# IPSubnetting VLAN

**Ethernet Switch**

**ZyNOS 4.0**

# Support Notes

Version 4.0

July 2011

# Overview

Subnet based VLANs allow users to group traffic into logical VLANs based on the source IP address and IP subnet. When a frame is received on a port, the switch checks where the IP subnet it came from and what the source IP address is. The untagged packets from the same IP subnet are then placed in the same subnet based VLAN. The most significant advantage of using subnet based VLANs is that the priority can be divided and tuned base on what VLAN the traffic belongs to.

# Scenario

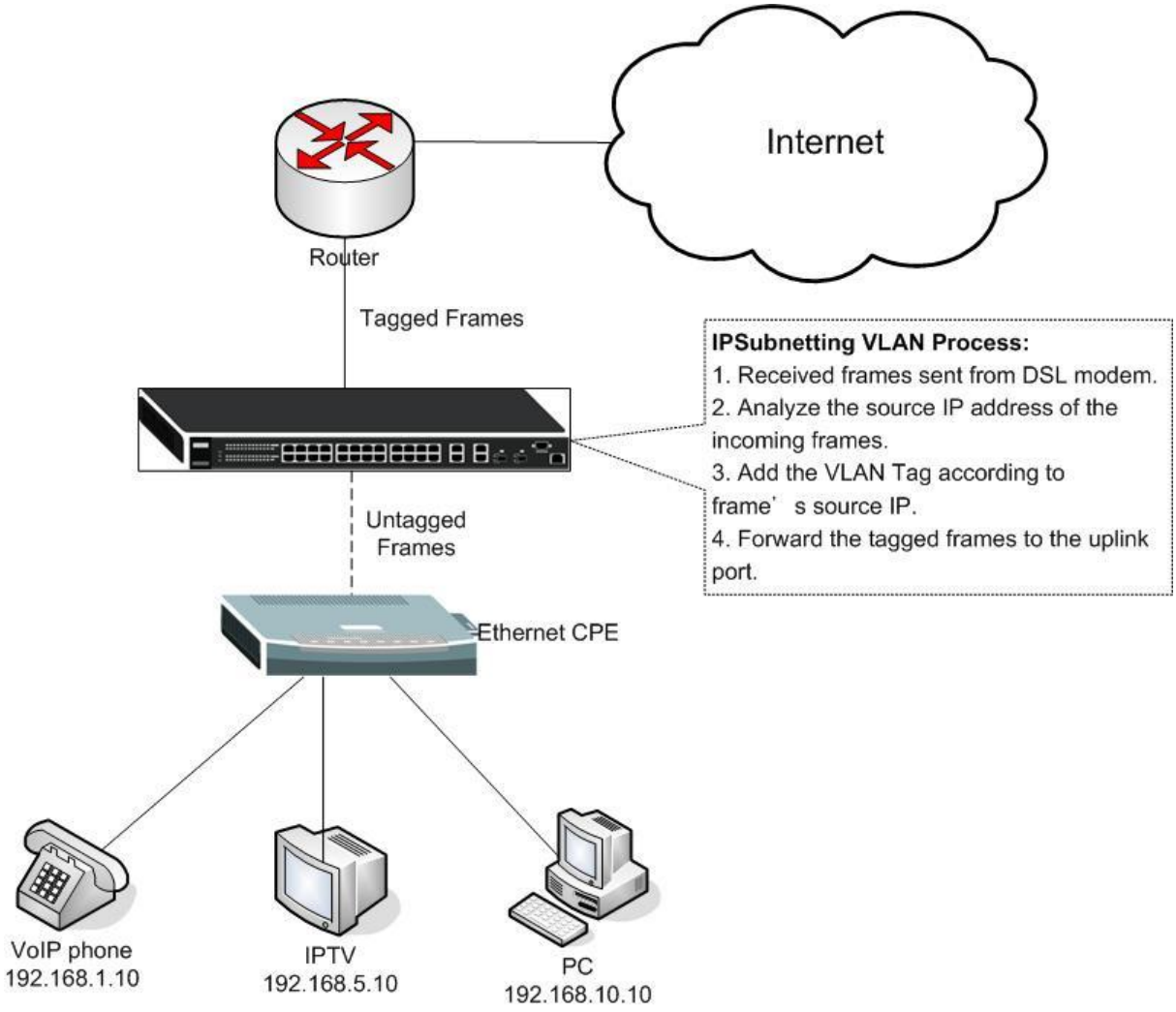
Considering the following topology:

