



QNAP

QSW-M2116P-2T2S

User Guide



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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-M2116P-2T2S switch.

About the QSW-M2116P-2T2S




The QNAP QSW-M2116P-2T2S is a managed switch designed specifically for PoE networks. With sixteen 2.5 GbE PoE+ ports and two 10 GbE PoE++ ports, this switch is capable of delivering both high-speed and high-power connectivity. The switch has a total power budget of 280 watts and includes two additional 10 GbE SFP+ ports for easy network expansion. The QSS web interface allows users and IT administrators to easily manage Layer 2 network functions and PoE settings.

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-M2116P-2T2S
Processor	
CPU	Microchip VSC7448-02
Chipset	
Memory	4 GB
Network interfaces	<ul style="list-style-type: none"> • 16 x 2.5G/1G RJ45 ports • 2 x 10G/5G/1G SFP+ ports • 2 x 10G/5G/1G BASE-T RJ45 ports
Management interfaces	1 x 1 GbE management port
PoE support	
802.3af (PoE)	Ports 1 to 16  Note The ports support IEEE 802.3af-2003 PoE standard and provide up to 15.4 W of DC power.
802.3at (PoE+)	Ports 1 to 16  Note The ports support IEEE 802.3at-2009 PoE standard and provide up to 30 W of DC power.
802.3bt (PoE++)	Ports 19 and 20  Note The ports support IEEE 802.3bt-2018 PoE standard and provide up to 90 W of DC power.
PoE max power port	<ul style="list-style-type: none"> • Ports 1 to 16: Up to 30 W • Ports 19 and 20: Up to 90 W
Total PoE power budget	280 W
Interface	

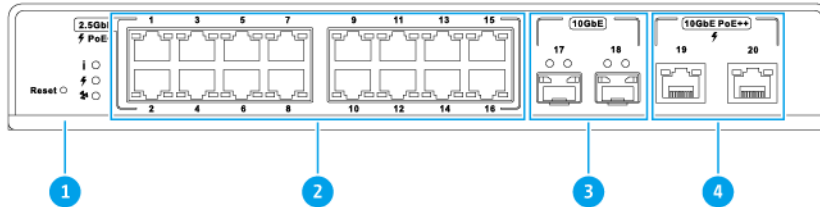
Component	QSW-M2116P-2T2S
Buttons	Switch reset
LEDs	
System	<ul style="list-style-type: none"> • Status • PoE • Fan
Ports	<ul style="list-style-type: none"> • Link • Speed • PoE
Dimensions	
Form factor	1U Rackmount
Dimensions (H x W x D)	43.5 x 285 x 234.8 mm (1.71 x 11.22 x 9.24 in)
Net weight	2.08 kg (4.59 lbs)
Others	
Power supply unit	100-240V, 50/60 Hz
Maximum power consumption	350 W
Fans	System: 2 x PWM dual ball bearing fans
Operating temperature	0°C to 40°C (32°F to 104°F)
Relative humidity	<ul style="list-style-type: none"> • Non-condensing relative humidity: 5% to 95% • Wet-bulb temperature: 27°C (80.6°F)
Security slot	Kensington security slot

Package contents

Item	Quantity
QSW-M2116P-2T2S	1
Power cord	1
Rail brackets	2
Screws for rail brackets	6
Rubber feet	4
Quick Installation Guide (QIG)	1

Components

Front panel



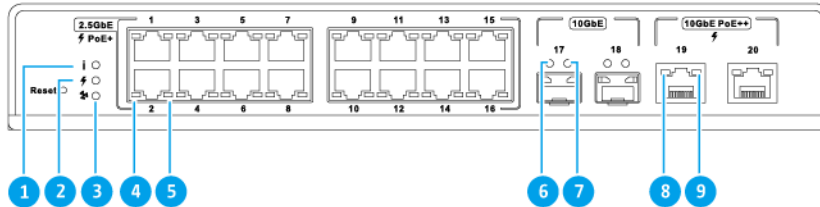
No.	Component	No.	Component
1	Reset button	3	10 Gigabit Ethernet (SFP+) ports
2	<ul style="list-style-type: none"> 2.5 Gigabit (RJ45) 802.3af PoE/802.3at PoE+ ports 	4	10 Gigabit (RJ45) 802.3bt PoE++ ports

