify that your computer is connected to the same network as the switch.
2. Open a web browser on your computer.
3. Type the IP address of the switch in the address bar.
   The QSS login page appears.
4. Specify the username and password.

Default Username	Default Password
admin	The MAC address of the switch image omitting any punctuation and capitalizing any letters. **Tip** For example, if the MAC address is 00:0a:0b:0c:00:01, the default password is 000A0B0C0001. **Note** • You can find the device MAC address with Qfinder Pro or attached to a label on the device listed as "MAC". • You are prompted to change the password after logging in for the first time. • For security reasons, QNAP strongly recommends changing the password after the first login.

5. Click **Login**.

The QSS desktop appears.

Important
After setting up the switch, ensure that you change the IP address of the computer to the original configuration.

Accessing the switch using Qfinder Pro

1. Install Qfinder Pro on a computer that is connected to the same network as the switch.

Tip
To download Qfinder Pro, go to https://www.qnap.com/en/utilities.

2. Open Qfinder Pro.
   Qfinder Pro automatically searches for all QNAP devices on the network.
3. Locate the switch in the list, and then double-click the name or IP address.
   The QSS login screen opens in the default web browser.
4. Specify the username and password.

Default Username	Default Password
admin	The MAC address of the switch image omitting any punctuation and capitalizing any letters. **Tip** For example, if the MAC address is 00:0a:0b:0c:00:01, the default password is 000A0B0C0001. **Note** • You can find the device MAC address with Qfinder Pro or attached to a label on the device listed as "MAC". • You are prompted to change the password after logging in for the first time. • For security reasons, QNAP strongly recommends changing the password after the first login.

5. Click **Login**.

The QSS desktop appears.

4. Basic Operations

This chapter describes basic switch operations.

Reset button

Operation	User Action	Result
Basic system reset	Press and hold the button for 5 seconds.	The following settings are reset to default: • System administrator password: The default password is the device MAC address in uppercase letters without special characters. For example, if the device MAC address is 00-08-9B-F6-15-75, then the admin password would be 00089BF61575. **Note** You can find the device MAC address with Qfinder Pro or attached to a label on the device listed as "MAC". • The admin account is automatically enabled.
Advanced system reset	Press and hold the button for 10 seconds.	The default factory settings are restored.

LEDs

LEDs indicate system status and related information when the switch is powered on. The following LED information applies only when the switch is connected to the network.

For details on the location of the LEDs, see Front panel LEDs.

System Status LED

Status	Description
Green	• The device is ready. • The firmware is updated. • The password has been reset. • The device has been reset to factory default settings.
Flashes green	• The device is being initialized. • The firmware is being updated. **Important** When updating the firmware, do not remove the power cord, and do not force-exit the application. • The device is being reset. • The device password is being reset.
Flashes red every 0.5 seconds	A network error occurred.

Status	Description
Off	• The device is powered off. • The device is ready for password reset. • The device is ready for factory reset.

Locator LED

Status	Description
Flashes amber	The switch is being located. **Note** The locator LED flashes for 30 minutes when the locator function is enabled.
Off	• The switch is not being managed by the cloud. • The locator function is disabled.

25 Gigabit SFP28 LED

Note
The upward LED arrows represent the ports on the top row, and the downward LED arrows represent the ports on the bottom row.

Status	Description
Green	The network connection is operating at 25 Gbps.
Flashes green	Data is being transmitted.
Amber	The network connection is operating at 10 Gbps or 1 Gbps.
Flashes amber	Data is being transmitted.
Off	• There is no cable connected to the port. • The port is disabled in QSS. • A network loop was detected and loop protection has disabled the port.

100 Gigabit QSFP28 LED

Status	Description
Green (First LED)	The network connection is operating using single-lane mode at 100 Gbps.
Flashes green (First LED)	Data is being transmitted.
Amber (All four LEDs)	The network connection is operating using quad-lane mode at 25 Gbps.
Flashes amber (All four LEDs)	Data is being transmitted.
Off	• There is no cable connected to the port. • The port is disabled in QSS. • A network loop was detected and loop protection has disabled the port.

