

Protocol Based VLAN

(Virtual Local Area Network)

Ethernet Switch

ZyNOS 3.7

Support Notes

Version 3.70

August 2006



Overview of Protocol Based VLAN

ZyXEL switches which support Protocol-based VLAN are configured with multiple mapping layer 3 protocol types to VLAN membership and 802.1p priority. Therefore, they are capable of filtering IP traffic from nearby end-stations using a particular protocol such as IP, IPX, ARP or whatever Ethernet-type that you want in a Hex value.

Notes:

Protocol Based VLAN is implemented in ZyXEL Switch as a “by port” based feature. For ES-3124, you can apply up to 7 protocol based VLAN rules on a port.

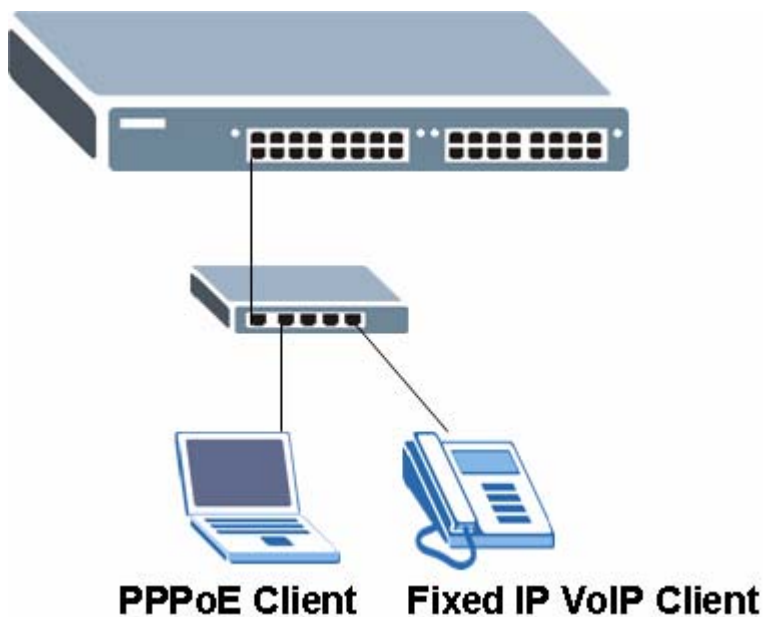
ES-2000 Series Switches running on ZyNOS 3.70 do NOT support Protocol Based VLAN.

Scenario of Protocol Based VLAN

In the following section, we will provide an example to illustrate how to configure Protocol Based VLAN on a ZyXEL Switch. In this scenario, there is a ZyXEL Management Switch which supports Protocol Based VLAN and port 1 of the Switch is connected to another 5-ports UnManagement switch. Two clients are behind the UnManagement Switch. There are one PPPoE Client for data and another VoIP Client using Fixed IP for Voice. We want to sort out all the PPPoE traffic and mark it as VID 500. IP (VOIP) traffic will be assigned another VLAN PVID, as was discussed in the 802.1Q VLAN Support Note.

Actions to perform in this scenario:

1. Use Protocol Based VLAN to sort out all the PPPoE traffic on port 1 and mark it as VID 500 with 802.1p priority 1



Note:

Protocol Based VLAN has priority before PVID in the Ingress process.

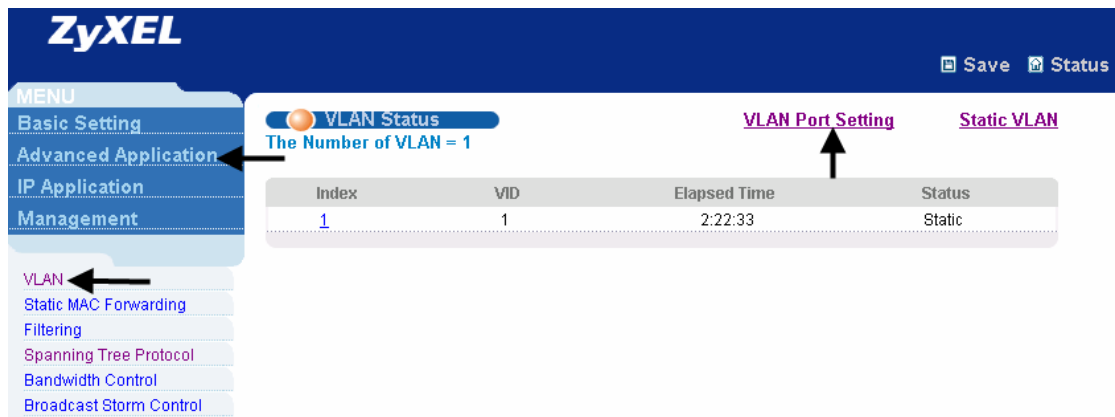
Configuration via GUI on ZyXEL Management Switch