Purpose:

Traffic from VoIP phone (source IP: 192.168.1.10) will be categorized into VLAN 3.

Traffic from IPTV (source IP: 192.168.5.10) will be categorized into VLAN 4.

Traffic from the PC (source IP: 192.168.10.10) will be categorized into VLAN 5.



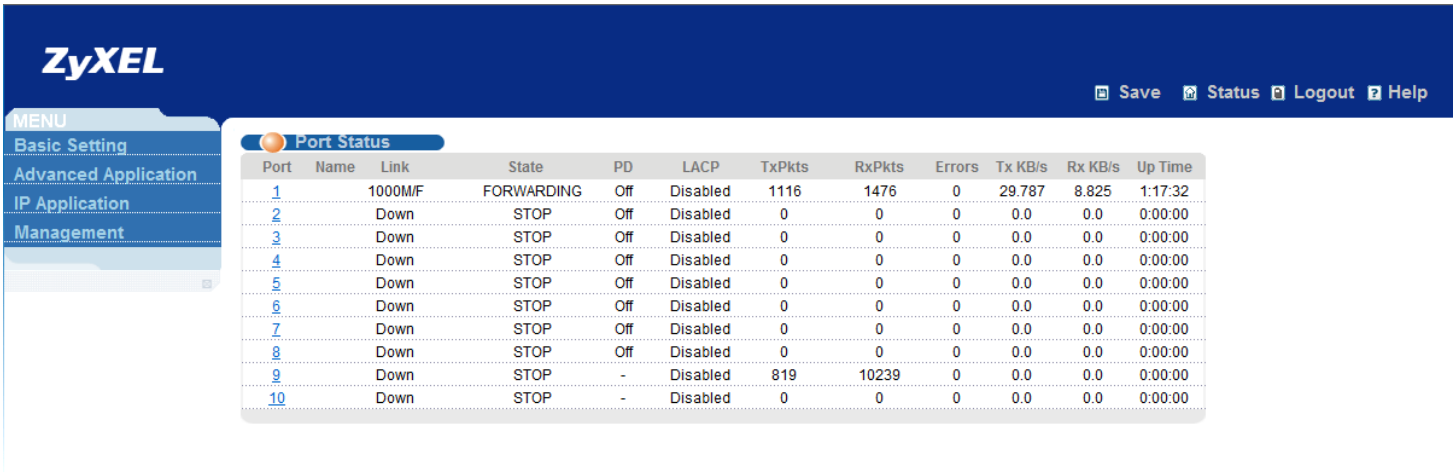

When there are different IP services requirement behind a modem (e.g. VoIP, IPTV, and Common data networking). To separate the IP services in the edge site, we can classify different VLANs for each IP service.

By distinguishing each service, Service Providers can do further policy controlling for each VLAN.

In this topology, three IP services are needed by customer, VoIP, IPTV, and general network access. Each client belongs to different IP subnets. We can achieve this purpose using the switch with IPSubnetting VLAN function.

