



VLAN Configuration Sample

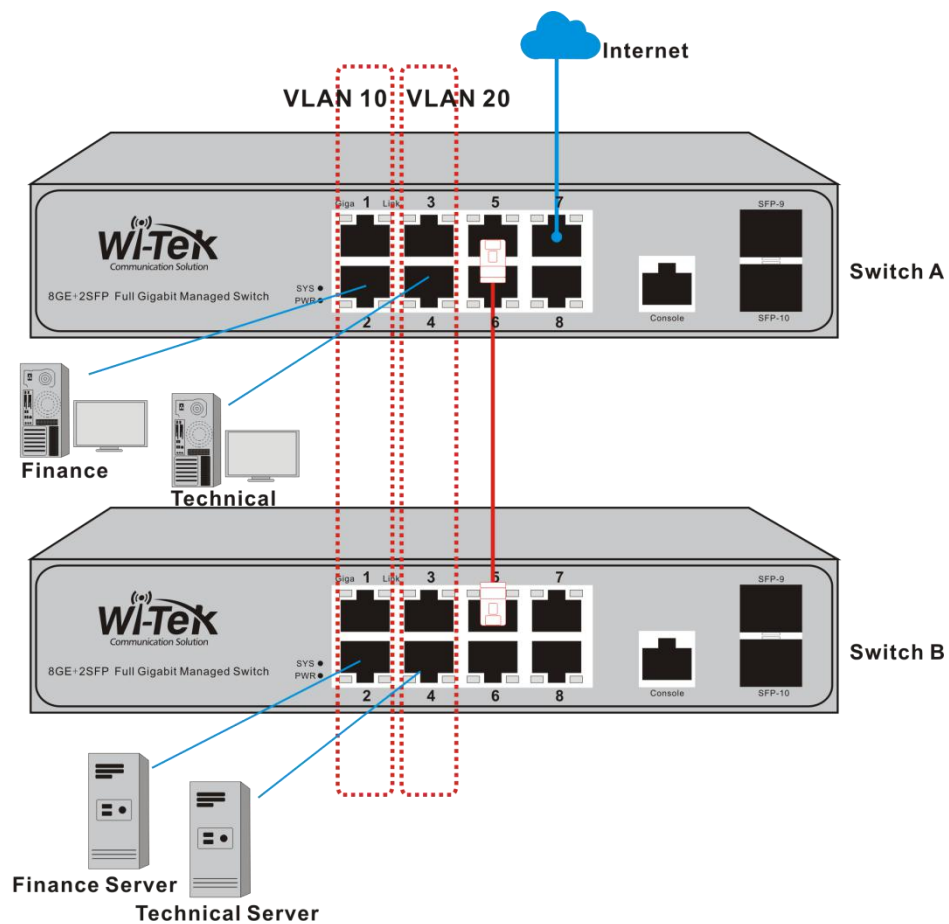


Background

In the enterprise network, different departments (personnel) have different network permissions, often need to carry out two layer network division in the local area network, in order to achieve the isolation between different departments, L2 Managed Switch is very popular in SMB industry.

This article introduces the configuration sample of 802.1Q VLAN.

Application Scenario



Requirement:

- PCs of finance department can access to the server of finance.
- PCs of technical department can access to the server of technical.
- PCs between different department are isolated and can not access to the servers of other department.
- All the PCs and servers can access to the internet.

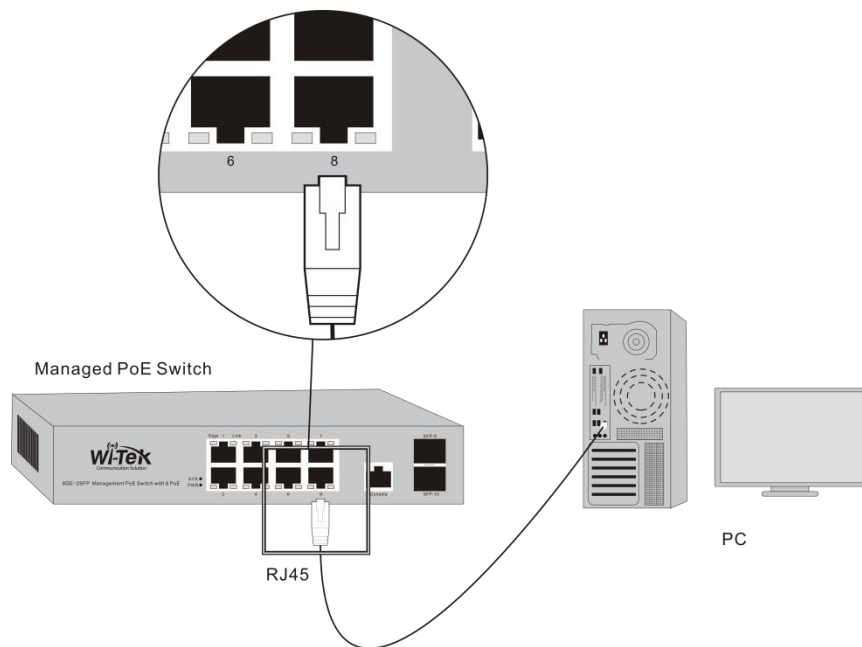
The VLAN parameters are as below.

