Power over Ethernet

(PoE on PWR Switch)

Ethernet Switch

ZyNOS 3.7

Support Notes

Version 3.70

August 2006

ZyXEL

Unleash Networking Power

Overview of PoE

PoE (Power over Ethernet) refers to supply power over a 10BASE-T, 100BASE-TX, or 1000BASE-T Ethernet network (with RJ45 cable), with the maximum reliable power supply distance of 100 meters. PoE can be used to provide centralized power for PoE-terminals such as IP phone, wireless AP, charger of portable equipment, POS (point-of-sale) machine, and data collection. Therefore the indoor cabling of power supply need not be considered for these terminals, because they are powered when they access the network. Currently PoE also provides a unified standard – 802.3af for adaptation of equipment from different vendors.

PoE Power Supply Alternatives

According to the definition in 802.3af, the PoE system consists of two categories of equipment: power-sourcing equipment (PSE) and powered device (PD). PSE is used to provide power to other devices and can be further divided into two types: Midspan (PoE module out of the switch) and Endpoint (PoE module inside the switch).

The 802.3af standard also defines the power interface (PI): interface between PSE/PD and network cables. It has defined two power supply alternatives: Alternative A, also called EndSpan (Power is carried over the data pairs 1,2 ,3,6) and Alternative B, also called MidSpan (Power is carried over the data pairs 4,5 ,7,8). All ZyXEL PoE Switches are EndSpan.

Notes:

The maximum of power that a port can supply is 15.4W

Inactive the port is NOT going to disable the PoE feature of the port.

For some PoE Switches like ES-2024PWR, it is a Power Budget PoE Switch. An addition option called “PD Priority” is available on those Switches.

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Scenario of PoE

In the following section, we will provide an example to illustrate how to configure PoE on ZyXEL PoE Switch. In this scenario, there is a university campus that linked every building with a fiber Switch. And some floors of the building implemented ZyXEL PoE Switches. PoE PD like IP-CAM, Wireless AP and VOIP Phone are connected to those PoE Switches. Networking administrator can manage the power of all the PoE PD without physically getting to the field. Now the IP-CAM connected to the PoE Switch in the Audio Visual Center no longer responding. Remotely power recycling is desired in this case

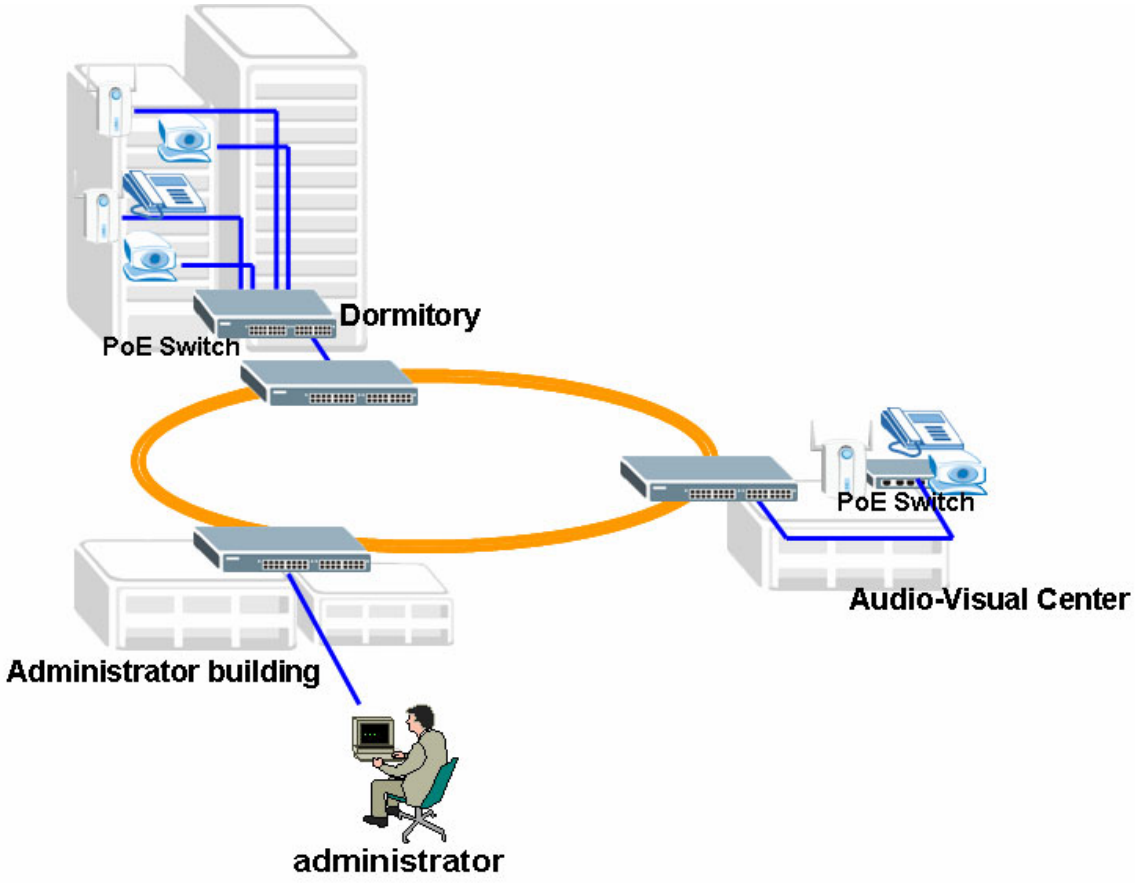
The IP of the PoE Switch in the Audio-Visual Center is 10.50.1.66