Rear panel



No.	Component	No.	Component
1	Power input	3	Kensington security slot
2	Management port	-	-

Front panel LEDs



No.	Component	No.	Component
1	System status LED	6	10 Gigabit SFP+ 10G speed LED
2	PoE LED	7	10 Gigabit SFP+ 1G speed LED
3	Fan LED	8	2.5 Gigabit RJ45 link LED
4	2.5 Gigabit Ethernet (SFP+) link LED	9	2.5 Gigabit RJ45 PoE++ LED
5	2.5 Gigabit Ethernet (SFP+) PoE LED	-	-

3. Installation and Access

This chapter provides specific hardware installation and switch access steps.

Installation requirements

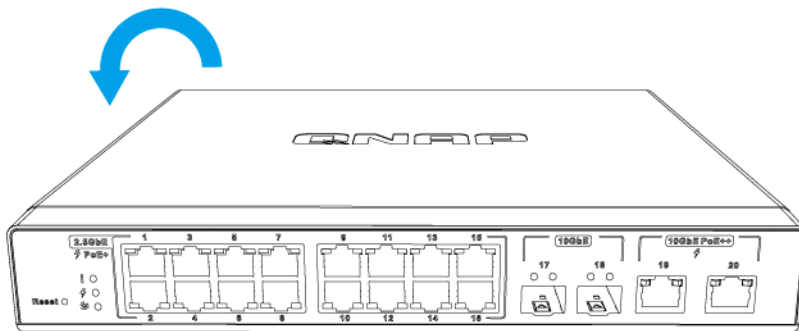
Category	Item
Environment	<ul style="list-style-type: none"> • Room temperature: 0°C to 40°C (32°F to 104°F) • Non-condensing relative humidity: 5% to 95% • Wet-bulb temperature: 27°C (80.6°F) • Flat, anti-static surface without exposure to direct sunlight, liquids, or chemicals • Free from objects that may obstruct device ventilation or apply pressure to the device or power cord
Hardware and peripherals	<ul style="list-style-type: none"> • Computer or NAS • Network cable
Tools	<ul style="list-style-type: none"> • 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.

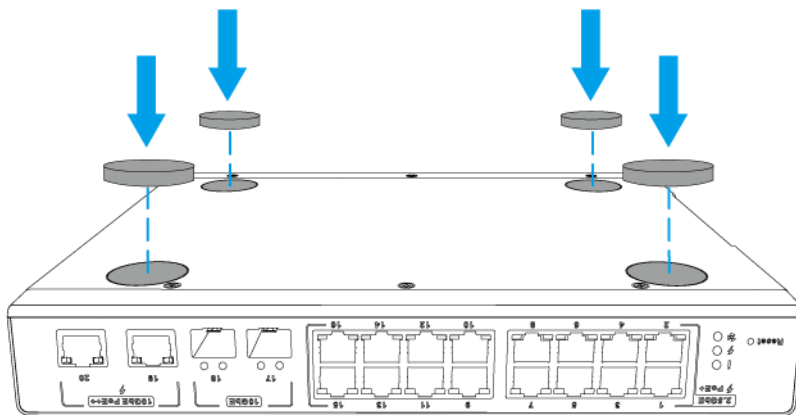
Attaching rubber feet

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.

