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# Chapter 1 PoE Configuration

## 1.1 PoE Overview

The S5624P-PWR/S5648P-PWR Ethernet Switch supports power-over-Ethernet (PoE), a feature using twisted pairs to provide -44 through -62 VDC power to remote powered devices (PDs), such as IP Phones, WLAN APs, Network Cameras, and so on.

- As a power sourcing equipment (PSE), the S5624P-PWR/S5648P-PWR supports IEEE802.3af standard. But it can also supply power to part of the PDs noncompliant with the standard.
- The S5624P-PWR/S5648P-PWR can deliver data and current in the mean time through data wires (1, 3, 2, and 6) of the category-3/5 twisted pairs.
- Through its 24/48 Ethernet electrical ports, the S5624P-PWR/S5648P-PWR can supply power to up to 24/48 remote Ethernet switches with the maximum distance of 100 m (328 feet).
- Each Ethernet port can supply at most 15400 mW of power to a PD.
- When AC power input is adopted for the switch: the maximum total power that can be provided by the S5624P-PWR/S5648P-PWR is 300 W. The S5624P-PWR/S5648P-PWR can determine whether to supply power to the next remote PD it detected depending on the total power.
- When DC power input is adopted for the switch: the S5624P-PWR/S5648P-PWR is capable of supplying full power to all of the 24/48 ports.
- The PSE processing software on the S5624P-PWR/S5648P-PWR can be upgraded online.
- The S5624P-PWR/S5648P-PWR provides statistics about power supplying on each port and the whole equipment, which you can query through the **display** command.
- The S5624P-PWR/S5648P-PWR provides two modes (**auto** and **manual**) to manage the power feeding to ports in the case of PSE power overload.
- The S5624P-PWR/S5648P-PWR provides overheat protection mechanism. It stops the power feeding to any PD connected with a port when the ambient temperature reaches 65 °C; and restores the power feeding to all the PDs connected with the ports when the temperature drops below 60 °C.

**Note:**

- When using the S5624P-PWR/S5648P-PWR to supply power to remote PDs, the PDs need not have any external power supply.
- If a remote PD has an external power supply, the S5624P-PWR/S5648P-PWR and the external power supply will be redundant with each other for the PD.
- Only the electrical ports of the S5624P-PWR/S5648P-PWR support the PoE feature.

## 1.2 PoE Configuration

The S5624P-PWR/S5648P-PWR can automatically detect any device that needs remote power supply through the port to which it connects and feeds power to this device.

You can use the command line to enable/disable the PoE feature of a port, set the power supply priority, maximum output power, and compatibility detect function of a port.

PoE configuration tasks are listed in the following table.

**Table 1-1** PoE configuration

Device	Configuration	Default	Description
S5624P-PWR/ S5648P-PWR	Enabling/disabling PoE on a port	Disable	-
	Setting the maximum output power on a port	15400 mW	-
	Setting the PoE management mode on a port used in the case of power overloading	Auto	-
	Setting the port priority	Low	-
	Setting the PoE mode on a port	Signal line	S5600 supports only <b>signal</b> mode
	Setting the compatibility detect function on a port	Close	-
	Upgrading the PSE processing software online	-	Online downloading of upgrading file is needed
PD	Properly connecting a PD with an electrical port on the S5624P-PWR/S5648P-PWR	-	-

## 1.2.1 Enabling/Disabling the PoE Feature on a Port

You can use the following command to enable/disable the PoE feature on a port in accordance with the network requirement.

Perform the following configuration in Ethernet port view.

**Table 1-2** Enabling/disabling PoE feature on a port

Operation	Command
Enable the PoE feature on a port	<b>poe enable</b>
Disable the PoE feature on a port	<b>undo poe enable</b>

By default, the PoE feature of each port is enabled.

## 1.2.2 Setting the Maximum Power Output on a Port

The maximum power that can be supplied by an Ethernet port of the S5624P-PWR/S5648P-PWR to its PD is 15400 mW. In practice, you can set the maximum power on a port depending on the actual power of the PD, with a range from 1000 to 15400 mW and in the increment of 100 mW.

You can use the following command to set the maximum power supplied by a port.

Perform the following configuration in Ethernet port view.

**Table 1-3** Setting the Maximum power on a port

Operation	Command
Set the maximum power supplied by a port	<b>poe max-power</b> <i>max-power</i>
Restore the default maximum power on the port	<b>undo poe max-power</b>

By default, the maximum power on a port is 15400 mW.

## 1.2.3 Setting Power Supply Management Mode in Overload and Port Priority

The power supply management mode and the port priority settings will work together to control the power feeding of the switch when the switch is reaching its full power load in supplying power.

When AC power input is adopted for the switch, The maximum main total power that can be supplied by the S5624P-PWR/S5648P-PWR is 300 W. By default, when the switch reaches its full load in supplying power, it will manage the power supply to its ports in **auto** mode.

- **auto** mode: When the switch is reaching its full load in supplying power, it will first supply power to the PDs that are connected to the ports with critical priority, and then supply power to the PDs that are connected to the ports with high priority. For example: Port A has the priority of critical. When the switch is reaching its full load and a new PD is now added to port A, the switch will power down the PD connected to the port with the low priority and turn to supply power to this new PD. IF more than one port has the same lowest priority, the switch will power down the PD connected to the port with larger logical port number.
- **manual** mode: When the switch is reaching its full load in supplying power, it will neither take the priority into account nor make change to its original power supply status. For example: Port A has the priority critical. When the switch is reaching its full load and a new PD is now added to port A, the switch just gives a prompt that a new PD is added and will not supply power to this new PD.

## I. Setting the power supply management mode on switch

Perform the following configuration in system view.