Management RJ45 Speed LED

Status	Description
Green	The network connection is operating at 1 Gbps.
Amber	The network connection is operating at 100 Mbps.
Flashes green or amber	Data is being transmitted.
Off	There is no network connection.

Management RJ45 Link and Activity LED

Status	Description
Amber	The management port is operating as an uplink port.
Flashes amber	Data is being transmitted.
Off	There is no network connection.

5. QSS

About QSS

The QNAP Switch System (QSS) is a network management operating system for QNAP switch devices. QSS allows for Layer 2 network administration and system management of the switch.

Getting started

1. Log in to the switch as an administrator.
   The default administrator account is `admin`.
   For details, see Switch access.
2. Configure the system settings.
   For details, see System settings.
3. Configure port settings and other network settings.
   For details, see Network management.

Network management

Basic network configuration of the switch includes port management, VLAN configuration, configuration of various protocols, and traffic management via quality of service (QoS) and access control lists (ACLs).

Dashboard

The dashboard opens to the configuration section of the interface. Click the drop-down menu in the dashboard to view the port status, VLAN status, link aggregation status, and port traffic for all ports.

You can also delete user-configured network settings and monitor the network settings of the switch.

Configuring port settings

1. Log in to QSS.
2. Go to **Configuration** > **Port Management** .
3. Go to **Port Configuration**.
4. Identify a port or LAG.
5. Configure the settings.

Setting	Description
State	Enables or disables the switching port
Speed	Allows the port speed to be auto-negotiated or controlled using the selected speed
Flow Control	Enables or disables flow control for the port

Setting	Description
FEC	Forward Error Correction (FEC) recovers lost packets on a link by sending additional parity packets • **All**: The switch automatically selects the best FEC mode (excluding the Auto-Negotiation FEC mode) to transmit and receive data packets. • **RS-FEC**: Reed-Solomon (RS) FEC provides enhanced data correction rates on the transmitting and receiving devices. • **BASE-R-FEC**: Fire-Code FEC or BASE-R-FEC offers weaker correction rates but offers lower latency compared to RS-FEC on 25 GbE switching ports. • **Auto-Negotiation**: Uses the clause 73 auto-negotiation function for use over electrical backplanes on a switching port. An FEC automatic negotiation (AN) request message is transmitted to determine a negotiated FEC process between the switching ports. • **Disable**: Disables FEC on all the switching ports. **Note** • Use **Auto-Negotiation** to automatically determine the link capabilities and eliminate manual configuration of FEC. Auto-negotiated FEC is best used when the data rate needs to be adjusted to the network situation. • Use **RS-FEC** when the data requires additional protection from noise and other data loss sources. • **BASE-R-FEC** is used for networks operating at high speeds. This is the highest speed FEC available and is most suitable for mission-critical networks and applications.

6. Click **Save**.

QSS saves the settings.

Adding a VLAN

A virtual LAN (VLAN) groups multiple network devices together and limits their broadcast domain. Members of a VLAN are isolated and network traffic is only sent between group members.

Each VLAN is assigned a specific VLAN identification number. The **VLAN** screen displays information about existing VLANs and provides access to VLAN configuration options.

1. Log in to QSS.
2. Go to **Configuration** > **VLAN** .
3. Click **Add**.
   The **Add VLAN** window opens.
4. Specify a VLAN ID.

5. Select ports to include in the VLAN.

Note
Only tagged ports can belong to multiple VLANs.

6. Click **Save**.

QSS adds the VLAN.

Adding a link aggregation group (LAG)

Link Aggregation Control Protocol (LACP) allows you to combine multiple switching ports into a single logical network interface. This ensures increased throughput and provides redundancy. In case of port failure, traffic continues on the remaining ports.

The **Link Aggregation** page displays information about existing link aggregation groups and provides access to configuration options.

Warning
To prevent network loop errors during the LAG configuration process, do not connect the switch to other devices using more than one network cable until after you have configured LAGs on all the devices. You can enable loop protection to avoid network loops in the connected network.

1. Log in to QSS.
2. Go to **Configuration** > **Link Aggregation** .
3. Identify a group.
4. Click .
   The **Edit Group** window opens.
5. Configure the group settings.