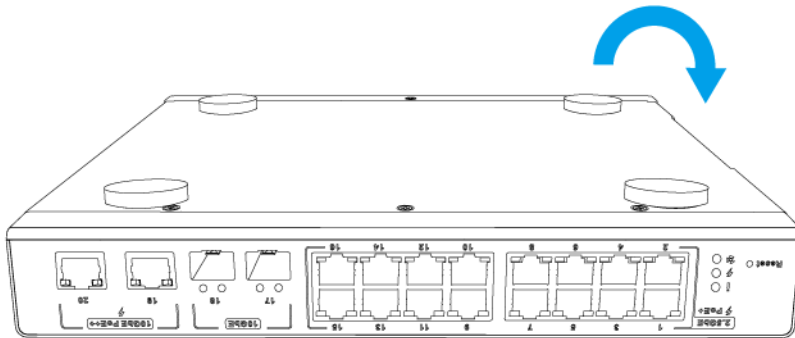


5. Attach the rubber feet.

- a. Remove the protective film from the rubber feet.
- b. Attach the rubber feet.



- c. Place the device in its normal upright position.

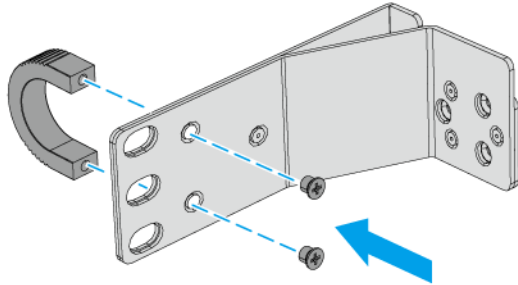


6. Connect all cables and external attachments.
7. Connect the power cord to the electrical outlet.
8. Power on the device.

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 a handle on an angle bracket.
 - a. Align the openings on the handle with the two round screw holes on the angle bracket.
 - b. Attach the screws to lock the handle to the angle bracket.



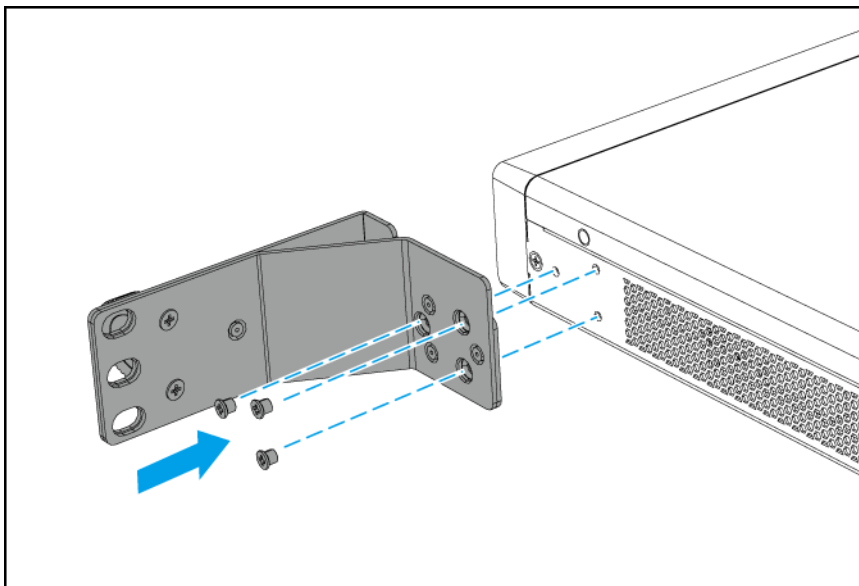
5. Install the angle bracket on the device.
 - a. Align the holes on the angle bracket with the holes on the chassis.



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.