Switch	VLAN ID	Port
Switch A	10	1~2(Finance), 5(Server), 7(Internet)
	20	3~4(Technical), 5(Server), 7(Internet)
	30	1~5(Internet device), 7(Internet)
Switch B	10	1~2(Finance server), 5(PC)
	20	3~4(Technical server), 5(PC)
	30	1~5(Internet device)

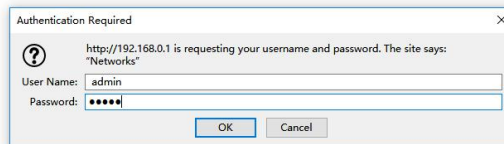
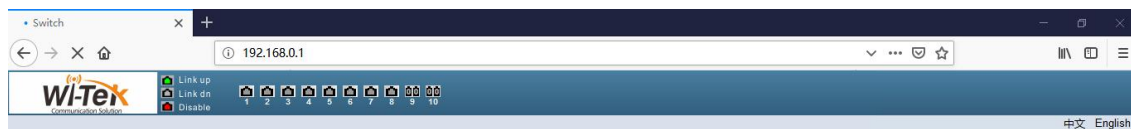
We should configure the VLAN parameters as following.

- Allocate 1,2-port of both switch A and switch B to VLAN 10.
- Allocate 3,4-port of both switch A and switch B to VLAN 20.
- Allocate 7-port of both switch A and switch B to VLAN 30.
- Add 1,2,3,4-port of both switch A and switch B to VLAN 30 for internet access.
- Allocate 5-port of both switch A and switch B to VLAN 10, 20, 30 for data uplink.

Step 1. Please connect RJ 45 port of PC to the 8- port of switch A(There's no VLAN configuration on 8-port, so 8-port can be administrator's connection port).

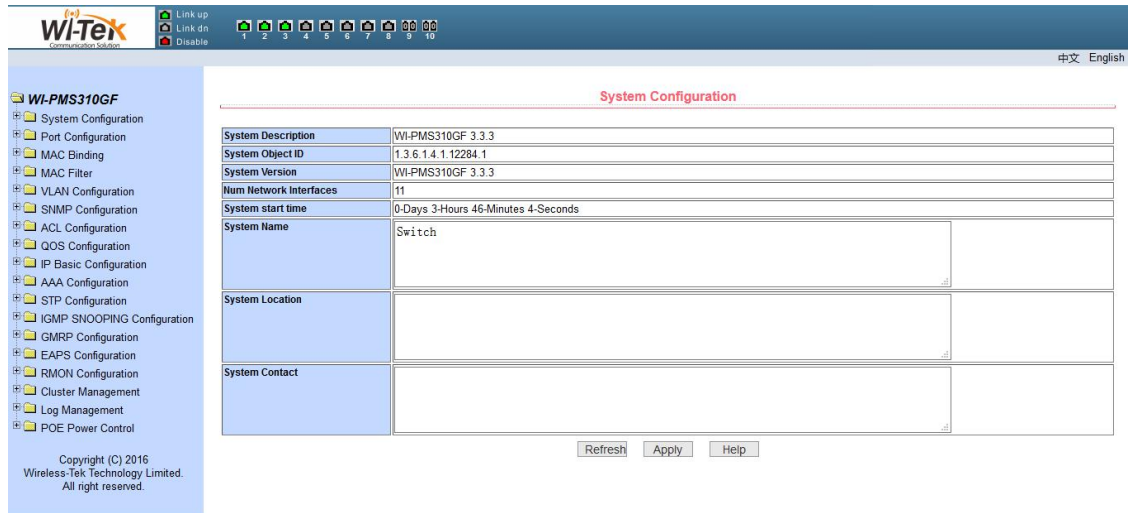


Step 2. On PC, please launch a browser, such as Google Chrome, Firefox, type 192.168.0.1 into address bar, press enter, Wi-Tek management page will pop up.