Setting	Description
Mode	Controls the link aggregation mode for the group • **LACP**: Uses IEEE 802.3ad protocol to send Link Aggregation Control Protocol Data Units (LACPDUs) to connected devices to establish a link aggregation. This allows you to control the bundling of several physical links into a logical link. • **Static**: Establishes link aggregation without the LACP protocol **Important** Ensure that you configure the LAG before connecting cables to the switch to avoid creating a data loop.
Port Configuration	Specifies which ports are included in the group **Note** Ensure that you configure the same settings for all the member ports in a LAG.

6. Click **Save**.

QSS updates the group settings.

Note
When assigning a LAG to a VLAN, QNAP recommends removing individual LAG port members from the VLAN, and then adding the entire group to the VLAN as required. If individual port members are not removed, the VLAN is reset to its default settings.

Managing Rapid Spanning Tree Protocol (RSTP) settings

RSTP provides rapid convergence of the spanning tree and builds a loop-free topology for the switch network. RSTP allows you to enable backup links in case an active link fails.

Note

- RSTP is disabled by default.
- The default bridge priority for the switch is 32768.

Enabling or disabling RSTP

1. Log in to QSS.
2. Go to **Configuration** > **RSTP** > **RSTP Configuration** .
3. Identify a port.
4. Enable or disable RSTP.

Toggle Setting	Description
	Click to enable the RSTP function.
	Click to disable the RSTP function.

5. Click **Save**.

QSS saves the setting.

Setting bridge priority

You can configure the RSTP bridge priority of the switch in the RSTP configuration field.

1. Log in to QSS.
2. Go to **Configuration** > **RSTP** > **RSTP Configuration** .
3. Enable RSTP.

Note
For details, see Enabling or disabling RSTP.

4. Select the RSTP bridge priority from the drop-down list.

Note

- The default bridge priority is 32768.
- For root bridge priority, QNAP recommends setting the value to zero.

5. Click **Save**.

QSS updates the RSTP bridge priority.

Configuring loop protection settings

A loop occurs when data packets are continually forwarded between ports. Network loops often lead to a significant drop in network performance. Enabling loop protection allows you to disable the affected interface temporarily to avoid network degradation.

1. Log in to QSS.
2. Go to **Configuration** > **Loop Protection** .
3. Next to **Loop protection**, click .
4. Specify how much time after detecting a loop to disable the port.

Note

- The default shutdown time is 180 seconds.
- The value must be from 0 to 604800 seconds.

5. Next to the port number, click .
6. Click **Save**.

QSS saves the settings.

Enabling or disabling LLDP

The Link Layer Discovery Protocol (LLDP) uses periodic broadcasts to advertise device information over the network and discover neighboring devices. This protocol operates by establishing a distributed database and gathering information from neighboring ports connected by a network link.

The **LLDP** page displays information about detected devices and allows you to enable or disable LLDP.

1. Log in to QSS.
2. Go to **Configuration** > **LLDP** .
3. Enable or disable LLDP.

Toggle State	User Action
	Click to enable the LLDP function.
	Click to disable the LLDP function.

4. Click **Save**.

QSS saves the setting.

Adding a static MAC address

The MAC address table tracks MAC addresses and forwards associated unicast traffic through specific ports.

1. Log in to QSS.

2. Go to **Configuration** > **MAC Address Table** > **Static MAC Address** .
3. Click **Add**.
   The **Add Static MAC Address** window opens.
4. Configure the MAC address settings.
   a. Specify a MAC address.
   b. Specify a VLAN ID.
   c. Select a switching port.
5. Click **Save**.
   The **Add Static MAC Address** window closes.

QSS adds the MAC address.

Configuring IGMP snooping

The Internet Group Management Protocol (IGMP) manages IP multicast group memberships. IP hosts and adjacent multicast routers use IGMP to establish multicast group memberships.

The **IGMP Snooping** page displays information about detected IGMP groups and provides access to IGMP snooping configuration options.

1. Log in to QSS.
2. Go to **Configuration** > **IGMP Snooping** .
3. Click  .
   QSS enables IGMP snooping.
4. Configure the IGMP snooping settings.