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

Connecting the switch to a computer or network

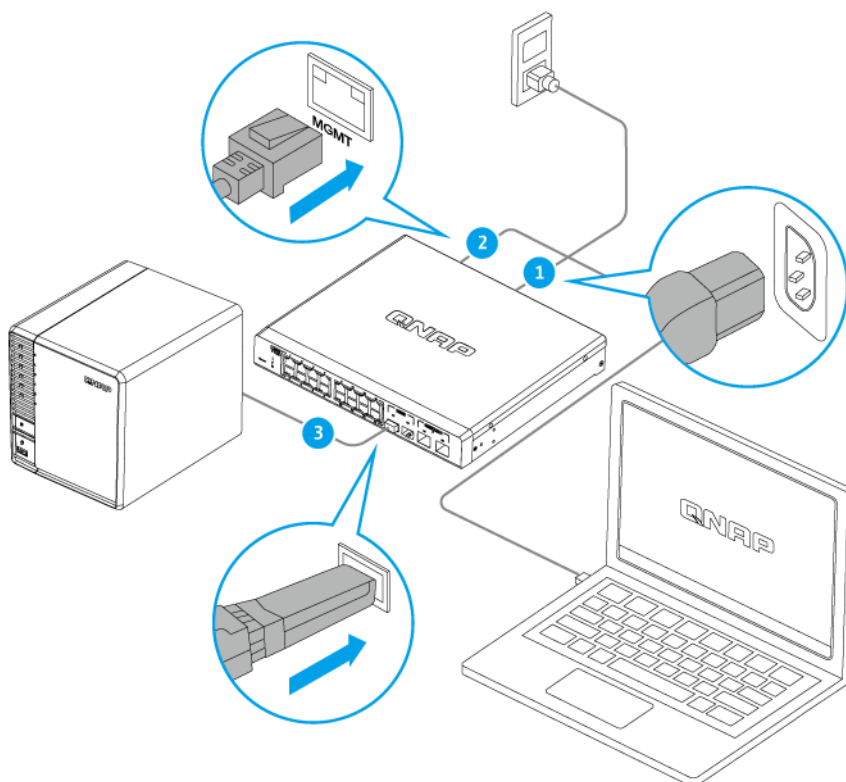
You can connect the switch to a computer or local area network. For details, see the following topics:

- [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.

1. Power on the switch.
2. Connect the switch to a computer.
 - a. Connect a network cable to the management port or a PoE 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.



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 or a PoE port.

1. Power on the switch.
2. Connect the switch to your local area network using the management port or a PoE 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	<p>You can access the switch using any computer on the same network if you have the following information:</p> <ul style="list-style-type: none"> • Switch name (Example: <code>http://example123/</code>) or IP address • Login credentials of a valid user account <p>For details, see Accessing the switch using a browser.</p>	<ul style="list-style-type: none"> • Computer that is connected to the same network as the switch • Web browser
Qfinder Pro	<p>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.</p>	<ul style="list-style-type: none"> • 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	<p>The MAC address of the switch image omitting any punctuation and capitalizing any letters.</p> <p> Tip For example, if the MAC address is 00:0a:0b:0c:00:01, the default password is 000A0B0C0001.</p> <p> Note</p> <ul style="list-style-type: none"> • 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	<p>The MAC address of the switch image omitting any punctuation and capitalizing any letters.</p> <p> Tip For example, if the MAC address is 00:0a:0b:0c:00:01, the default password is 000A0B0C0001.</p> <p> Note</p> <ul style="list-style-type: none"> • 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.	<p>The following settings are reset to default:</p> <ul style="list-style-type: none"> 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. <p> Note You can find the device MAC address with Qfinder Pro or attached to a label on the device listed as "MAC".</p> <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> The device is ready. The firmware is updated. The password has been reset. The device has been reset to factory default settings.
Flashes green	<ul style="list-style-type: none"> The device is being initialized. The firmware is being updated. <p> Important When updating the firmware, do not remove the power cord, and do not force-exit the application.</p> <ul style="list-style-type: none"> The device is being reset. The device password is being reset.

Status	Description
Red	<ul style="list-style-type: none"> • A system error occurred. • A network loop was detected. • The system is overheating. • A fan error occurred. <div style="display: flex; align-items: center;">  <div> <p>Note</p> <p>For more details, log in to QSS.</p> </div> </div>
Off	<ul style="list-style-type: none"> • The device is powered off. • The device is ready for password reset. • The device is ready for factory reset.