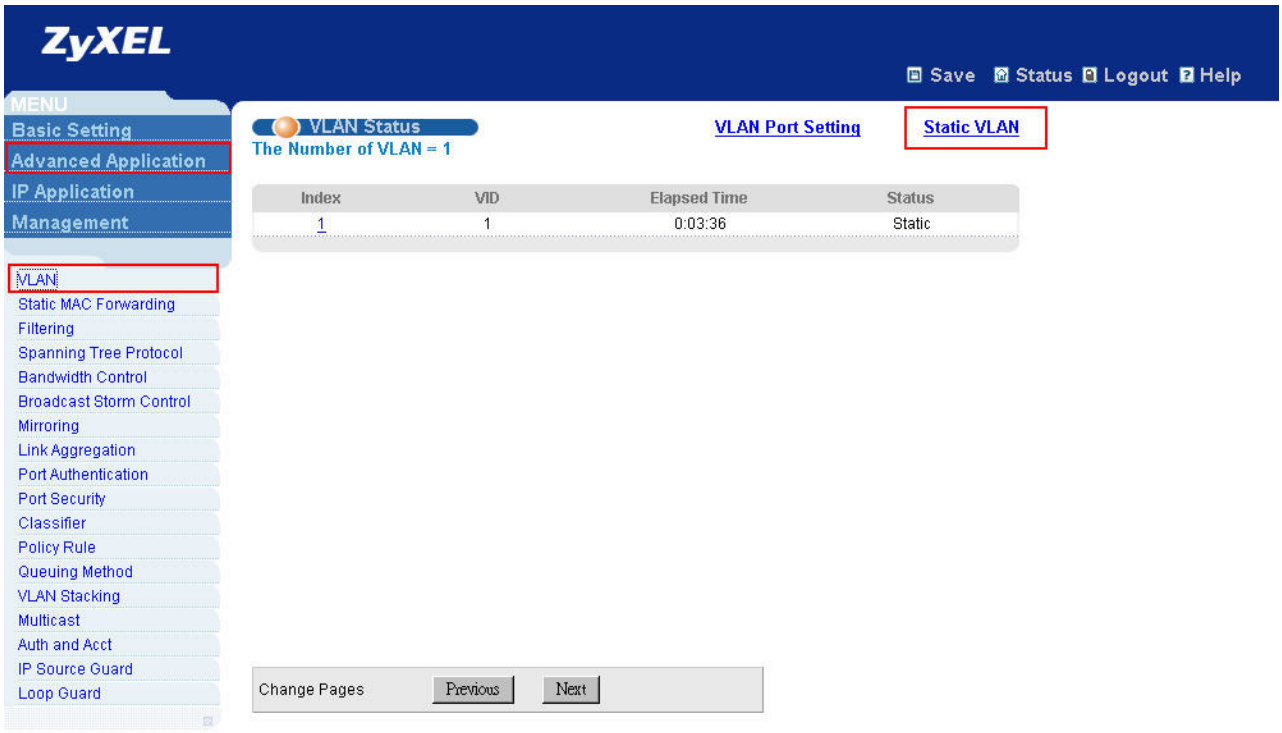
# Configuration using the Web GUI

1. Connect the MGMT port to a PC or Notebook with the RJ45 Cable.
2. By default, the MGMT IP address of the out-band port is 192.168.0.1/24
3. Set your NIC to 192.168.0.100/24
4. Open an Internet browser (e.g. IE) and enter http://192.168.0.1 into the URL field.
5. By default, the username for the administrator is “admin” and the password is “1234”.
6. After successfully logging in you will see a screen similar to the one below.

