

## 37. 802.1Q VLAN

### 37.1 VLAN Overview

Virtual LANs (VLANs) are logical, independent workgroups within a network. These workgroups communicate as if they had a physical connection to the network. However, VLANs are not limited by the hardware constraints that physically connect traditional LAN segments to a network. As a result, VLANs allow the network manager to segment the network with a logical, hierarchical structure. VLANs can define a network by application or department. For instance, in the enterprise, a company might create one VLAN for multimedia users and another for e-mail users; or a company might have one VLAN for its Engineering Department, another for its Marketing Department, and another for its guest who can only use Internet not Intranet. VLANs can also be set up according to the organization structure within a company. For example, the company president might have his own VLAN, his executive staff might have a different VLAN, and the remaining employees might have yet a different VLAN. VLANs can also set up according to different company in the same building to save the money and reduce the device establishment.

The Figure 38-1 shows the IEEE 802.1Q tag frame and its insertion point within the Ethernet and 802.3 frames. The 802.1Q tag contains 3 priority bits and 12 VLAN ID bits. The 3 priority bits are for 802.1P. Ethernet switches and endpoints must be capable of interpreting the 802.1Q tag to make use of the tag. If an Ethernet switch or an endpoint cannot interpret the 802.1Q tag, the presence of the tag may cause problems.

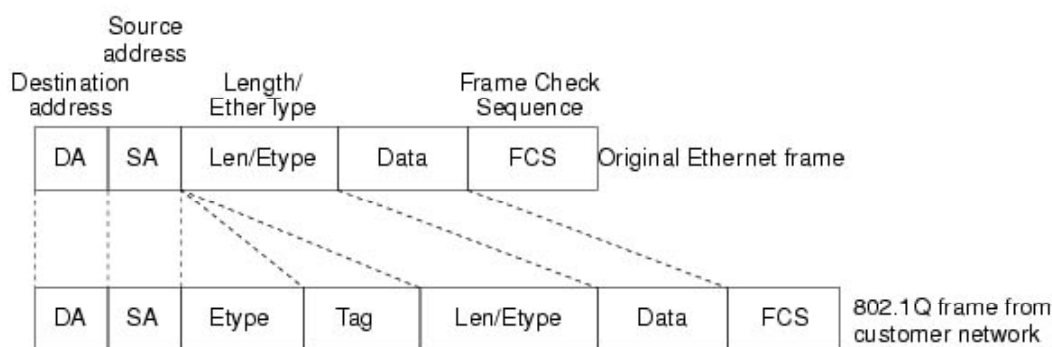


Figure 37-1. Untagged and 802.1Q-Tagged Ethernet frames

## 37.2 VLAN Trunk

A more efficient approach to combine multiple VLAN in a port to allow connect more switches spreading the network. A VLAN trunk consolidates the traffic of multiple VLANs across a single physical port, as shown in Figure 38-2.