Setting	Description
IGMP querier	Uses the switch to send periodic query packets to multicast groups to avoid multicast traffic loss
Multicast flood blocking	Blocks multicast flooding from unknown sources
Router port	Specifies which ports to use as the router port for the switch After receiving an IGMP packet, QSS forwards the control packets through the selected router ports. **Note** If you do not specify a router port, QSS automatically assigns a port to be used as a router port.
Fast leave	Specifies the ports that support Fast Leave After receiving an IGMP leave message, QSS stops forwarding specific multicast traffic to the selected Fast Leave ports.

5. Click **Save**.

QSS saves the IGMP snooping settings.

Managing access control list (ACL) entries

Access control lists allow you to handle network traffic in a switch by using controlled rule sets. Each ACL rule is a user-created set of conditions that the switch uses to determine whether a data packet can pass through the network. If the data packet matches an existing ACL rule, the switch then uses the rule to determine whether to permit or deny the packet. If there is no matching ACL rule or there are no ACL rules, the switch applies a default rule.

You can use ACLs to control host access to different parts of a network or to control traffic forwarding or blocking at the switch level.

Adding an IP address–based ACL rule

1. Log in to QSS.
2. Go to **Configuration** > **ACL** > **By IP Address** .
3. Click **Add**.
   The **Add ACL - IP Address** window opens.
4. Configure the ACL settings.

Setting	User Action
ACL No.	This value must be from 1 to 255
Source	
IP Address	Specify the IP address of an incoming connection
Subnet Mask	Specify the subnet mask used by an incoming connection
Destination	
IP Address	Specify the IP address being accessed by a source connection
Subnet Mask	Specify the subnet mask being accessed by a source connection **Important** If a source is not specified, set the subnet mask to `255.255.255.255`. If set to `255.255.255.0`, the entry will be configured for the whole subnet.
Port	Select specific ports to apply the ACL rule, or select **All** to apply the rule to all ports.
Permission	Specify the type of permission type used for this ACL entry • **Allow**: Allows access for the configured IP addresses • **Deny**: Restricts access for the configured IP addresses

Note
If the source or destination field is left blank, the permission setting is applied to all connections.

5. Click **Save**.

QSS adds the IP address–based ACL rule.

Adding a MAC address–based ACL rule

1. Log in to QSS.
2. Go to **Configuration** > **ACL** > **By MAC Address** .
3. Click **Add**.
   The **Add ACL - MAC Address** window opens.
4. Configure the ACL settings.

Setting	User Action
ACL No.	Specify a number between 1 and 255.
Source	
MAC address	Specify the source MAC address.
Destination	
MAC address	Specify the destination MAC address.
Port	Select specific ports to apply the ACL rule, or select **All** to apply the rule to all ports.
Permission	Select one of the following: • **Allow** • **Deny**

5. Click **Save**.

QSS adds the MAC address–based ACL rule.

Configuring QoS settings

Quality of service (QoS) enables the switch to examine incoming packets and classify them into groups to prioritize certain traffic over others. You can classify these packets based on the type of traffic, source, or destination address. QSS allows you to configure and enable traffic policies on the switch ports using two QoS classification techniques, Differentiated Services Code Point (DSCP) and class of service (CoS).

1. Log in to QSS.
2. Go to **Configuration** > **QoS** > **QoS** .
3. Identify a port or LAG.
4. Under **DSCP**, click  .
   DSCP is enabled on the switch port.
5. Specify a CoS value to assign to incoming packets.

Note

- When DSCP is enabled on a port, incoming packets are tagged with the specified CoS value. The packets are then processed in order of priority according to their CoS value and which queue the CoS value is mapped to.
- QSS uses CoS 802.1p priority tag values which range from 0 to 7. By default, they are each mapped to the queue of the same number, where queue 0 receives the lowest priority and

queue 7 the highest priority. To change the default mappings, see Mapping CoS values to queues.

- QSS does not override the CoS values of incoming packets that have already been assigned CoS values.

6. Click **Save**.

QSS saves the QoS settings.

Mapping CoS values to queues

QSS supports 8 queues for each switch port. Different queues receive different priority in the network traffic, where queue 0 receives the lowest priority and queue 7 receives the highest priority.