1. Connect PC or Notebook to the port 1 using 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 enter <http://192.168.1.1> in the URL field.
5. By default, you will need to insert “admin” as the username and “1234” as the password.
6. After you login successfully, you will see a screen similar to the one below.

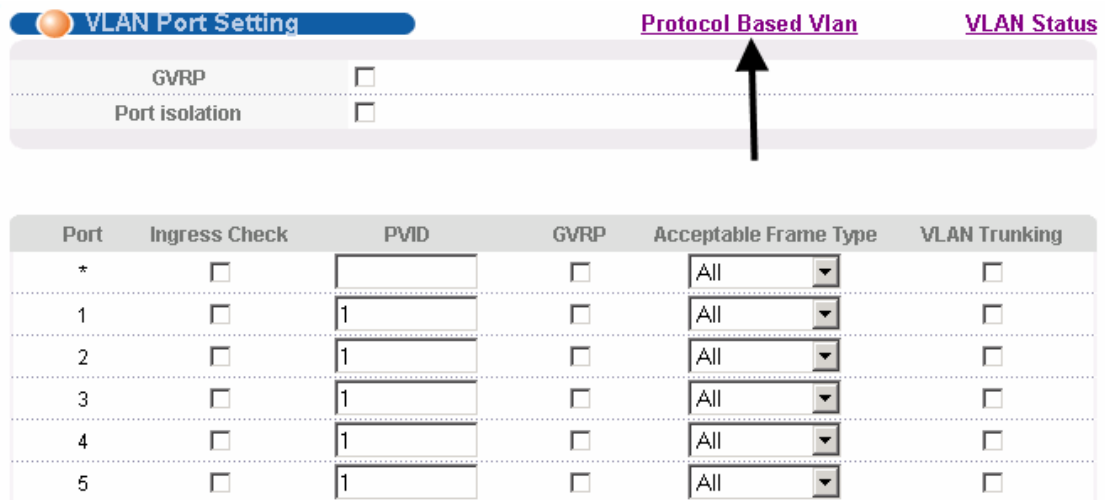
Port	Name	Link	State	PD	LACP	TxPkts	RxPkts	Errors	Tx KB/s	Rx KB/s	Up Time
1		Down	STOP	Off	Disabled	0	0	0	0.0	0.0	0:00:00
2		Down	STOP	Off	Disabled	0	0	0	0.0	0.0	0:00:00
3		Down	STOP	Off	Disabled	0	0	0	0.0	0.0	0:00:00
4		Down	STOP	Off	Disabled	0	0	0	0.0	0.0	0:00:00
5		Down	STOP	Off	Disabled	0	0	0	0.0	0.0	0:00:00
6		Down	STOP	Off	Disabled	0	0	0	0.0	0.0	0:00:00
7		Down	STOP	Off	Disabled	0	0	0	0.0	0.0	0:00:00
8		Down	STOP	Off	Disabled	0	0	0	0.0	0.0	0:00:00
9		Down	STOP	Off	Disabled	0	0	0	0.0	0.0	0:00:00
10		Down	STOP	Off	Disabled	0	0	0	0.0	0.0	0:00:00
11		Down	STOP	Off	Disabled	0	0	0	0.0	0.0	0:00:00
12		Down	STOP	Off	Disabled	0	0	0	0.0	0.0	0:00:00
13		Down	STOP	Off	Disabled	0	0	0	0.0	0.0	0:00:00
14		Down	STOP	Off	Disabled	0	0	0	0.0	0.0	0:00:00
15		Down	STOP	Off	Disabled	0	0	0	0.0	0.0	0:00:00
16		Down	STOP	Off	Disabled	0	0	0	0.0	0.0	0:00:00
17		Down	STOP	Off	Disabled	0	0	0	0.0	0.0	0:00:00
18		Down	STOP	Off	Disabled	0	0	0	0.0	0.0	0:00:00
19		Down	STOP	Off	Disabled	0	0	0	0.0	0.0	0:00:00
20		Down	STOP	Off	Disabled	0	0	0	0.0	0.0	0:00:00