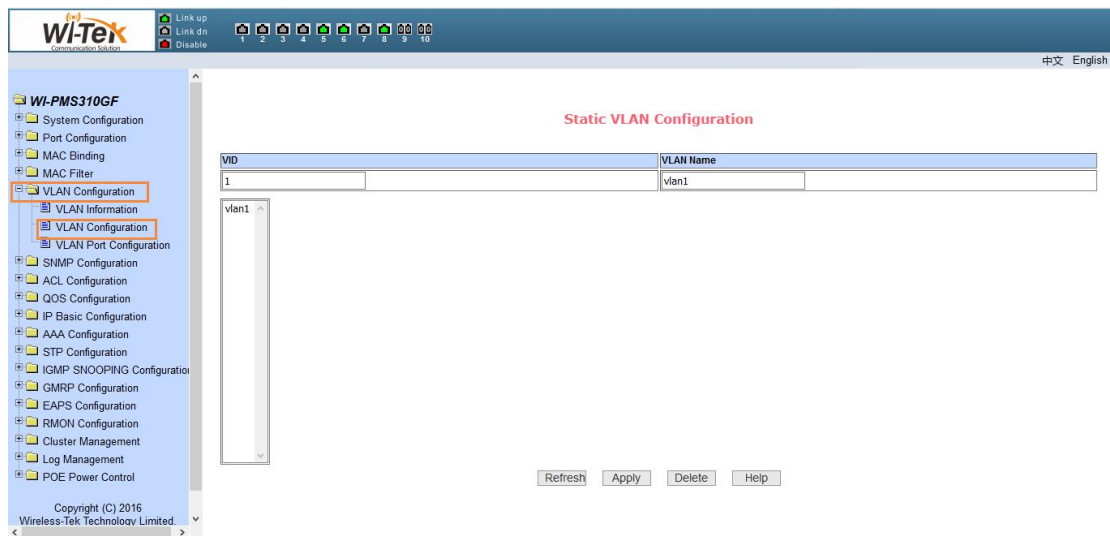


Transferring data from 192.168.0.1...

The default username/password is admin/admin, after type in login account, press **[OK]**, you will get in Wi-Tek management page.

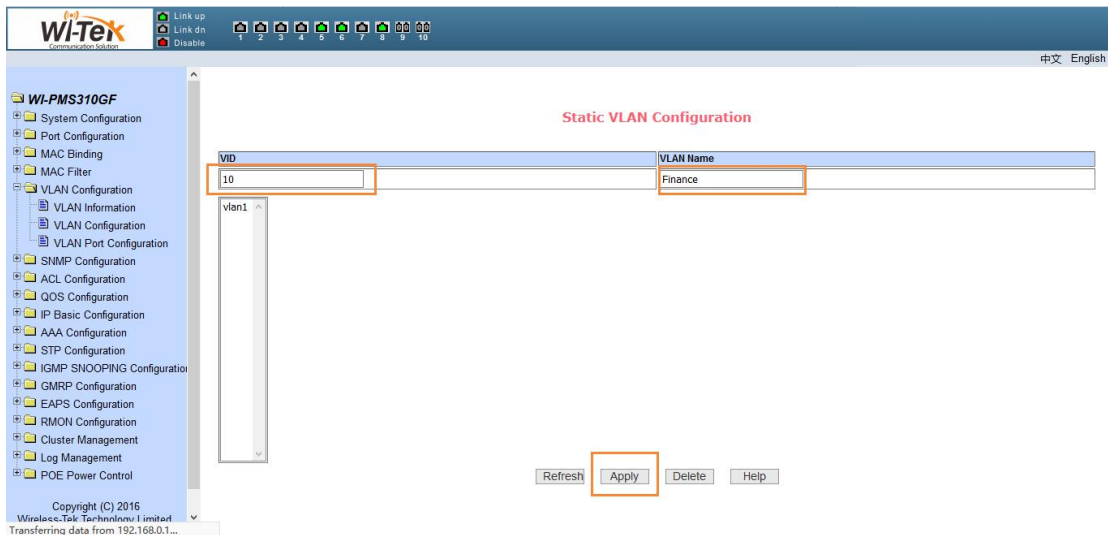


Step 3. On the left column of the management page, please go to **[VLAN Configuration]-[VLAN Configuration]** to create VLAN(VID 1 is default VLAN ID, when you create VLAN please select a number except 1).