**Table 1-4** Setting the power supply management mode on switch

Operation	Command
Set the power supply management mode on switch to <b>auto</b>	<b>poe power-management auto</b>
Set the power supply management mode on switch to <b>manual</b>	<b>poe power-management manual</b>
Restore the default power supply management mode on switch	<b>undo poe power-management</b>

By default, the power supply management mode on switch is **auto**.

## II. Setting the port priority

Set the priority of the current port in Ethernet port view.

**Table 1-5** Setting the port priority

Operation	Command
Set the port priority	<b>poe priority { critical   high   low }</b>
Restore the default priority	<b>undo poe priority</b>

By default, the port priority is low.

## 1.2.4 Setting the PoE Mode on a Port

Set the PoE mode on the current port in Ethernet port view.

**Table 1-6** Setting the PoE mode on a port

Operation	Command
Set the PoE mode on a port	<b>poe mode { signal   spare }</b>
Restore the default PoE mode on the port	<b>undo poe mode</b>

By default, the power supply mode on port is by signal lines.

Currently, S5600 series switches do not support the **spare** mode.

## 1.2.5 Enabling/Disabling PD Compatibility Detect

The PD compatibility detect function allows the switch to detect PDs noncompliant with the 802.3af standard and then supply power to them. You can use the following commands to enable/disable the PD compatibility detect function.

Perform the following configuration in system view.

**Table 1-7** Enabling/disabling the PD compatibility detect

Operation	Command
Enable the PD compatibility detect	<b>poe legacy enable</b>
Restore the default PD compatibility detect setting	<b>undo poe legacy enable</b>

By default, the PD compatibility detect function is disabled.

## 1.2.6 Upgrading the PSE Processing Software Online

The online upgrading of PSE processing software can update the processing software or repair the software if it is damaged. After upgrading files are downloaded, you can use the following command to perform online upgrading on the PSE processing software.

Perform the following configuration in system view.

**Table 1-8** Upgrading PSE processing software online

Operation	Command
Perform the online upgrading of PSE processing software	<b>poe update { refresh   full } filename</b>

### I. Upgrading in refresh mode

Normally, the online upgrading of PSE processing software should be done in **refresh** mode.

### II. Upgrading in full mode

- When the upgrading procedure in **refresh** mode is interrupted for some unexpected reason (e.g. power-off) or some error occur, you can use the **full** mode to re-upgrade.
- When the PSE processing software is damaged (that is, all the PoE commands cannot be successfully executed), you can use the **full** mode to upgrade and restore the software.

## 1.3 Displaying PoE Information

After the above configuration, execute the **display** command in any view to see the operation of the PoE feature on the switch and verify the effect of the configuration.

**Table 1-9** PoE information display

Operation	Command
Display the PoE status of a specific or all ports of the switch	<b>display poe interface</b> [ <i>interface-name</i>   <i>interface-type interface-num</i> ]
Display the PoE power information of a specific or all ports of the switch	<b>display poe interface power</b> [ <i>interface-name</i>   <i>interface-type interface-num</i> ]
Display the PSE parameters	<b>display poe powersupply</b>

Refer to the *Command Manual* for details about parameters.

## 1.4 Configuration Example

### I. Networking requirements

The GigabitEthernet1/0/1 and GigabitEthernet1/0/2 ports of S5624P-PWR are connected with an S2016C and an access point (AP) respectively; the

GigabitEthernet1/0/24 port is intended to be connected with an important AP. The PSE processing software of the S5624P-PWR should be first upgraded online. The remotely accessed PDs should be powered by the S5624P-PWR. The power consumption of the AP that has already been connected with GigabitEthernet1/0/2 is 2500 mW, and the power consumption of the S2016C is 12000 mW. It is required to guarantee the power feeding to the PD that will be connected to the GigabitEthernet1/0/24 even when the S5624P-PWR is in full load.

## II. Networking diagram

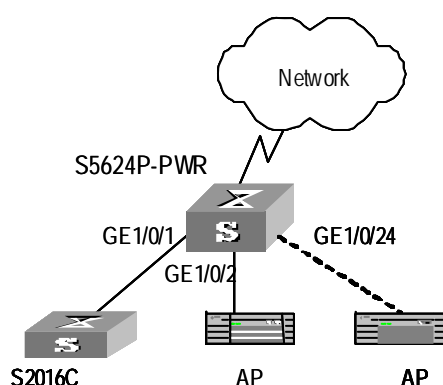


Figure 1-1 PoE remote power supply

## III. Configuration procedure

# Update the PSE processing software online.

```
[Quidway] poe update refresh 0290_021.s19
```

# Enable the PoE feature on the GigabitEthernet1/0/1, GigabitEthernet1/0/2, and GigabitEthernet1/0/24 ports (the feature is enabled by default, so this step can be ignored).

```
[Quidway-GigabitEthernet1/0/1] poe enable
```

```
[Quidway-GigabitEthernet1/0/2] poe enable
```

```
[Quidway-GigabitEthernet1/0/24] poe enable
```

# Set the maximum power output of GigabitEthernet1/0/1 and GigabitEthernet1/0/2 to 12000 and 3000 mW respectively.

```
[Quidway-GigabitEthernet1/0/1] poe max-power 12000
```

```
[Quidway-GigabitEthernet1/0/2] poe max-power 3000
```

# Set the priority of GigabitEthernet1/0/24 to **critical** to guarantee the power feeding to the AP to which this port connects.

```
[Quidway-GigabitEthernet1/0/24] poe priority critical
```



# Set the power supply management mode on the switch to **auto** (it is the default mode, so this step can be ignored).

```
[Quidway] poe power-management auto
```

# Enable the PD compatibility detect of the switch to allow the switch to supply power to part of the devices noncompliant with the 802.3af standard.

```
[Quidway] poe legacy enable
```