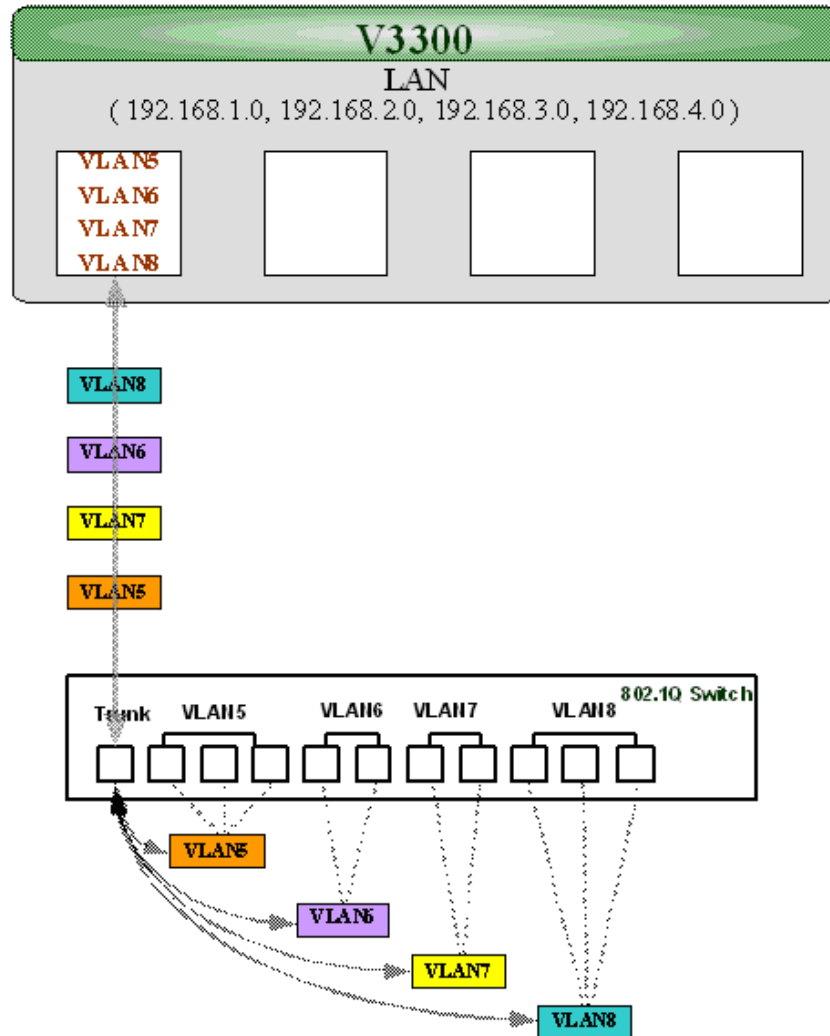


Figure 37-2. VLAN trunk

## 37.3 Why Use VLANs?

### Security

VLANs is a communication control. Once a user is assigned to a VLAN, the user only can communicate with the same VLAN group members.

### Administrative Control for Flexibility and scalability

Typically, subnets are defined by their physical location. Users have the same subnet in the same area. But VALNs allow each port on a router defines a different subnet. This results that users in the same departments but in different physical locations get the same subnet IP address.

## Broadcast control for Performance Improvement

TCP/IP network protocols and most other protocols broadcast frames periodically to advertise or discover network resources. This can have a significant impact on the network performance with a large number of end users. VLANs can prevent traffic from flooding the entire network. Nowadays, many virus attacks influence the network traffic. Using VLANs to avoid extending the virus.

### 37.4 LAN to LAN Communication

The Vigor 3300 allows users to setup the LAN to LAN communication. For instance, a company might create multiple subnet for employees and wish they can communicate with each other. The administrator should allow the LAN to LAN communication. On the other hand, a company does not allow communicate with different department. The administrator should block the LAN to LAN communication.

Configure firewall to allow or deny LAN to LAN communication. Add following setting to block different VLAN communication.

**Firewall - IP Filter Table**

Group Name :   
 Next Group Name :   
 Comment :

IP Filter Table										
Index	Source IP	Subnet Mask	Port	Destination IP	Subnet Mask	Port	Protocol	Direction	Block	Active
1	any			any			any protocol	LAN to LAN	Block immediately	<input checked="" type="checkbox"/>

Figure 37-3. IP Filter table

**Firewall - IP Filter - Edit Filter Rule**

☒ Active

Source :  
 IP :   
 Subnet Mask :   
 Port :   -

Destination :  
 IP :   
 Subnet Mask :   
 Port :   -

Group Name :   
 Protocol :   
 Direction :   
 Fragment :

**Action**  
 Block or Pass :   
 Next Group Name :

Figure 37-4. IP Filter setting

## 37.5 Management Port

The management port can help user to always communicate with router even though configuring the wrong setting in the 802.1Q VLAN. The management port is fixed on the P4 of LAN. We recommend that users enable the management port, unless users want to use the fourth VLAN and ensure the setting is correct.