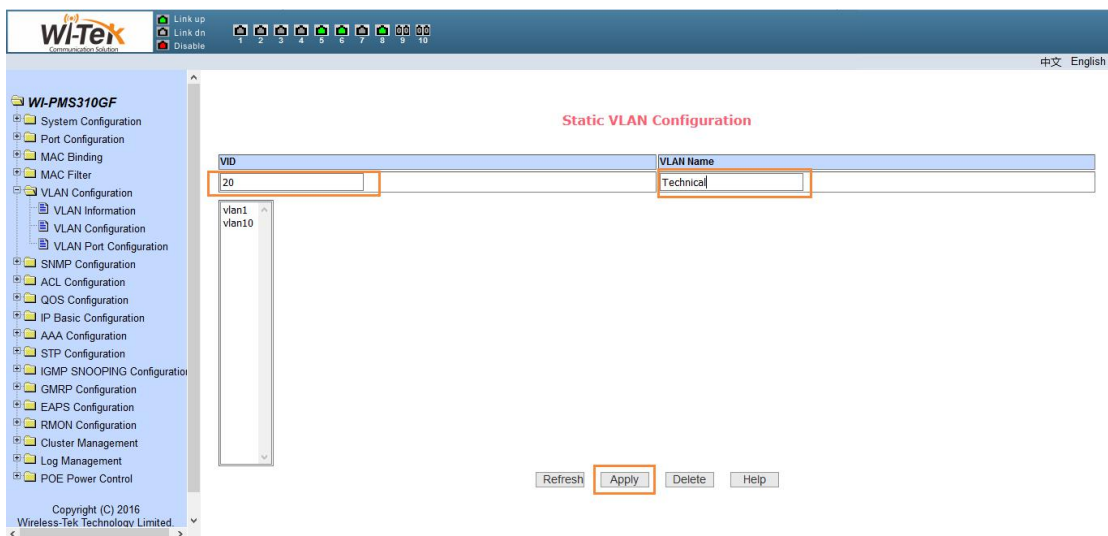


Create VLAN 10 for Finance:

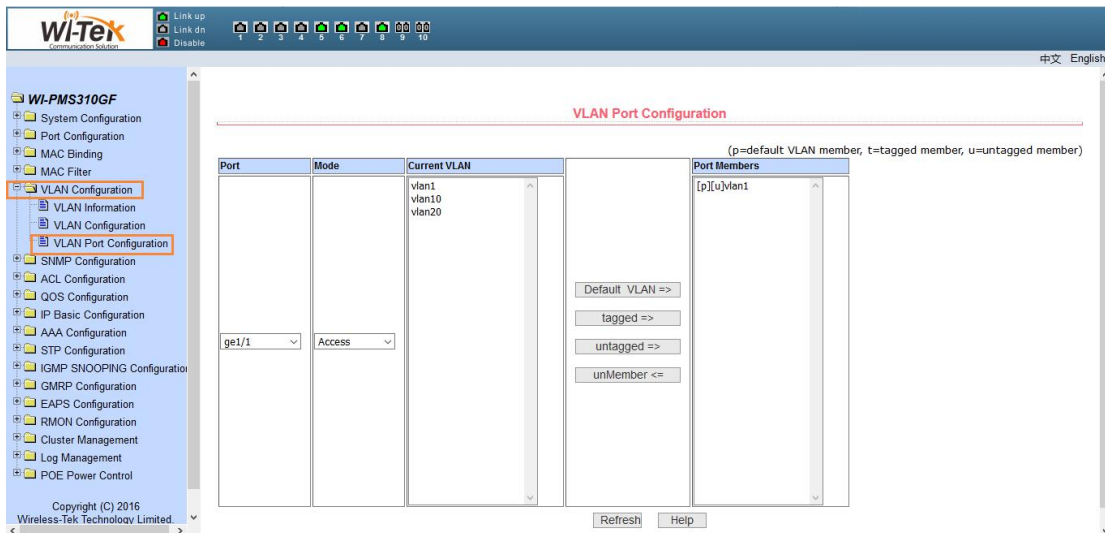
Type 10 into **VID** bar, and type the department name into **VLAN Name** bar, such as Finance, then click on **[Apply]**.