☒ Any
☐ Port

7. To use Protocol Based VLAN to sort out all the PPPoE traffic on port 1 and set its VID to 500 and 802.1p priority to 1, click “Advanced Application” → “VLAN” → “VLAN Port Setting”. You will find another tab called “Protocol Based Vlan”.



8. Click on “Protocol Based Vlan” to get to the Protocol Based Vlan setting page.



9. Since there are two “Ethernet-types” with PPPoE (8863, 8864), you will need to create two Protocol Based VLAN rules. The first one is for sorting out Ethernet-type 0x8863 on port 1 and to mark it as VLAN 500 with priority 1. The second rule is to sort out Ethernet-type 0x8864 on port 1 and to mark it as VLAN 500 with priority 1 as well.

Protocol Based VLAN
[Vlan Port Setting](#)

Active	<input checked="" type="checkbox"/>
Port	<input type="text" value="1"/>
Name	<input type="text" value="PPPoE1"/>
Ethernet-type	<input type="radio"/> IP <input type="text" value=""/> <input checked="" type="radio"/> Others <input type="text" value="8863"/> (Hex)
VID	<input type="text" value="500"/>
Priority	<input type="text" value="1"/>

Protocol Based VLAN
[Vlan Port Setting](#)

Active	<input checked="" type="checkbox"/>
Port	<input type="text" value="1"/>
Name	<input type="text" value="PPPoE2"/>
Ethernet-type	<input type="radio"/> IP <input type="text" value=""/> <input checked="" type="radio"/> Others <input type="text" value="8864"/> (Hex)
VID	<input type="text" value="500"/>
Priority	<input type="text" value="1"/>

Index	Active	Port	Name	Ethernet-type	VID	Priority	Delete
1	Yes	1	PPPoE1	8863	500	1	<input type="checkbox"/>

10. When this is done, you should see that there are two Protocol Based VLANs on your screen.

Index	Active	Port	Name	Ethernet-type	VID	Priority	Delete
1	Yes	1	PPPoE1	8863	500	1	<input type="checkbox"/>
2	Yes	1	PPPoE2	8864	500	1	<input type="checkbox"/>

11. Finally, do not forget to click the “SAVE” button to save all the changes.
Now, when there is PPPoE traffic coming from the port 1 to the switch,
it will be assigned VID 500.



Configuration via CLI on ZyXEL Management Switch

Connect your PC or Notebook to the Switch Console.

1. Open your Terminal program (e.g. Hyper Terminal in Windows System).
2. Make sure your port settings are:
bps:9600
Data bits:8
Parity: None
Stop bits:1
Flow control: None:

Another way is to telnet / SSH the IP of the Switch Management Interface.
For In-band interface, the default management IP is 192.168.1.1 (VLAN 1).
For Out-band interface, the default management IP is 192.168.0.1

3. When successfully connected, enter the correct administrator user name and password.
4. Now you are in the privileged mode.
5. Then issue command "configure" to switch to the configuration mode.

Issue the following commands to use Protocol Based VLAN to sort out all the PPPoE traffic on port 1 and mark it with VID 500 and assign it 802.1p priority of 1.

To enable Protocol Based VLAN on port 1:

```
Switch(config)# interface port-channel 1
Switch(config-interface)#protocol-based-vlan name PPPoE1 ethernet-type
0x8863 vlan 500 priority 1
Switch(config-interface)#protocol-based-vlan name PPPoE2 ethernet-type
0x8864 vlan 500 priority 1
Switch(config-interface)#exit
```

To save your configuration under privileged mode:

Switch#write mem