**Advanced - LAN VLAN Setting**

☐ Disable ☐ Port Base VLAN ☒ 802.1Q VLAN

Port Base VLAN: **802.1Q VLAN**

Group				Member				Frame Tag Operation			
Index	Active	Name	VLAN ID	P1	P2	P3	P4	P1	P2	P3	P4
1	<input type="checkbox"/>	VLAN5	5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Untagged	Tagged	Tagged	Tagged
2	<input type="checkbox"/>	VLAN6	6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Tagged	Untagged	Tagged	Tagged
3	<input type="checkbox"/>	VLAN7	7	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Tagged	Tagged	Untagged	Tagged
4	<input checked="" type="checkbox"/>	VLAN8	8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Tagged	Tagged	Tagged	Untagged

Management Port: ☒

Port Setting

Port VLAN ID: P1: 5, P2: 6, P3: 7, P4: 8

Apply Reset Cancel

Figure 37-5. LAN VLAN setting

### Application 1:

A company wants to separate the Engineer Department, Sales Department, Marketing Department and Other Department to limit their communication with each other to ensure the security. So, we defined four VLANs that are VLAN5, VLAN6, VLAN7 and VLAN8. The subnet of VLAN5 is 192.168.1.0, the subnet of VLAN6 is 192.168.2.0, the subnet of VLAN7 is 192.168.3.0, and the subnet of VLAN8 is 192.168.4.0. However, each PC in the company does not support 802.1Q.

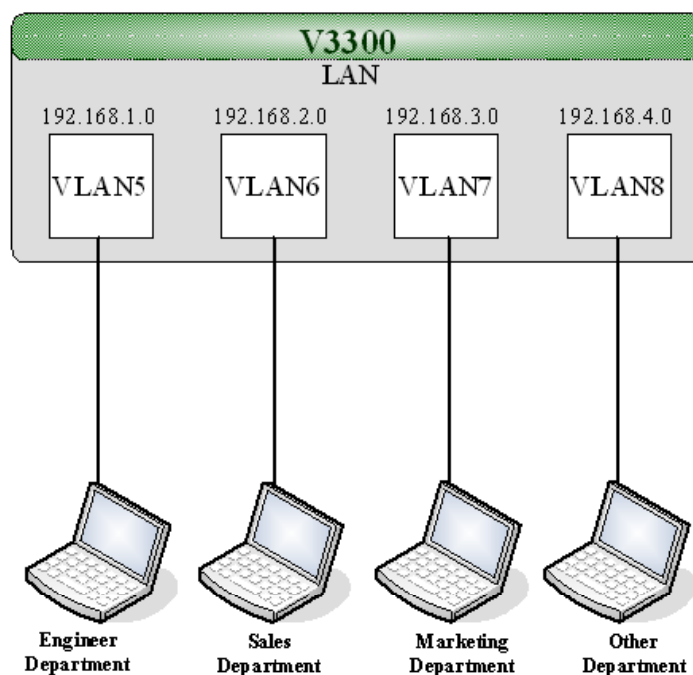


Figure 37-6. Application 1

**Configuration:**

1. Block LAN-to-LAN communication.
2. Create VLAN5, VLAN6, VLAN7 and VLAN8 Groups.
3. In the VLAN5, input “5” to VLAN ID. In the Member field, choose p1. Then choose the “Untagged” for Frame Tag Operation in p1. We should configure the PVID to “5”, because the device does not support 802.1Q VLAN.
4. In the VLAN6, input “6” to VLAN ID. In the Member field, choose p2. Then choose the “Untagged” for Frame Tag Operation in p2. We should configure the PVID to “6”, because the device does not support 802.1Q VLAN.
5. In the VLAN7, input “7” to VLAN ID. In the Member field, choose p3. Then choose the “Untagged” for Frame Tag Operation in p3. We should configure the PVID to “7”, because the device does not support 802.1Q VLAN.
6. In the VLAN8, input “8” to VLAN ID. In the Member field, choose p4. Then choose the “Untagged” for Frame Tag Operation in p4. We should configure the PVID to “8”, because the device does not support 802.1Q VLAN.
7. After applying the settings, the web page will be redirected to “reboot” web page. User can ignore it and continue to configure the Network setting. After Network setting, then you can do the reboot procedure.