Create VLAN 20 for Technical:
 Type 20 into **VID** bar, and type the department name into **VLAN Name** bar, such as Technical, then click on **[Apply]**.

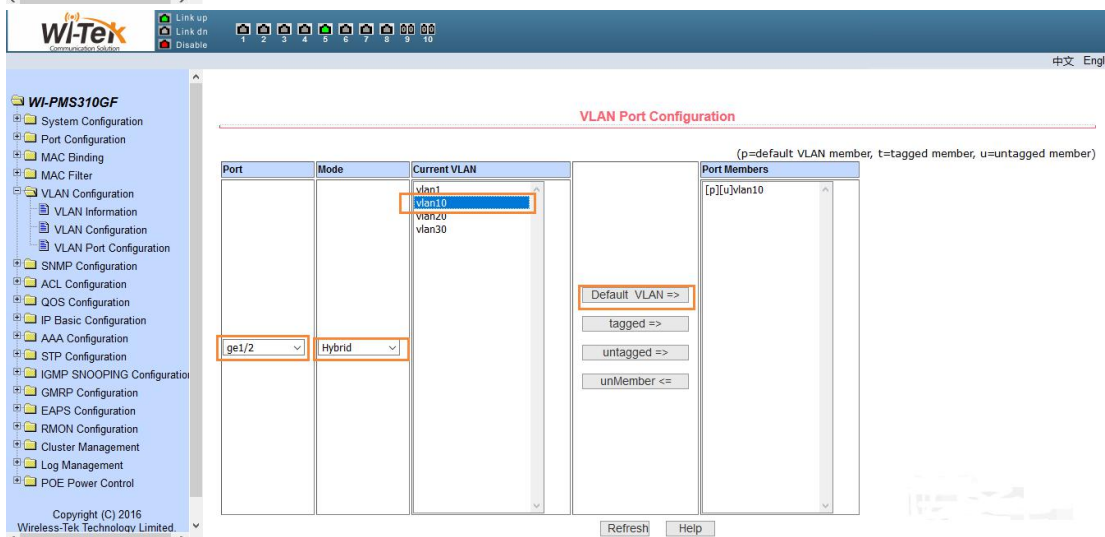
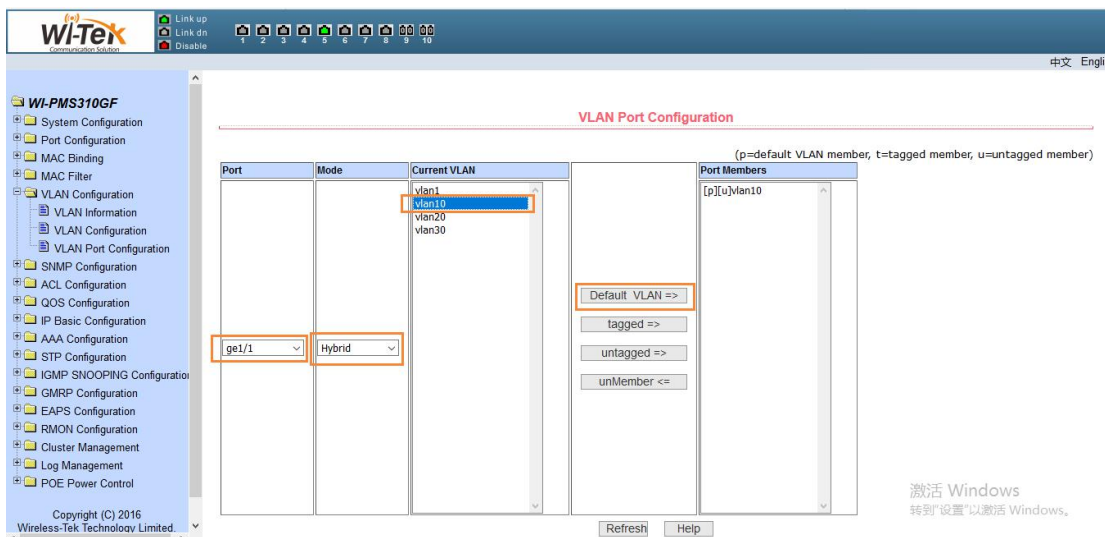


Step 4. Please go to **[VLAN Configuration]-[VLAN Port Configuration]**, configure VLAN parameters for all ports, please refer to the chart above.
Switch A:



Allocate 1,2-port of switch A to VLAN 10.