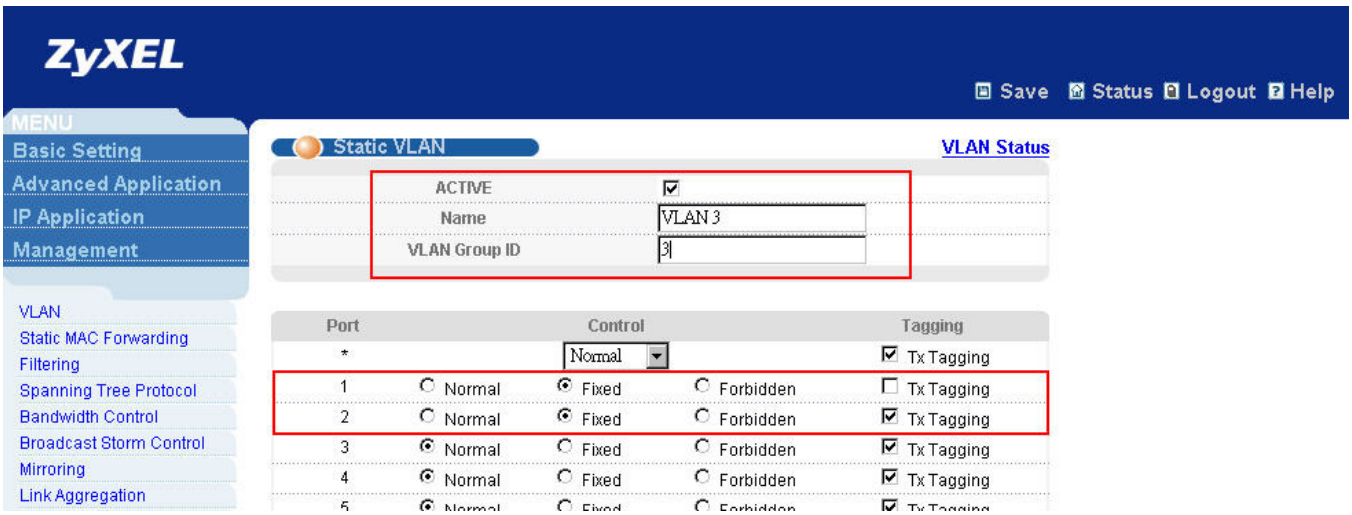



| Port | Name | Link | State | PD | LACP | TxPkts | RxPkts | Errors | Tx KB/s | Rx KB/s | Up Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 1000M/F | FORWARDING | Off | Disabled | 1116 | 1476 | 0 | 29.787 | 8.825 | 1:17:32 |
| 2 | | Down | STOP | Off | Disabled | 0 | 0 | 0 | 0.0 | 0.0 | 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 | - | Disabled | 819 | 10239 | 0 | 0.0 | 0.0 | 0:00:00 |
| 10 | | Down | STOP | - | Disabled | 0 | 0 | 0 | 0.0 | 0.0 | 0:00:00 |

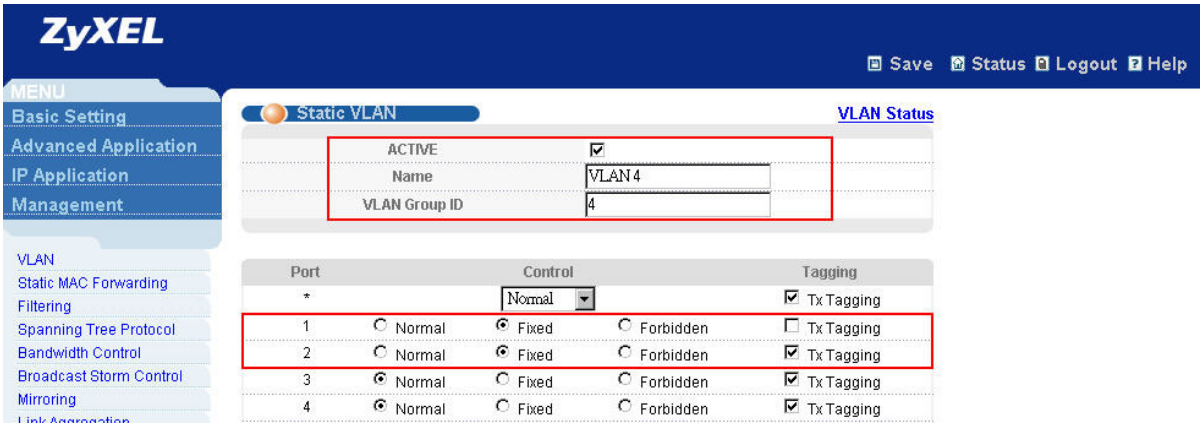
7. Go to "**Static VLAN**" page by clicking "**Advanced Application**" "**VLAN**" "**Static VLAN**"