By default, CoS values 0-7 each map to the queue of the same number. Therefore, a data packet with CoS value 0 would be put in queue 0 and processed last, after data packets with higher CoS values have been processed. However, you can change this default mapping by assigning different queues to the CoS values. You can also assign the same queue to more than one CoS value.

1. Log in to QSS.
2. Go to **Configuration** > **QoS** > **CoS Mapping** .
3. Assign a queue for each CoS value.
4. Click **Save**.

QSS saves the mappings.

Mapping DSCP values to queues

Differentiated Services Code Point (DSCP) is a field in the header of an IP packet that is used to provide QoS optimization. You can map DSCP values to queues to determine the priority of incoming IP packets based on their DSCP values.

Queue 0 receives the lowest priority, while queue 7 receives the highest priority.

By default, QSS assigns the following queues to the following DSCP value ranges.

DSCP Values	Queue
0-7	0
8-15	1
16-23	2
24-31	3
32-39	4
40-47	5
48-55	6
56-63	7

1. Log in to QSS.
2. Go to **Configuration** > **QoS** > **DSCP Mapping** .
3. Assign a queue number to each DSCP value.

4. Click **Save**.

QSS saves the mappings.

System management

The **System** section of the QSS navigation menu provides access to device configuration options.

System settings

The **System Settings** menu contains system configuration options such as system information, IP information, password settings, secure connection settings, and time settings for the switch.

Changing the switch name

1. Log in to QSS.
2. Go to **System** > **System Settings** > **System Information** .
3. Click .
4. Specify the switch name.
   Requirements:
   - Length: 1–32 characters
   - Valid characters: A–Z, a–z, 0–9
   - Valid special characters: Hyphen (-)
5. Click to confirm the switch name.

QSS updates the switch name.

Configuring the switch IP information

1. Log in to QSS.
2. Go to **System** > **System Settings** > **IP** .
3. Select the management access mode.
   - **In-band**: Allows users to access QSS through the ports on the switch that are also used for network traffic management.
   - **Out-of-band**: Allows users to access QSS through a dedicated management port without being affected by network congestion or malfunction.
4. Configure the network management settings.

Setting	Description
Automatically obtain IP & DNS	If the network supports DHCP, the interface automatically obtains the IP address and network settings.

Setting	Description
Manually set the IP & DNS	Manually assign a static IP address. You must specify the following information: • Fixed IP address • Subnet mask • Default gateway **Note** The default gateway IP address for the switch is optional. • DNS

5. Click **Save**.

QSS saves the IP settings.

Updating the switch password

1. Log in to QSS.
2. Go to **System** > **System Settings** > **Password** .
3. Specify a new password.

Tip
Click to make the password visible.

Setting	User Action
Current password	Specify the current password of the device.
New password	Specify a password that contains 8 to 20 ASCII characters.
Confirm new password	Reenter the new password.

4. Click **Save**.

QSS logs you out of the switch interface. You can access the switch with the new password.

Configuring time settings

Note
You must configure the system time correctly to ensure the following:

- When using a web browser to connect to the device or save a file, the displayed time of the action is correct.
- Event logs reflect the exact time that events occur.
- Scheduled tasks run at the correct time.

1. Log in to QSS.
2. Go to **System** > **System Settings** > **Time** .

3. Specify the time zone.
4. Specify the time configuration.

Setting	Description
Synchronize with internet time server	Ensure that your device is connected to the internet, and then specify the following information: **Server**: Specify the Network Time Protocol (NTP) server. Examples: time.nist.gov, time.windows.com
Manual configuration	Specify the date and time.

5. Configure the Daylight Savings Time (DST) settings.
   - **Disable**: Disables the DST settings
   - **Adjust the system clock automatically**: Allows the internal clock of the switch to configure the DST settings.
   - **Adjust the system clock manually**: Allows you to manually configure the starting time, ending time, and the offset settings.
6. Click **Save**.

QSS updates the time settings.

Backing up system settings

1. Log in to QSS.
2. Go to **System** > **System Settings** > **Backup & Restore** .
3. Click **Backup**.

The device exports the system settings as a BIN file and downloads the file to your computer.