Port
1,2



Allocate 3,4-port of switch A to VLAN 20.

Port	Mode	Current VLAN		Port Members
ge1/3	Hybrid	vlan1 vlan10 vlan20 vlan30	Default VLAN => tagged => untagged => unMember <=	[p][u]vlan20
ge1/4	Hybrid	vlan1 vlan10 vlan20 vlan30	Default VLAN => tagged => untagged => unMember <=	[p][u]vlan20

Port
3,4

Allocate 7-port of switch A to VLAN 30.

Port	Mode	Current VLAN		Port Members
ge1/7	Hybrid	vlan1 vlan10 vlan20 vlan30	Default VLAN => tagged => untagged => unMember <=	[p][u]vlan30

Port
7

Also add 7 port to VLAN 10, 20.

Port	Mode	Current VLAN	Port Members
ge1/7	Hybrid	vlan1 vlan10 vlan20 vlan30	[u]vlan10 [u]vlan20 [p][u]vlan30
			<input type="button" value="Default VLAN =>"/> <input type="button" value="tagged =>"/> <input type="button" value="untagged =>"/> <input type="button" value="unMember <="/>

Add 1,2,3,4-port of both switch A to VLAN 30 for internet access.

Port	Mode	Current VLAN	Port Members
ge1/1	Hybrid	vlan1 vlan10 vlan20 vlan30	[p][u]vlan10 [u]vlan30
			<input type="button" value="Default VLAN =>"/> <input type="button" value="tagged =>"/> <input type="button" value="untagged =>"/>

Port	Mode	Current VLAN	Port Members
ge1/2	Hybrid	vlan1 vlan10 vlan20 vlan30	[p][u]vlan10 [u]vlan30
			<input type="button" value="Default VLAN =>"/> <input type="button" value="tagged =>"/> <input type="button" value="untagged =>"/> <input type="button" value="unMember <="/>

Port	Mode	Current VLAN	Port Members
ge1/3	Hybrid	vlan1 vlan10 vlan20 vlan30	[p][u]vlan20 [u]vlan30
			<input type="button" value="Default VLAN =>"/> <input type="button" value="tagged =>"/> <input type="button" value="untagged =>"/> <input type="button" value="unMember <="/>

Port	Mode	Current VLAN	Port Members
ge1/4	Hybrid	vlan1 vlan10 vlan20 vlan30	[p][u]vlan20 [u]vlan30

Default VLAN =>

tagged =>

untagged =>

unMember <=

Allocate 5-port of switch A to VLAN 10, 20, 30 for data uplink.

Port	Mode	Current VLAN	Port Members
ge1/5	Trunk	vlan1 vlan10 vlan20 vlan30	[p][u]vlan1 [t]vlan10 [t]vlan20 [t]vlan30

Default VLAN =>

tagged =>

untagged =>

unMember <=

Switch B:

Please also create VLAN and configure the VLAN port of switch B refer to the above step and chart.

Allocate 1,2-port of switch B to VLAN 10.

Port
1,2

WI-PMS310GF

Link up, Link dn, Disable

1 2 3 4 5 6 7 8 9 10

中文 English

VLAN Port Configuration

(p=default VLAN member, t=tagged member, u=untagged member)

Port	Mode	Current VLAN	Port Members
ge1/1	Hybrid	vlan1 vlan10 vlan20 vlan30	[p][u]vlan10