PoE LED

Status	Description
Green	The PoE status is normal.
Red	A fatal PoE error occurred.

Fan LED

Status	Description
Green	The system fan status is normal.
Red	A fatal system fan error occurred.

2.5 Gigabit Ethernet (RJ45) Link LED - Left

Status	Description
Green	The network connection is operating at 2.5 Gbps.
Flashes green	Data is being transmitted.
Amber	The network connection is operating at 1 Gbps or 100 Mbps.
Flashes amber	Data is being transmitted.
Off	<ul style="list-style-type: none"> • 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.

2.5 Gigabit Ethernet (RJ45) PoE LED - Right

Status	Description
Green	The switch is connected to a power device.
Flashes green	A power device error occurred.
Off	<ul style="list-style-type: none"> • There is no power device connected to the port. • PoE mode is disabled on the port in QSS.

10 Gigabit Ethernet (SFP+) 10G Speed LED - Left

Status	Description
Green	The network connection is operating at 10 Gbps.
Flashes green	Data is being transmitted.
Off	<ul style="list-style-type: none"> • 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.

10 Gigabit Ethernet (SFP+) 1G Speed LED - Right

Status	Description
Amber	The network connection is operating at 1 Gbps.
Flashes amber	Data is being transmitted.
Off	<ul style="list-style-type: none"> • 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.

10 Gigabit Ethernet (RJ45) Link LED - Left

Status	Description
Green	The network connection is operating below 10 Gbps.
Flashes green	Data is being transmitted.
Amber	The network connection is operating at 5 Gbps, 2.5 Gbps, 1 Gbps, or 100 Mbps.
Flashes amber	Data is being transmitted.
Off	<ul style="list-style-type: none"> • 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.

10 Gigabit Ethernet (RJ45) PoE LED - Right

Status	Description
Green	The switch is connected to a power device.
Flashes green	A power device error occurred.
Off	<ul style="list-style-type: none"> • There is no power device connected to the port. • PoE mode is disabled on the port in QSS.

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](#).

Client device management

The **MAC History** screen displays information about devices connected to the switch. This screen provides access to all the connected devices and access to Wake-on-LAN (WoL) commands.


WoL allows network administrators to remotely maintain WoL-enabled devices when they are powered down, by sending specially coded network packets that power them up.

Scanning for connected devices



1. Log in to QSS.
2. Go to **Devices** > **MAC History** .
3. Click **Scan**.

QSS scans for connected devices.

Sending a WoL packet to a device

1. Log in to QSS.
2. Go to **Devices** > **MAC History** .
3. Identify a connected device.
4. Click .
The **Send WoL Command** window opens.
5. Select a WoL setting.

Setting	Description
Wake now	Sends a WoL command to the device immediately.


Setting	Description
Wake later	<p>Sends a WoL command to the device on a scheduled date.</p> <ol style="list-style-type: none"> Click . Select the date. Click . Select the time.

6. Click **Save**.


QSS sends a WoL command to the device.



Tip

To send a wake command to a new device, click .

Deleting a MAC address

1. Log in to QSS.
2. Go to **Devices > MAC History**.
3. Identify a connected device.
4. Click .

A confirmation window opens.
5. Click **Delete**.

QSS deletes the MAC address.

Clearing the MAC address history

1. Log in to QSS.
2. Go to **Devices > MAC History**.
3. Click **Clear**.

A confirmation window opens.
4. Click **Clear**.

QSS clears the MAC address history.

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.
5. Configure the settings.

Setting	Description
State	Enables or disables the switching port
Port Name	Specify a port name between 1 and 24 characters.
Speed	Specifies the maximum speed at which a port can operate
Flow Control	Enables or disables flow control for the port <ul style="list-style-type: none"> • When the port speed is set to Auto, the maximum speed is advertised to the link partner. • When the port speed is fixed, flow control automatically matches the specified speed.
Maximum Frame Size	Controls the maximum frame size allowed for the port

6. Click **Save**.

QSS saves the settings.