Restoring system settings

Warning
If the selected backup file contains user or user group information that already exists on the device, the system will overwrite the existing information.

1. Log in to QSS.
2. Go to **System** > **System Settings** > **Backup & Restore** .
   A file explorer window opens.
3. Click **Browse**.
4. Select a valid BIN file that contains the device system settings.
5. Click **Restore**.

QSS restores the switch settings.

Resetting the switch password

Note

- You can also reset the switch password by pressing and holding the physical reset button for 5 seconds.
- The default "admin" account is automatically enabled after the system reset.

1. Log in to QSS.
2. Go to **System** > **System Settings** > **Backup & Restore** .
3. Click **Password Reset**.

QSS resets the switch password.

Default Username	Default Password
admin	The MAC address of the switch image omitting any punctuation and capitalizing any letters. **Tip** For example, if the MAC address is 00:0a:0b:0c:00:01, the default password is 000A0B0C0001. You can find the MAC address using Qfinder Pro. It is also printed on a sticker on the device as "MAC".

Resetting the switch to factory settings

Resetting the switch deletes the data stored on the device and restores the switch to the default factory settings.

Tip
You can also reset the switch to factory defaults by pressing and holding the physical reset button for 10 seconds.

1. Log in to QSS.
2. Go to **System** > **System Settings** > **Backup & Restore** .
3. Click **Factory Reset**.
   A confirmation message appears.
4. Click **Yes**.

QSS resets the switch to the factory default settings.

Note
To log in to the interface again, you must locate the device using Qfinder Pro. For details, see Switch access.

Enabling secure connection (HTTPS)

1. Log in to QSS.
2. Go to **System** > **System Settings** > **HTTPS** .

3. Select **Enable Secure Connection (HTTPS)**.
4. Select a TLS version.

Note
Select the latest version of TLS to maximize system security. Ensure that your system meets the TLS requirements to avoid compatibility issues.

5. Optional: Select **Force secure connections (HTTPS) only**.

Note
After enabling this setting, you can only access the web administration page via HTTPS.

6. Click **Save**.

QSS saves the secure connection settings.

Restarting the switch

1. Log in to QSS.
2. Click  located on the upper-right corner of the page.
3. Click **Restart Switch**.
   A confirmation message appears.
4. Click **Yes**.

QSS restarts the switch.

Viewing information on the switch

To view the hardware and system information of the switch, go to **System** > **System Information** .

The screen provides the following information.

Information	Description
Switch name	Displays the default or modified name of the switch
Model name	Displays the model name of the switch
MAC address	Displays the MAC address of the switch
IP address	Displays the DHCP or static IP address of the switch
System uptime	Displays how long the system has been operational
Current firmware version	Displays the firmware image version of the switch

Downloading diagnostic logs

You can remotely monitor switch events (including system, LLDP, and IGMP snooping events) by recording and downloading the diagnostic logs.

1. Log in to QSS.
2. Go to **System** > **System Settings** > **Diagnostic Logs** .
3. Select the services for which you wish to download logs.

Note
By default, the system logs are included in the downloaded logs.

4. Specify a period for collecting the logs.
5. Click **Start**.
   QSS starts collecting the logs of the selected services.
6. Click **Download**.

QSS downloads the compressed file to your device.

Firmware management

QNAP recommends keeping your device firmware up to date. This ensures that your device can benefit from new QSS software features, security updates, enhancements, and bug fixes.

You can update the switch firmware using one of the following methods:

Update Method	Description
Using **Check for Updates**	Firmware updates are automatically detected by QSS and installed onto your device. For details, see Checking for live updates.
Using **Firmware Update**	You can check for firmware updates on the QNAP website, download updates to a computer, and manually install updates onto your device. For details, see Updating the firmware manually.

Firmware update requirements

Your device must meet the following requirements to perform a firmware update:

Requirement	Description
Hardware equipment	• A computer • Ethernet cables **Note** • A computer is required when updating the firmware manually or using Qfinder Pro. • QNAP recommends updating the firmware using wired Ethernet connections to ensure your network connection remains stable during the firmware update process.
Backup system settings	QNAP recommends backing up the system settings to your computer before updating the firmware. For details, see Backing up system settings.
Administrator privileges	You must be a switch administrator or have admin privileges to update the firmware.
Stop switch operations	QNAP recommends stopping all other switch operations before the firmware update. The switch must be restarted for the firmware update to take effect and may disrupt ongoing switch services or operations.