IP-CAM is connected to port 2 of that PoE Switch.

Action to perform in this scenario:

1. Check Power Status as well as PoE budget if available
2. Power reset the hanged IP-CAM remotely
3. Modify PoE priority on port 16~24 to “low”

Illustration of this scenario



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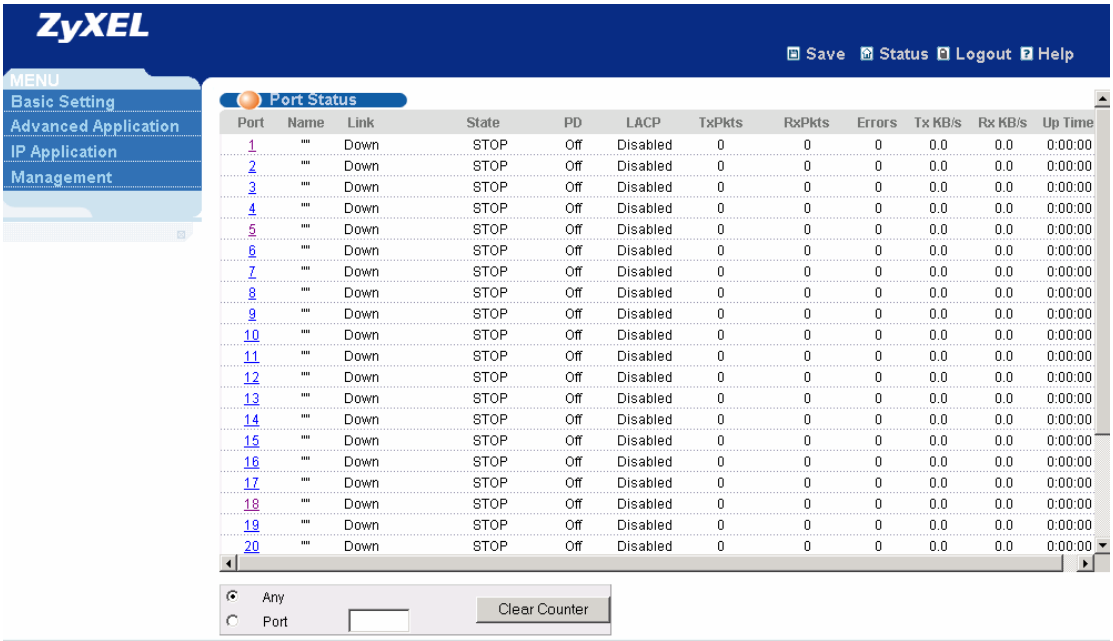
Configuration via CLI on ZyXEL PoE Switch

1. Connect port 1 with a PC or Notebook via the RJ45 Cable.
2. By default the MGMT IP of every in-band port is 192.168.1.1/24
3. Set your NIC to 192.168.1.2/24
4. Open an Internet browser such as IE and give http://192.168.1.1 on the URL.
5. By default you will need to put “admin” as the username and “1234” as the password.
6. After you login successfully, you will see a similar screen like below.