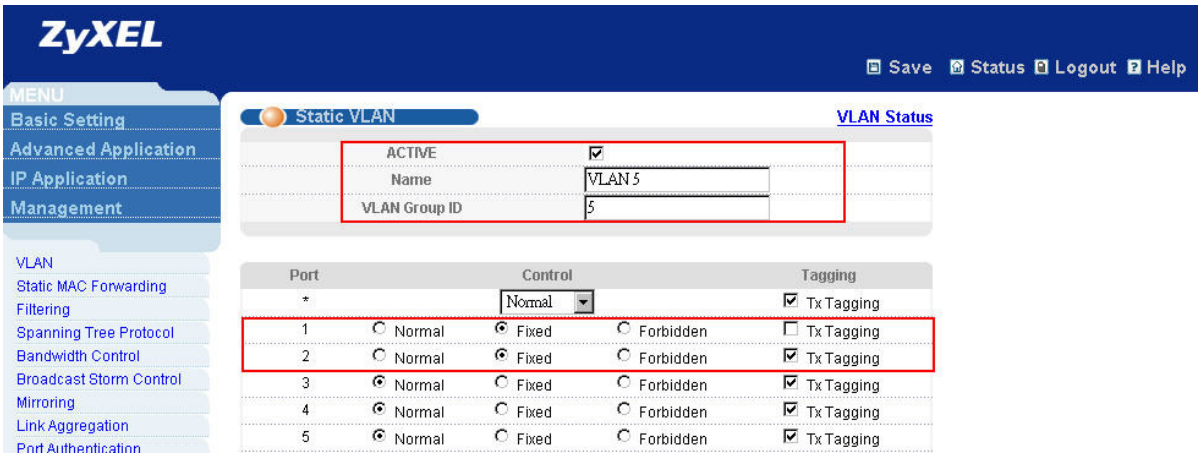

8. Create VLAN 3, include port 1 and port 2. Port 1 connects to the modem and packets going in and out this port shouldn't have VLAN tag. Port 2 connects to the router in the CO, and packets going in and out port 2 should have different VLAN tags according to its IP address. Click "**Add**".



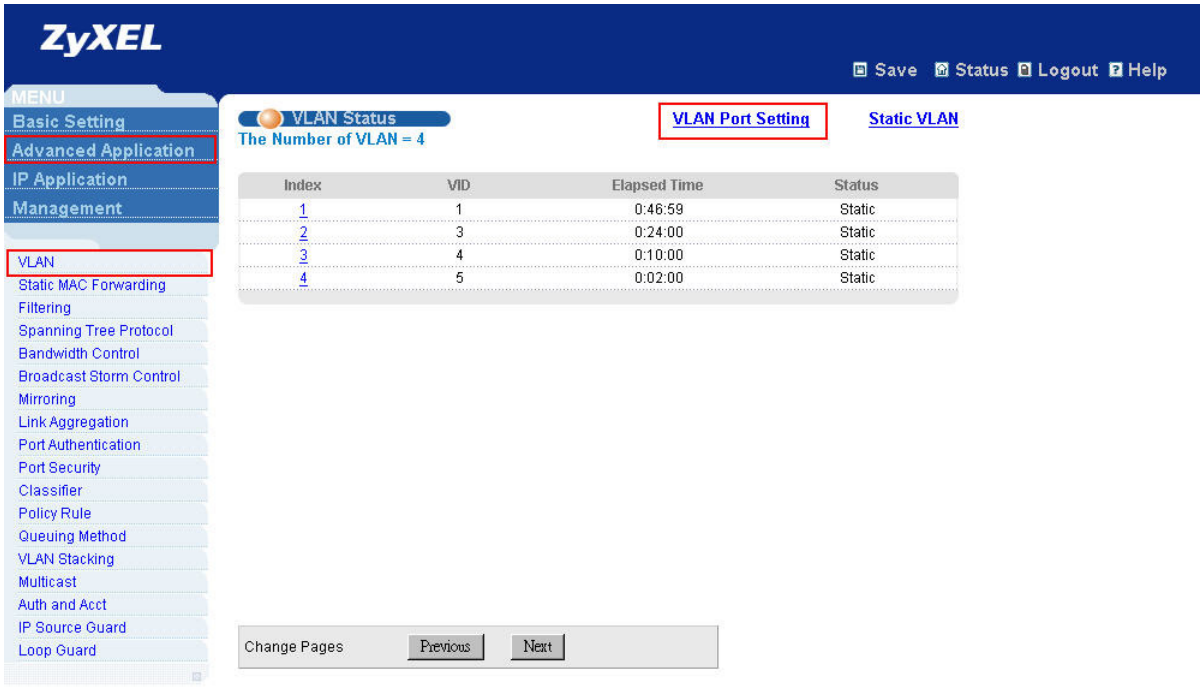
9. Create VLAN 4, include port 1 and port 2. Port 1 connects to the modem and packets going in and out this port shouldn't have VLAN tag. Port 2 connects to the router in the CO, and packets going in and out port 2 should have different VLAN tags according to its IP address. Click "**Add**".