Requirement	Description
Device model name	Ensure that you have the correct switch model name. You can find the switch model name using one of the following methods: • Locate the model name on a sticker on the bottom or rear of your device. • Go to **System** > **System Settings** > **Firmware Update** > **Live Update** > **Model name** . • View the model name on the QSS top banner.
Firmware version	If you are manually updating the firmware using **Firmware Update** or Qfinder Pro, ensure the selected firmware version is correct for your device model.

Checking for live updates

Warning

- To prevent data loss, QNAP recommends backing up all data on your device before updating the firmware. For details, see Backing up system settings.
- Do not power off your device during the firmware update process.

Important

- Make sure you review Firmware update requirements before updating the firmware.
- The update may require several minutes or longer, depending on your hardware configuration and network connection.

1. Log in to QSS.
2. Go to **System** > **Firmware Update** > **Live Update** .
3. Click **Check for update**.
   QSS checks for available firmware updates. You can choose to update QSS if there is an available update.
4. Click **Update System**.
   A confirmation message appears.
5. Click **Update**.

QSS updates the firmware.

Updating the firmware manually

Warning

- To prevent data loss, QNAP recommends backing up all data on your device before updating the firmware. For details, see Backing up system settings.
- Do not power off your device during the firmware update process.

Important

- Make sure you review Firmware update requirements before updating the firmware.
- The update may require several minutes or longer, depending on your hardware configuration and network connection.

1. Download the device firmware.
   a. Go to http://www.qnap.com/download.
   b. Select the product type.
   c. Select your device model.
   d. Read the release notes and confirm the following:
      - The device model matches the firmware version.
      - Updating the firmware is necessary.
      - Check for any additional firmware update setup instructions.
2. Ensure that the product model and firmware are correct.
3. Select the download server based on your location.
4. Download the firmware package.
5. Click **Browse**.
6. Select a folder.
7. Save the downloaded firmware package.
8. Extract the firmware image file.
9. Log in to QSS.
10. Go to **System** > **Firmware Update** > **Firmware Update** .
11. Click **Browse** and then select the extracted firmware image file.
12. Click **Update System**.
    A confirmation message window appears.
13. Click **Update**.

QSS updates the firmware and the device restarts immediately.

6. Support and Other Resources

QNAP provides the following resources:

Resource	URL
Documentation	https://docs.qnap.com
Service Portal	https://service.qnap.com
Downloads	https://download.qnap.com
Community Forum	https://forum.qnap.com

7. Glossary

Qfinder Pro

QNAP utility that lets you locate and access QNAP devices in your local area network

QSS

QNAP switch management operating system

8. Notices

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Version 3, 29 June 2007

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END OF TERMS AND CONDITIONS

CE notice

This device complies with CE Compliance Class A.

FCC notice

FCC Class A Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Note
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in

a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Important
Any modifications made to this device that are not approved by QNAP Systems, Inc. may void the authority granted to the user by the FCC to operate this equipment.

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VCCI-A

BSMI notice

D33B77
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SJ/T 11364-2006

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壳体	0	0	0	0	0	0
显示	0	0	0	0	0	0

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (CR(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板	0	0	0	0	0	0
金属螺帽	0	0	0	0	0	0
电缆组装	0	0	0	0	0	0
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电池	0	0	0	0	0	0
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This symbol on the product or on its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

EU RoHS statement

This equipment complies with the European Union RoHS Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment. The directive applies to the use of lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB), and polybrominated diphenyl ethers (PBDE) in electrical and electronic equipment.

Laser compliance notice

Make sure the fiber-optic Small Form-factor Pluggable (SFP) module complies with CNS 15016-2 or IEC 60852-1 certifications and Class 1 Laser specifications.

使用光纖可插拔 (SFP) 模組時，請確保它通過了 CNS 15016-2 或 IEC 60825-1 認證和 1 類激光產品。

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