7. **<u>To check the Power Status as well as the PoE budget if available</u>**, click “Basic Setting” → “System Info” and you will see the PoE Status on your right. If you have a power budget Switch, you can see the “Remaining Power” as well.

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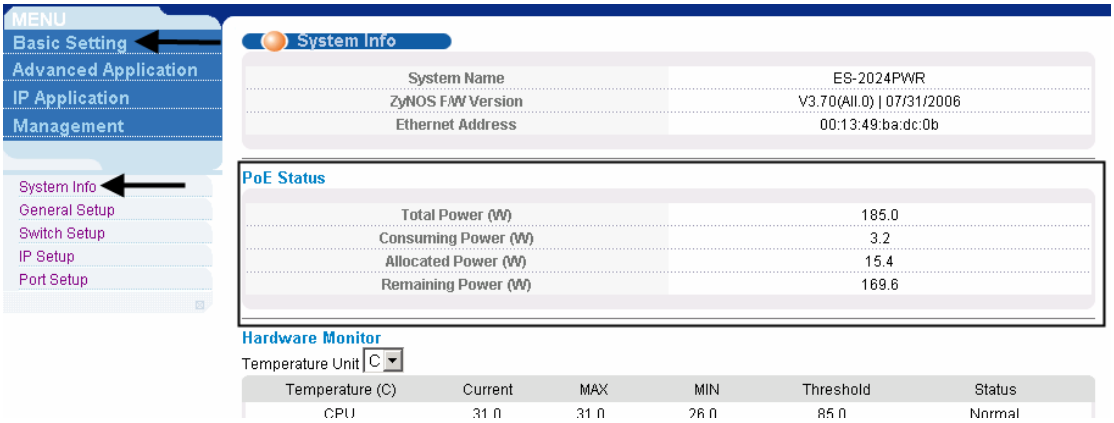
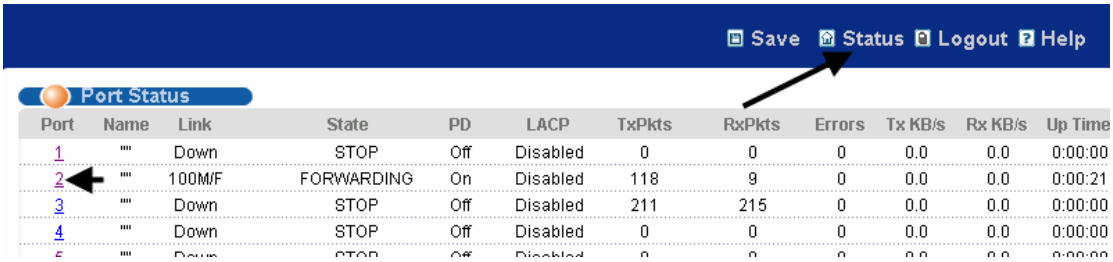
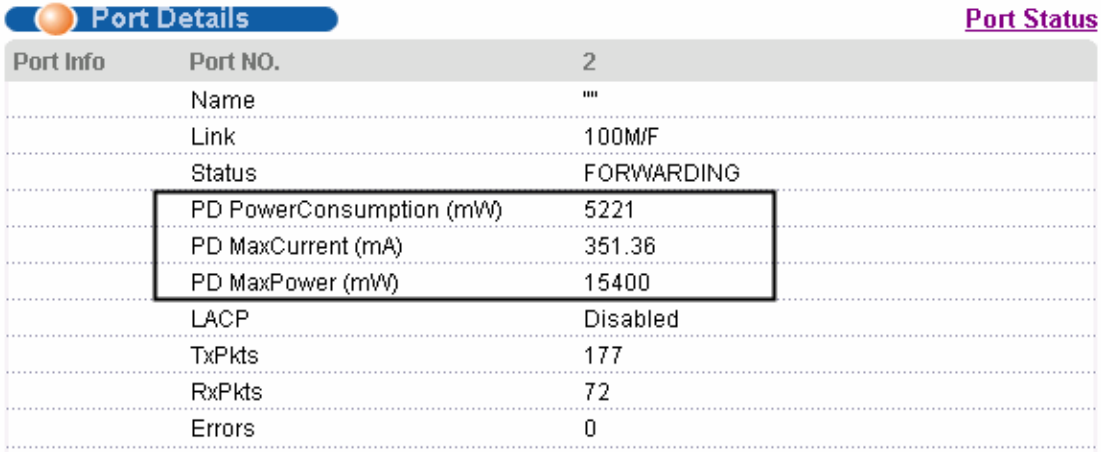