Managing PoE settings

Power over Ethernet (PoE) systems pass electric power along Ethernet cables, and allow a single cable to provide both a data connection and electric power to devices such as wireless access points, cameras, or VoIP phones.

The **PoE** screen displays information about PoE power consumption and provides access to PoE scheduling and configuration options.

Configuring PoE settings



1. Log in to QSS.
2. Go to **Configuration > PoE** .
3. Go to **Power Configuration**.
4. Identify a port.
5. Configure the settings.

Setting	Description
PoE Mode	<p>Controls the PoE operating mode for the port</p> <ul style="list-style-type: none"> • Disabled: Disables PoE on the selected port. • PoE: Delivers 15.4 watts to the PoE device. • PoE+: Delivers up to 30 watts to the PoE device.
Priority	<p>Controls the priority of each port</p> <ul style="list-style-type: none"> • Critical: Assigns the highest priority in terms of allocating power to a port. • High: Assigns the second priority in terms of allocating power to a port. • Low: Assigns the lowest priority in terms of allocating power to a port. <p>If multiple ports share the same priority, the port with the lower number is given priority.</p>
Power Consumption	Displays the amount of power currently consumed by the powered device

6. Click **Save**.

QSS saves the PoE settings.

Configuring a PoE schedule

1. Log in to QSS.
2. Go to **Configuration > PoE**.
3. Go to **PoE Schedule**.
4. Identify a port.
5. Click . Scheduling is enabled for the port.
6. Click . The **PoE Schedule Configuration** window opens.
7. Configure the schedule.
 - a. Optional: Select additional ports. Selected ports will also be included in the schedule.
 - b. Select port operating hours.
 - c. Optional: Select **Activate schedule now**.
8. Click **Save**. The **PoE Schedule Configuration** window closes.
9. Click **Save**.

QSS saves the schedule.

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. Specify a name for the VLAN.
6. Select ports to include in the VLAN.
Only tagged ports can belong to multiple VLANs.
7. 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	<p>Controls the link aggregation mode for the group</p> <ul style="list-style-type: none"> • LACP: Uses IEEE 802.3ad protocol to send Link Aggregation Control Protocol Data Units (LACPDU) 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 <p> Important Ensure that you configure the LAG before connecting cables to the switch to avoid creating a data loop.</p>
Port Configuration	<p>Specifies which ports are included in the group</p> <p> Note Ensure that you configure the same settings for all the member ports in a LAG.</p>

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.

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** .
3. Next to **Dynamic MAC address aging time**, click .



Note

You can configure the amount of time that an entry remains in the MAC table.


4. Specify the aging time between 10 and 630 seconds.
5. Click  .
6. Click **Add**.
The **Add Static MAC Address** window opens.
7. Configure the MAC address settings.
 - a. Specify a VLAN ID.
 - b. Specify a MAC address.
 - c. Select a switching port.
8. Click **Save**.
The **Add Static MAC Address** window closes.

QSS adds the MAC address.

Adding an access control list entry

Access control lists (ACLs) 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.

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

Setting	User Action
ACL No.	Specify the number of the ACL entry This value must be from 1 to 250
Protocol	Select the type of traffic affected by the ACL entry <ul style="list-style-type: none"> • TCP: Permit or deny TCP IP traffic. • UDP: Permit or deny UDP IP traffic.
Source	
IP Address	Specify the IP address of an incoming connection
Subnet Mask	Specify the subnet mask used by an incoming connection
Service Port	Specify the port number 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 <div style="border-left: 2px solid red; padding-left: 10px; margin-top: 10px;">  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. </div>
Service Port	Specify the port number being accessed by a source connection
Permission	Specify the type of permission type used for this ACL entry <ul style="list-style-type: none"> • 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. Select the switching ports to apply the ACL rule.
6. Click **Save**.