**Note:** After rebooting, the tagged ports will only communicate with 802.1Q tagged devices.

**Advanced - LAN VLAN Setting**

☐ Disable ☐ Port Base VLAN ☒ 802.1Q VLAN

Port Base VLAN: **802.1Q VLAN**

Index	Active	Name	VLAN ID	Member				Frame Tag Operation			
				P1	P2	P3	P4	P1	P2	P3	P4
1	<input checked="" type="checkbox"/>	VLAN5	5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Untagged	Tagged	Tagged	Tagged
2	<input checked="" type="checkbox"/>	VLAN6	6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Tagged	Untagged	Tagged	Tagged
3	<input checked="" type="checkbox"/>	VLAN7	7	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Tagged	Tagged	Untagged	Tagged
4	<input checked="" type="checkbox"/>	VLAN8	8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Tagged	Tagged	Tagged	Untagged

Management Port: ☐

**Port Setting**

	P1	P2	P3	P4
Port VLAN ID	5	6	7	8

Apply Reset Cancel

Figure 37-7. LAN VLAN configuration

In the Network setting, input the subnet 192.168.1.0 to LAN. For example, the VLAN5 LAN IP is 192.168.1.1 and Subnet Mask is 255.255.255.0. Then, users in the Engineer Department can set IP address from 192.168.1.2 to 192.168.1.254.

**Network - LAN**

LAN IP/DHCP	LAN2 IP/DHCP	LAN3 IP/DHCP	LAN4 IP/DHCP	DHCP Relay Agent	IP Routing
<b>IP Configuration</b>					
IP Address :		192.168.1.1			
Subnet Mask :		255.255.255.0			
<b>DHCP Server</b>					
Status :		<input checked="" type="radio"/> Enable <input type="radio"/> Disable <input type="radio"/> Relay Agent			
Start IP :		192.168.1.10			
End IP :		192.168.1.200			
Primary DNS :					
Secondary DNS :					
Lease Time (Min) :		1440			
Gateway IP(Optional) :					

Figure 37-8. LAN IP configuration

In the Network setting, input the subnet 192.168.2.0 to LAN2. For example, the VLAN6 LAN IP is 192.168.2.1 and Subnet Mask is 255.255.255.0. Then, users in the Engineer Department can set IP address from 192.168.2.2 to 192.168.2.254.

**Network - LAN**

LAN IP/DHCP	LAN2 IP/DHCP	LAN3 IP/DHCP	LAN4 IP/DHCP	DHCP Relay Agent	IP Routing
<b>IP Configuration</b>					
IP Address :		192.168.2.1			
Subnet Mask :		255.255.255.0			
<b>DHCP Server</b>					
Status :		<input checked="" type="radio"/> Enable <input type="radio"/> Disable <input type="radio"/> Relay Agent			
Start IP :		192.168.2.10			
End IP :		192.168.2.200			
Primary DNS :					
Secondary DNS :					
Lease Time (Min) :		1440			
Gateway IP(Optional) :					

Figure 37-9. LAN2 IP configuration

In the Network setting, input the subnet 192.168.3.0 to LAN3. For example, the VLAN7 LAN IP is 192.168.3.1 and Subnet Mask is 255.255.255.0. Then, users in the Engineer Department can set IP address from 192.168.3.2 to 192.168.3.254.

