

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.

Internet VLAN 10 VLAN 20 WI-Tex Switch A Finance Technical 1 1.84 3 WI-Tex Switch B = =• =• Finance Server **Technical Server**

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

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	Authenticatio	n Required	×		
	•	http://192.168.0.1 is requesting your username and password. The site says: "Networks"			
	User Name: Password:	admin			
		OK Cancel			
Transferring data from 192.168.0.1	1				

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

WITCH Disable		ı او دو دو در دو
600100 (2000)		中文 English
System Configuration		System Configuration
Port Configuration	System Description	WI-PMS3106F 3.3.3
MAC Binding	System Object ID	1.3.6.1.4.1.12284.1
MAC Filter	System version	WI-PMS310GF 3.3.3
VLAN Configuration	Num Network Internaces	Davis 2 Hours 46 Minutes 4 Seconds
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Copyright (C) 2016 Wireless-Tek Technology Limited. All right reserved.		Refresh Apply Heip

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).

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EAPS Configuration					
RMON Configuration					
Cluster Management					
Log Management					
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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]**.

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MAC Binding	VID	45	VLAN Name	
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VLAN Configuration	vlan1 o			
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Cluster Management				
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POE Power Control		Refresh	Apply Delete Help	
Copyright (C) 2016				
Transferring data from 192.168.0.1				

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]**.

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WI-PMS310GF System Configuration Port Configuration Port Configuration	^			Static VLAN	Configuration			
		VID			VLAN Name	7		
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Step 4. Please go yo **[VLAN Configuration]-[VLAN Port Configuration],** configure VLAN parameters for all ports, please refer to the chart above. **Switch A:**

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WI-PMS310GF System Configuration Port Configuration MAC Binding		Mode	Current M AN	VLAN Port Configuration	An member, t=tagged member, u=untagged member)
MAC Filter VLAN Configuration GAL CONFIGURATI		Access	Vieni Vieni vienzo	Default VLAN => tagged => untagged => unMember <=	~
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Allocate 1,2-port of switch A to VLAN 10.



Port Members Port Mode Current VLAN [p][u]vlan20 vlan1 vlan10 vlan2 vianau Default VLAN => tagged => ge1/3 \sim Hybrid ~ untagged => unMember <= Port Mode Current VLAN Port Members vlan1 [p][u]vlan20 Port vlan10 lan20 3,4 vian30 Default VLAN => tagged => ge1/4 Hybrid ~ V untagged => unMember <=

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

Allocate 7-port of switch A to VLAN 30.



Also add 7 port to VLAN 10, 20.

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





Port	Mode	Current VLAN	Port Members
		Vlan1 vlan10 vlan20	[p][u]vlan20 [u]vlan30
			Default VLAN =>
ge1/4	~ Hybrid		tagged =>
			unMember <=

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

Port	Mode	Current VLAN		Port Members
		Vlan1 Antonio Vlan10 Antonio Vlan20 Antonio Vlan30		[p][u]vlan1 ^ [t]vlan10 [t]vlan20 [t]vlan30
			Default VLAN =>	
ge1/5 v	Trunk v		untagged =>	

Switch B:

Port 1,2 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.

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WI-PMS310GF System Configuration Port Configuration MAC Binding		1		VLAN Port Configu	(p=default VLAN	nember, t=tagged member, u=untagged member)
MAC Filter MAC Filter VLAN configuration VLAN Configuration VLAN Port Configuration ACL Configuration ACL Configuration AAC Configuration GAC Configuration GAC Configuration GAC Configuration GAC Configuration GAC Configuration Configuration Configuration Cluster Management Cluster Management Decempoint Copyright (C) 2016	gel/1 √	Hybrid ->	Viento Viento Vienzo Vien30	Default VLAN => tagged => untagged => unMember <=	[p](u)Men10 ^	激活 Windows 转到"设置"以激活 Windows。
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WI-PMS310GF W System Configuration MAC Binding MAC Binding	Port	Mode	Current VLAN	VLAN Port Configu	(p=default	: VLAN member	, t=tagged member, u=untagged member)
WAAC Filter VLAN Configuration OSC Configuration IGMP SNOOPING Configuration IGMP SNOOPING Configuration GAMP Configuration EASC Configuration Collar Management Log Management DOE Power Control Copyright (C) 2016	[ge1/2 ~]	Hybrid	Vianto	Default VLAN => tagged => untagged => unMember <=	[p][u]vlen10	×	
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Allocate 13,4-port of switch B to VLAN 20.



Port	Mode	Current VLAN	Port Members
		vlan1 vlan10	[p][u]vlan20
		Vian20 Vian30	
			Default VLAN =>
		_	tagged =>
ge1/4	✓ Hybrid	<u>~</u>	untagged =>
			unMember <=





Port	Mode	Current VLAN	Port Members
		Vlan1 vlan10 vlan20	[p][u]vlan10 [u]vlan30
			Default VI AN =>
		_	tagged =>
ge1/2	✓ Hybrid	✓	untagged =>
			unMember <=

Port	Mode	Current VLAN		Port Members
POIL	Mode	Vian1 Vian10 Vian20 Vian30	Default VLAN => tagged =>	[p][u]vlan20 [u]vlan30
ge1/3	✓ Hybrid	~	untagged => unMember <=	

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

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



Port	Mode	Current VLAN		Port Members
		Vlan1 vlan10 vlan20 vlan30		[p][u]vlan1 [t]vlan10 [t]vlan20 [t]vlan30
			Default VLAN =>	
			tagged =>	
ge1/5	~ Trunk	<u> </u>	untagged =>	
			unMember <=	

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



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 Sont Fromo
		Tagged Frame	Untagged Frame	Port Sent Frame
Access	Access to terminal devices		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	When a frame is received, it tag the frame with its own PVID if the frame is not tagged	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	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		through, the frame is discarded	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.