Default VLAN =>

tagged =>

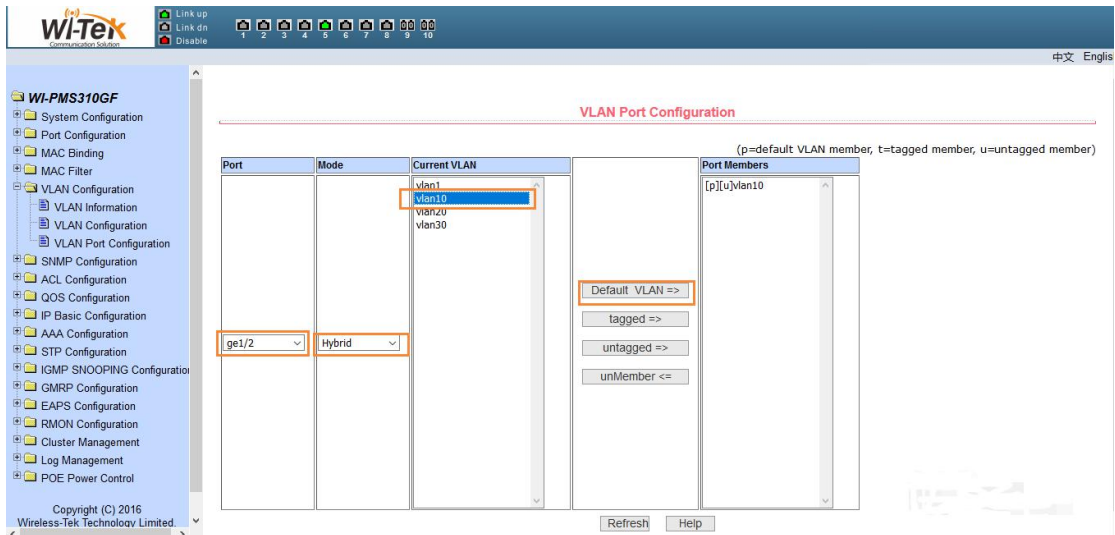
untagged =>

unMember <=

Refresh Help

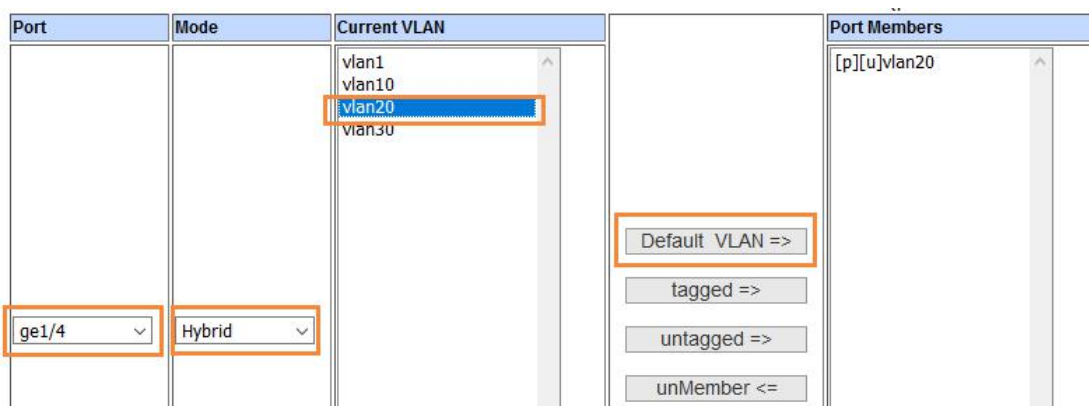
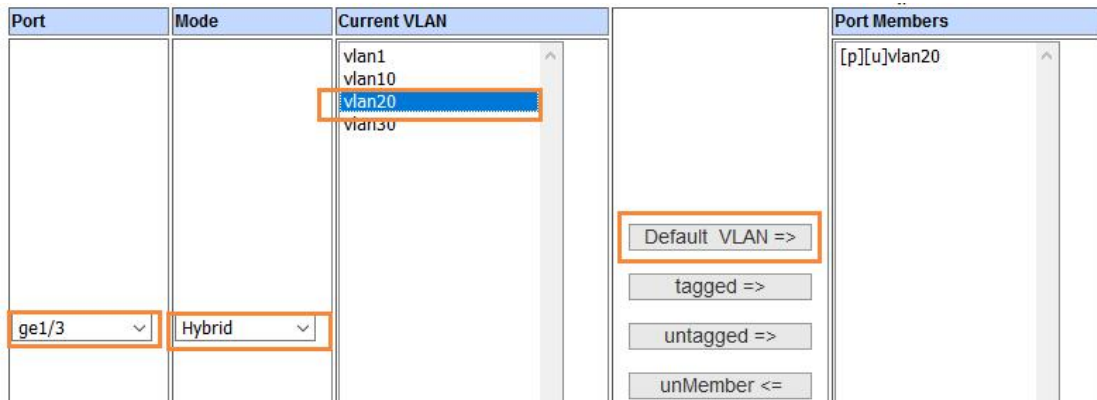
激活 Windows
转到“设置”以激活 Windows。

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Allocate 13,4-port of switch B to VLAN 20.