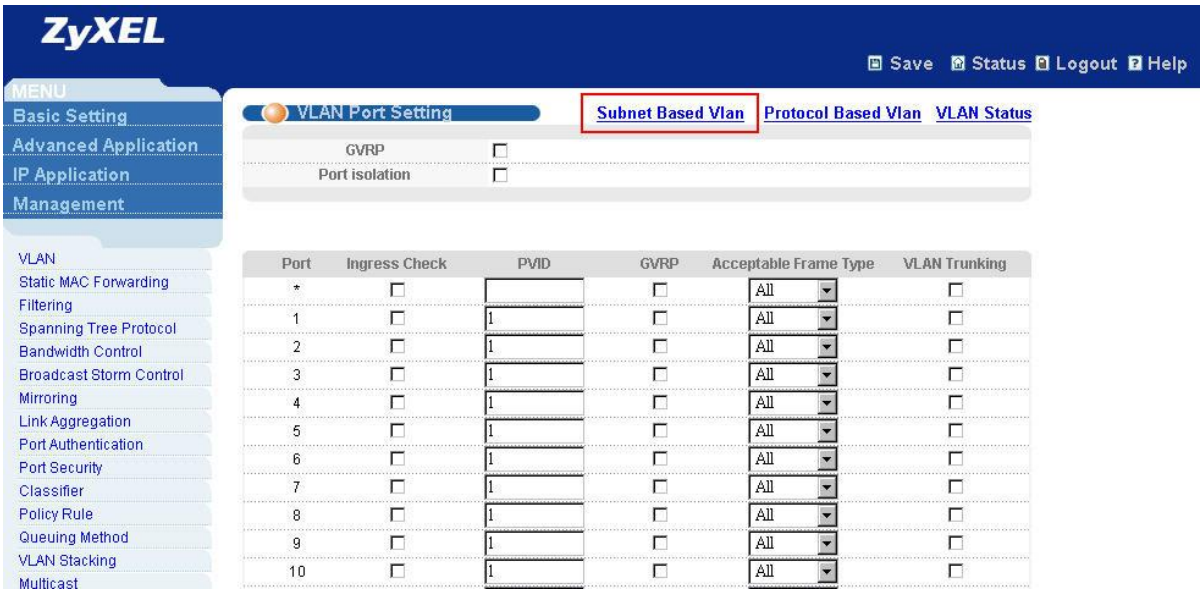

10. Create VLAN 5, include port 1 and port 2. Port 1 connects to the modem and packets going in and out this port shouldn't have VLAN tag. Port 2 connects to the router in the CO, and packets going in and out port 2 should have different VLAN tags according to its IP address. Click "**Add**".