8. If you need to know the per port PoE status, go back to the Status screen by clicking the “Status” on the top. And find the port number that you want to check. Make a click on the port number. In this example, it is port 2.



9. Now you will see the PD power consumption on this port.



10. **To power reset the hanged IP-CAM remotely**, click “Basic Setting” → “Port Status” and locate the port which you are going to disable or

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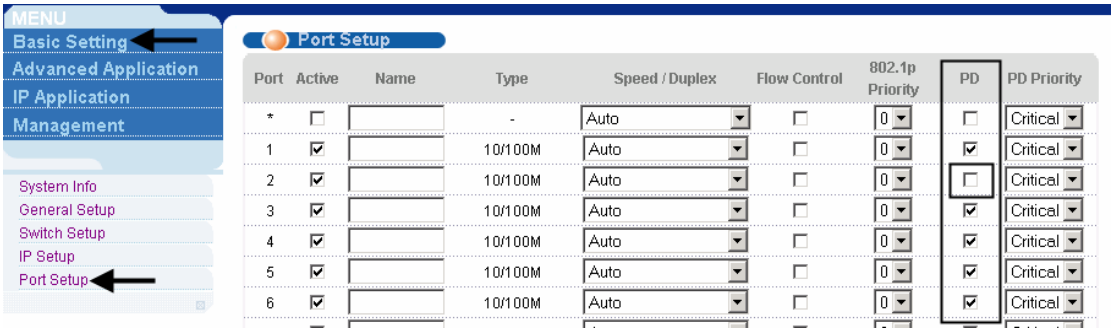
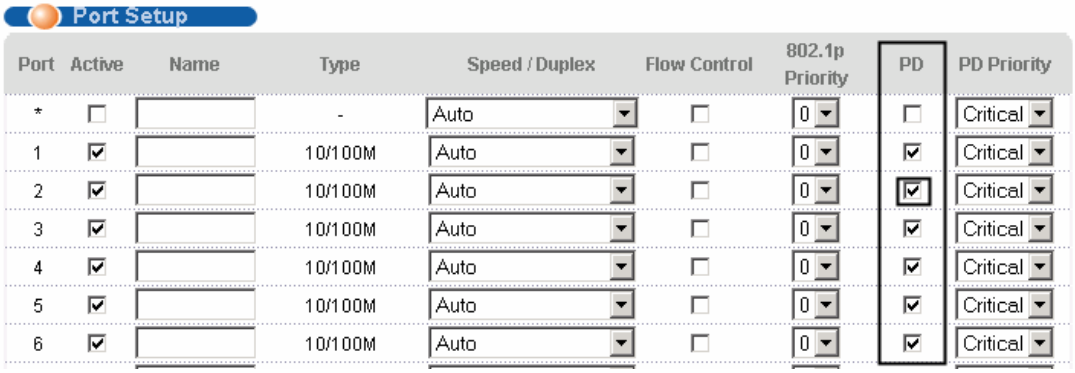
shutdown its PoE Power. You will see a column called “PD” and uncheck its checkbox. Click apply to shut its power down.



11. At this time the power of the PD is disabled. Since you need to power reset the hanged IP-CAM, you will need to enable the PD’s PoE Power again. To do so, check the “PD” box again which you’ve just unchecked it. Click “apply” to enable the PoE again on that port.