Port
3,4



Add 1,2,3,4-port of switch B to VLAN 30 for internet access

Port	Mode	Current VLAN	Port Members
ge1/1	Hybrid	vlan1 vlan10 vlan20 vlan30	[p][u]vlan10 [u]vlan30
			<input type="button" value="Default VLAN =>"/> <input type="button" value="tagged =>"/> <input type="button" value="untagged =>"/>

Port	Mode	Current VLAN	Port Members
ge1/2	Hybrid	vlan1 vlan10 vlan20 vlan30	[p][u]vlan10 [u]vlan30
			<input type="button" value="Default VLAN =>"/> <input type="button" value="tagged =>"/> <input type="button" value="untagged =>"/> <input type="button" value="unMember <="/>

Port	Mode	Current VLAN	Port Members
ge1/3	Hybrid	vlan1 vlan10 vlan20 vlan30	[p][u]vlan20 [u]vlan30
			<input type="button" value="Default VLAN =>"/> <input type="button" value="tagged =>"/> <input type="button" value="untagged =>"/> <input type="button" value="unMember <="/>

Port	Mode	Current VLAN	Port Members
ge1/4	Hybrid	vlan1 vlan10 vlan20 vlan30	[p][u]vlan20 [u]vlan30
			<input type="button" value="Default VLAN =>"/> <input type="button" value="tagged =>"/> <input type="button" value="untagged =>"/> <input type="button" value="unMember <="/>

Allocate 5-port of switch A to VLAN 10, 20, 30 for data uplink.

Port
5

Port	Mode	Current VLAN	Port Members
ge1/5	Trunk	vlan1 vlan10 vlan20 vlan30	[p][u]vlan1 [t]vlan10 [t]vlan20 [t]vlan30

Note: After finish the configuration, please save current configuration file in case the configuration file lose after the switch is rebooted.

The screenshot shows the configuration interface for a switch. On the left, a tree view shows 'System Configuration' expanded, with 'Save Current Configuration' selected. The main area displays the following configuration text:

```

hostname Switch A
username admin enc-password 12345678901234567890 privilege
!
vlan database
vlan 10
vlan 20
vlan-name 10 Finance
vlan-name 20 Technical
!
spanning-tree mst configuration
!
interface vlan1
ip address 192.168.0.1/24
ipv6 address fe80::228:8ff:fe11:866/64
!
interface ge1/1
!
interface ge1/2
switchport access vlan 10
!
interface ge1/3
switchport access vlan 20
!
interface ge1/4
switchport access vlan 20
!
interface ge1/5

```

At the top of the configuration area, a 'Save Current Configuration' dialog box is open with 'Save' and 'Help' buttons.

Introduction of Port Link Types

Access: The port can only be partitioned into one VLAN, and the port exit rule is *Default VLAN*.

Trunk: The port can be partitioned into multiple VLANs and can receive and send messages of multiple VLANs. The exit rule of the port is to *Tagged*.

Hybrid: This port can be partitioned into multiple VLANs and can receive and send messages of multiple VLANs. The exit rules of the port can be flexibly configured as *Tagged or Untagged* according to the actual situation of the port connecting devices.

Link Type		Port Received Frame		Port Sent Frame
		Tagged Frame	Untagged Frame	
Access	Access to terminal devices	When a frame is received, it tag the frame with its own PVID if the frame is not tagged	If VID= PVID , pass through; If VID≠PVID, discard.	Untag, sending frame
Trunk	It is a relay link that allows various VLAN to pass through		The frame is received when the VID belongs to the VLAN ID that the port is allowed to pass through. When the VID does not belong to the VLAN ID that the port allows through, the frame is discarded	When the port is configured as tag, keep the original TAG sending frame. When the port is configured as untag, remove the Tag and send the frame
Hybrid	This is a hybrid mode of Access and Trunk		Keep the original Tag , sending frame	

The advantages of VLAN are as follows:

- Improve network performance. Limit the broadcast packet to VLAN, thus effectively control the network broadcast storm, save network bandwidth, improve network processing power.
- Enhance network security. Different VLAN devices can not access each other, and the mainframe of different VLAN cannot communicate directly, which needs to be forwarded to three layers by network layer equipment such as router or three-layer switch.
- Simplify network management. The mainframe of the same virtual working group is not limited to a certain physical scope, simplifies network management, and facilitates the establishment of working groups in different regions.