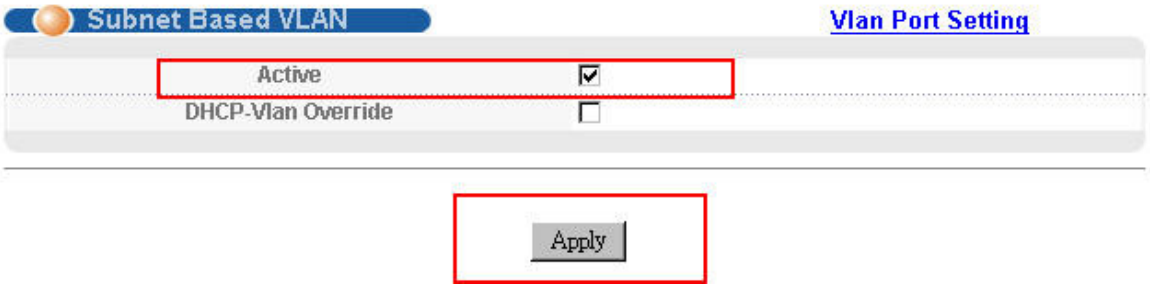
11. Go to “**VLAN Port Setting**” page by clicking “**Advanced Application**” “**VLAN**” “**VLAN Port Setting**”



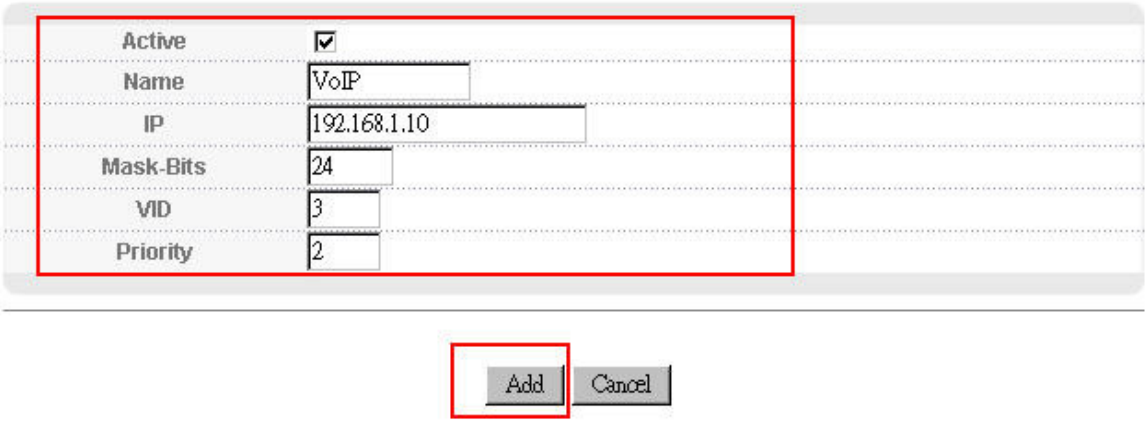

12. Go to “**Subnet Based VLAN**” page.



13. In the “Subnet Based VLAN” page, first we have to activate this function. Check the “**Active**” check box to enable it. Click “Apply”