12. To modify the PoE priority on port 16~24 to “low”, on the same screen, you will see a column called “PD Priority”; Locates port 16 to 24 and change its “PD Priority” drop-down list to low for port 16~24.

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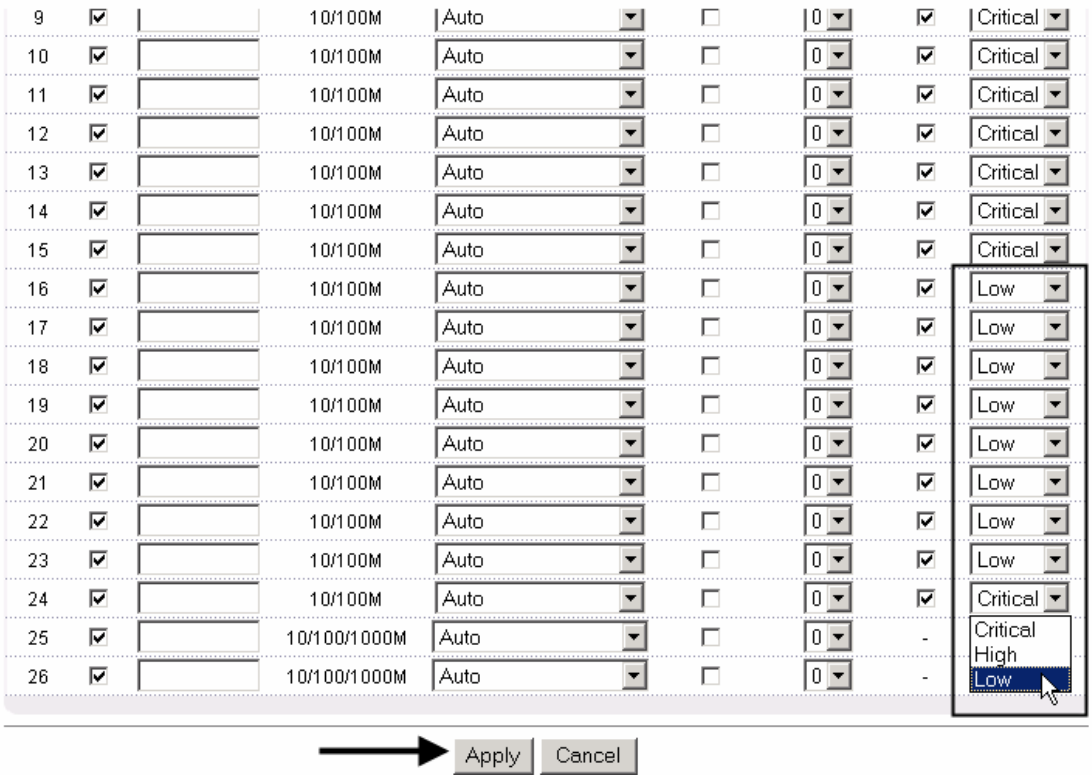

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Configuration via CLI on ZyXEL PoE Switch

Connect the Switch Console port with your PC or Notebook.

1. Open your Terminal program.(Ex, Hyper Terminal in Windows System)
2. Make sure that your port settings are

bps:9600
Data bits:8
Parity: None
Stop bits:1
Flow control: None:

OR you can telnet / SSH the IP of the Switch 10.50.1.66

3. After you have connected successfully, give the correct administrator user name and password.
4. Now you are in the privileged mode.

Issue the following commands to check the power status as well as PoE budget if available on your PoE Switch in this scenario.

To check Power Status:

Switch#show pwr

5. Then put “config” to go into the configuration mode.

Issue the following commands to power reset the IP-CAM on your PoE Switch in this scenario.

To Disable PoE on Port 2:

Switch(config)#no pwr interface 2

To Enable PoE on Port 2:

Switch(config)#pwr interface 2

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Issue the following commands to modify the PoE priority on port 16~24 to “low” on your Power Budget PoE Switch in this scenario. *(It only applies to the ZyXEL Power Budget PoE Switch!)*

To modify the PoE priority on Port 16~24 to low:

Switch(config)#pwr interface 16-24 priority low

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