**Network - LAN**

LAN IP/DHCP	LAN2 IP/DHCP	LAN3 IP/DHCP	LAN4 IP/DHCP	DHCP Relay Agent	IP Routing
<b>IP Configuration</b>					
IP Address :		192.168.3.1			
Subnet Mask :		255.255.255.0			
<b>DHCP Server</b>					
Status :		<input checked="" type="radio"/> Enable <input type="radio"/> Disable <input type="radio"/> Relay Agent			
Start IP :		192.168.3.10			
End IP :		192.168.3.200			
Primary DNS :					
Secondary DNS :					
Lease Time (Min) :		1440			
Gateway IP(Optional) :					

Figure 37-10. LAN3 IP configuration

In the Network setting, input the subnet 192.168.4.0 to LAN4. For example, the VLAN8 LAN IP is 192.168.4.1 and Subnet Mask is 255.255.255.0. Then, users in the Engineer Department can set IP address from 192.168.4.2 to 192.168.4.254.

**Network - LAN**

LAN IP/DHCP	LAN2 IP/DHCP	LAN3 IP/DHCP	LAN4 IP/DHCP	DHCP Relay Agent	IP Routing
<b>IP Configuration</b>					
IP Address :		192.168.4.1			
Subnet Mask :		255.255.255.0			
<b>DHCP Server</b>					
Status :		<input checked="" type="radio"/> Enable <input type="radio"/> Disable <input type="radio"/> Relay Agent			
Start IP :		192.168.4.10			
End IP :		192.168.4.200			
Primary DNS :					
Secondary DNS :					
Lease Time (Min) :		1440			
Gateway IP(Optional) :					

Figure 37-11. LAN4 IP configuration

## Application 2:

A company wants to separate the Engineer Department and Other Departments to limit their communication to ensure the engineering data. So, we defined two VLANs that are VLAN5 and VLAN6, the subnet of VLAN5 is 192.168.1.0, and the subnet of VLAN6 is 192.168.2.0.

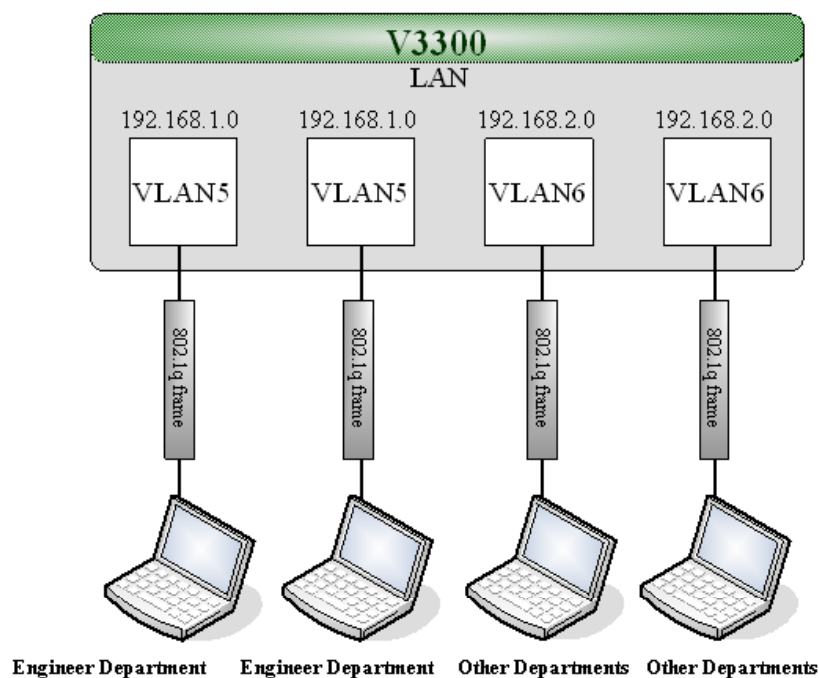


Figure 37-12. Application 2



## Configuration:

1. Block LAN-to-LAN communication.
2. Create VLAN5 and VLAN6 Groups.
3. In the VLAN5, input “5” to VLAN ID. In the Member field, choose p1 and p2. Then choose the “Tagged” for Frame Tag Operation in p1 and p2. We can ignore the PVID (Port VLAN ID), because 802.1q tag will be inserted to the frame from the PC of Engineer Department.
4. In the VLAN6, input “6” to VLAN ID. In the Member field, choose p3 and p4. Then choose the “Tagged” for Frame Tag Operation in p3 and p4. We can ignore the PVID (Port VLAN ID), because 802.1q tag will be inserted to the frame from other departments.
5. After applying the settings, the web page will be redirected to “reboot” web page. User can ignore it and continue to configure the Network setting. After Network setting, then you can do the reboot procedure.