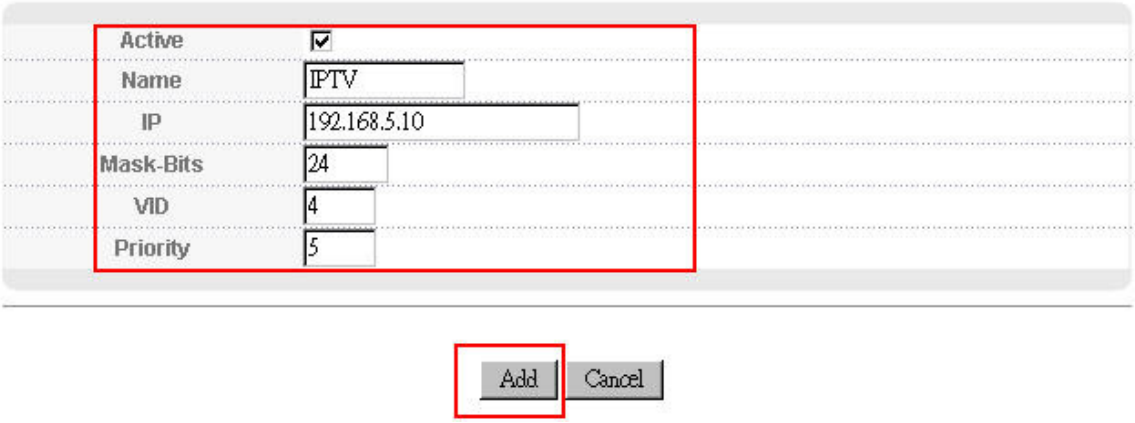



14. Create the Subnet Based VLAN entry for the VoIP phone.



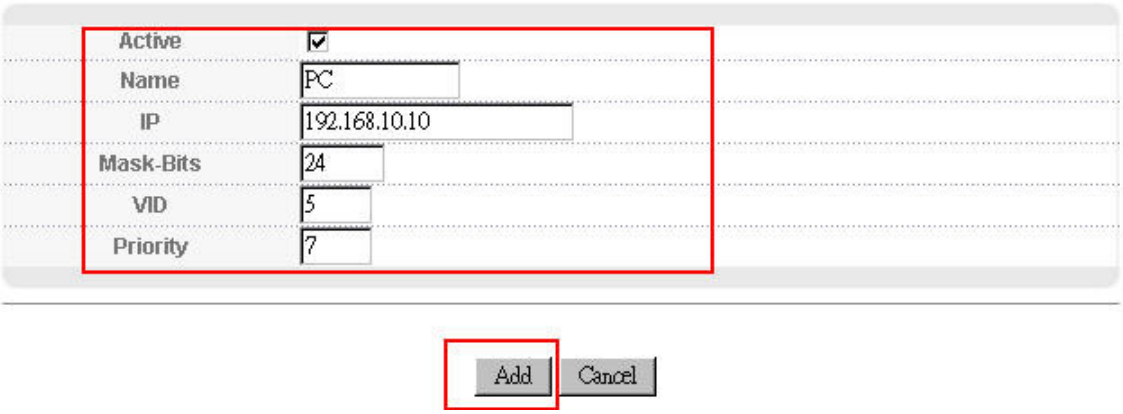

Here we see that packets from 192.168.1.10/24 will be attached a VLAN tag 3 and its priority will be set to 2. Click “**Add**”

15. Create the Subnet Based VLAN entry for the IPTV device.



Here we see that packets from 192.168.5.10/24 will be attached a VLAN tag 4 and its priority will be set to 5. Click "**Add**"

16. Create the Subnet Based VLAN entry for the PC.




Here we see that packets from 192.168.10.10/24 will be attached a VLAN tag 5 and its priority will be set to 7. Click "**Add**"

# Configuration using the CLI

```
vlan 1 name 1
   normal ""
   fixed 1-10
   forbidden ""
   untagged 1-10
   ip address 192.168.1.1 255.255.255.0
exit
vlan 3
   name "VLAN 3"
   normal 3-10
   fixed 1-2
   forbidden ""
   untagged 1
exit
vlan 4
   name "VLAN 4"
   normal 3-10
   fixed 1-2
   forbidden ""
   untagged 1
exit
vlan 5
   name "VLAN 5"
   normal 3-10
   fixed 1-2
   forbidden ""
   untagged 1
exit
interface route-domain 192.168.1.1/24
exit
ip address 192.168.0.1 255.255.255.0
subnet-based-vlan
subnet-based-vlan name VoIP source-ip 192.168.1.10 mask-bits 24 vlan 3 priority 2
subnet-based-vlan name IPTV source-ip 192.168.5.10 mask-bits 24 vlan 4 priority 5
subnet-based-vlan name PC source-ip 192.168.10.10 mask-bits 24 vlan 5 priority 7
```