QSS adds the ACL entry.

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	<p>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.</p> <div style="border-left: 2px solid #0070C0; padding-left: 10px; margin-top: 10px;">  Note If you do not specify a router port, QSS automatically assigns a port to be used as a router port. </div>
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.

Configuring QoS settings

Quality of service (QoS) improves network traffic shaping by classifying and prioritizing different network devices and packets.

1. Log in to QSS.
2. Go to **Configuration > QoS** .
3. Select a QoS mode.

Mode	Description
Port-based	Prioritizes traffic for each port. Packets scheduled based on the queue value are transmitted from the switching port.
VLAN-based	Prioritizes traffic for each VLAN. Packets containing a VLAN ID are scheduled for transmission based on the queue value.

4. Configure the priority.
Queue 0 receives the lowest priority and queue 7 the highest priority.
5. Click **Apply**.


QSS updates the QoS settings.



Tip

To disable QoS on the device, change the port-based or VLAN-based priority of all the ports to the same priority.

Configuring QoS rate limiting

1. Log in to QSS.
2. Go to **Configuration > QoS > Rate Limits**.
3. Identify a port.
4. Click .
The **Configure Rate Limiting** window opens.
5. Configure the rate limits.
 - a. Optional: Select additional ports.
Rate limits will also apply to the additional ports.
 - b. Move the slider to select the ingress rate.
 - c. Move the slider to select the egress rate.



Tip


- Alternatively, select **Match Rates** to make the egress rate match the ingress rate.
- Enable **Unlimited** to allow unlimited ingress or egress traffic.

6. Click **Save**.

QSS saves the rate limits.

Configuring port mirroring

Port mirroring monitors network traffic and forwards a copy of a packet from one network switch port to another.

1. Log in to QSS.
2. Go to **Configuration > Port Mirroring**.
3. Click .
QSS enables port mirroring.
4. Select the mirror type.

Mirror Type	Description
Transmit & receive	Mirrors all packets to the destination port

Mirror Type	Description
Transmit only	Mirrors only outgoing packets to the destination port
Receive only	Mirrors only incoming packets to the destination port

5. Select source ports.


Tip

You can select multiple source ports at the same time.

6. Select a destination port.
7. 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 Setting	User Action
	Click to enable the LLDP function.
	Click to disable the LLDP function.



4. Click **Save**.

QSS saves the setting.

Configuring loop protection

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. Configure the loop protection settings.

Setting	Description
Transmission time	<p>Controls the time between transmitted loop protection packets</p> <p> Note</p> <ul style="list-style-type: none"> • The default transmission time is 5 seconds. • The value must be from 1 to 10 seconds.
Shutdown time	<p>Controls how long to disable a port after detecting a loop</p> <p> Note</p> <ul style="list-style-type: none"> • The default shutdown time is 180 seconds. • The value must be from 0 to 604800 seconds.

5. Click **Save**.

QSS saves the settings.



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 device name:
Requirements:
 - Length: 1-20 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 connection settings

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

3. Click **Add**.
The **Add a VLAN Management IP** window appears.
4. Specify a VLAN ID between 1 and 4000.
5. Configure the connection settings.



Setting	Description
Automatically obtain IP & DNS	Obtain the IP and DNS information automatically from the DHCP server.  Tip Click  to refresh the IP and DNS information.
Manually set the IP & DNS	Specify the IP address, subnet, gateway, and DNS information manually.

6. Click **Save**.

QSS updates the connection 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 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	<p>The MAC address of the switch image omitting any punctuation and capitalizing any letters.</p> <p> 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".</p>

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.

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


Note

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

- Click **Save**.



QSS saves the secure connection settings.

Configuring SNMP settings

The Simple Network Management Protocol (SNMP) is used to collect and organize information about managed devices on a network. Enabling the SNMP service allows events (such as warnings and errors) to be immediately reported to a Network Management Station (NMS).

- Log in to QSS.
- Go to **System > System Settings > SNMP**.
- Select **Enable SNMP Service**.
- Select the SNMP version that the NMS uses.

Option	User Action
SNMPv2c	<p>Specify an SNMP community name that contains 1 to 64 characters from any of the following groups:</p> <ul style="list-style-type: none"> • Letters: A to Z, a to z • Numbers: 0 to 9 <p>The SNMP community string functions as a password that is used to authenticate messages sent between the NMS and the device. Every packet that is transmitted between the NMS and the SNMP agent includes the community string.</p>

Option	User Action
SNMPv3	<p>Specify the username, authentication protocol and password, and privacy protocol and password.</p> <p>a. Specify a username.</p> <p> Note The username should contain 1 to 32 characters from any of the following groups:</p> <ul style="list-style-type: none"> • Letters: A to Z, a to z • Numbers: 0 to 9 • Multi-byte characters: Chinese, Japanese, Korean, and Russian • Special characters: All except " ' / \ <p>b. Optional: Select Authentication.</p> <p>1. Specify the authentication protocol.</p> <p> Tip You can select HMAC-MD5 or HMAC-SHA. If you are unsure about this setting, QNAP recommends selecting HMAC-SHA.</p> <p>2. Specify an authentication password that contains 8 to 64 ASCII characters.</p> <p>c. Optional: Select Privacy.</p> <p>1. Specify a privacy password that contains 8 to 64 ASCII characters.</p>

5. Select the SNMP trap.

SNMP Trap	Description
coldStart	A coldStart trap signifies that the SNMP entity is reinitializing itself so that the agent configuration or the protocol entity implementation can be altered.
warmStart	A warmStart trap signifies that the SNMP entity is reinitializing itself so that the agent configuration or the protocol entity implementation cannot be altered.
linkUp	A linkUp trap signifies that the sending protocol entity recognizes that one of the communication links represented in the agent configuration has become active.
linkDown	A linkDown trap signifies that the sending protocol entity recognizes a failure in one of the communication links represented in the agent configuration.

6. Specify the trap addresses of the host or the targeted recipient.

7. Click **Save**.

QSS saves the SNMP settings.

Configuring smart fan settings

1. Log in to QSS.



2. Go to **System > System Settings > Smart Fan** .
3. Select the fan speed mode.

Option	Description
Normal (recommended)	Fans run on normal speed. This is the default setting.
Quiet	Fans run on low speed to decrease noise.
Full speed	Fans run on high speed to lower the system temperature. This mode is suitable for high loading systems.

4. Click **Save**.

QSS saves the SNMP 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 Settings > 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

Managing switch logs

You can filter logs based on their severity level, search for specific log files, or delete them altogether. These logs can be used to diagnose issues or monitor switch operations.

1. Log in to QSS.
2. Go to **System > Log** .
3. Perform any of the following tasks.

Task	User Action
Search log files	<p>a. Locate the Search field.</p> <p>b. Enter search terms.</p>
Delete log files	<p>a. Click Clear. The Clear Logs window opens.</p> <p>b. Click Clear.</p>

QSS performs the specified task.

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 firmware using one of the following methods:

Update Method	Description
Using Check for update	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	<ul style="list-style-type: none"> • A computer • Ethernet cables <p> Note QNAP recommends updating the firmware using wired Ethernet connections to ensure your network connection remains stable during the firmware update process.</p>
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	<p>Ensure that you have the correct switch model name. You can find the switch model name using one the following methods:</p> <ul style="list-style-type: none"> • Locate the model name on a sticker on the bottom or rear of your device. • Go to System > 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 , 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

This chapter provides information about warranty, disclaimers, licensing, and federal regulations.

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Version 3, 29 June 2007

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FCC notice

FCC Class A Notice



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1. This device may not cause harmful interference.
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VCCI-A

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D33B77
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SJ/T 11364-2006



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