**Note** After rebooting, the tagged ports will only communicate with 802.1Q tagged devices.

**Advanced - LAN VLAN Setting**

☐ Disable ☐ Port Base VLAN ☒ 802.1Q VLAN

Port Base VLAN: 802.1Q VLAN

Index	Active	Name	VLAN ID	Member				Frame Tag Operation			
				P1	P2	P3	P4	P1	P2	P3	P4
1	<input checked="" type="checkbox"/>	VLAN5	5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Tagged	Tagged	Tagged	Tagged
2	<input checked="" type="checkbox"/>	VLAN6	6	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Tagged	Tagged	Tagged	Tagged
3	<input type="checkbox"/>	VLAN7	7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Tagged	Tagged	Untagged	Tagged
4	<input type="checkbox"/>	VLAN8	8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Tagged	Tagged	Tagged	Untagged

Management Port: ☐

**Port Setting**

	P1	P2	P3	P4
Port VLAN ID	5	6	7	8

Apply Reset Cancel

Figure 37-13. LAN VLAN configuration

In the Network setting, input the subnet 192.168.1.0 to LAN. For example, the VLAN5 LAN IP is 192.168.1.1 and Subnet Mask is 255.255.255.0. Then, users in the Engineer Department can set IP address from 192.168.1.2 to 192.168.1.254.



**Network - LAN**

LAN IP/DHCP	LAN2 IP/DHCP	LAN3 IP/DHCP	LAN4 IP/DHCP	DHCP Relay Agent	IP Routing
<b>IP Configuration</b>					
IP Address :		192.168.1.1			
Subnet Mask :		255.255.255.0			
<b>DHCP Server</b>					
Status :		<input checked="" type="radio"/> Enable <input type="radio"/> Disable <input type="radio"/> Relay Agent			
Start IP :		192.168.1.10			
End IP :		192.168.1.200			
Primary DNS :					
Secondary DNS :					
Lease Time (Min) :		1440			
Gateway IP(Optional) :					

Figure 37-14. LAN IP configuration

In the Network setting, input the subnet 192.168.2.0 to LAN2. For example, the VLAN6 LAN IP is 192.168.2.1 and Subnet Mask is 255.255.255.0. Then, users in the other departments can set IP address from 192.168.2.2 to 192.168.2.254.

**Network - LAN**

LAN IP/DHCP	LAN2 IP/DHCP	LAN3 IP/DHCP	LAN4 IP/DHCP	DHCP Relay Agent	IP Routing
<b>IP Configuration</b>					
IP Address :		192.168.2.1			
Subnet Mask :		255.255.255.0			
<b>DHCP Server</b>					
Status :		<input checked="" type="radio"/> Enable <input type="radio"/> Disable <input type="radio"/> Relay Agent			
Start IP :		192.168.2.10			
End IP :		192.168.2.200			
Primary DNS :					
Secondary DNS :					
Lease Time (Min) :		1440			
Gateway IP(Optional) :					

Figure 37-15. LAN2 IP configuration

### Application 3:

There are four companies in the same building. They share the broadband network and use the Vigor 3300V router to achieve the load balance, security, and VoIP features. So, we defined four VLANs that are VLAN5, VLAN6, VLAN7 and VLAN8, the subnet of VLAN5 is 192.168.1.0, the subnet of VLAN6 is 192.168.2.0, the subnet of VLAN7 is 192.168.3.0, and the subnet of VLAN8 is 192.168.4.0.

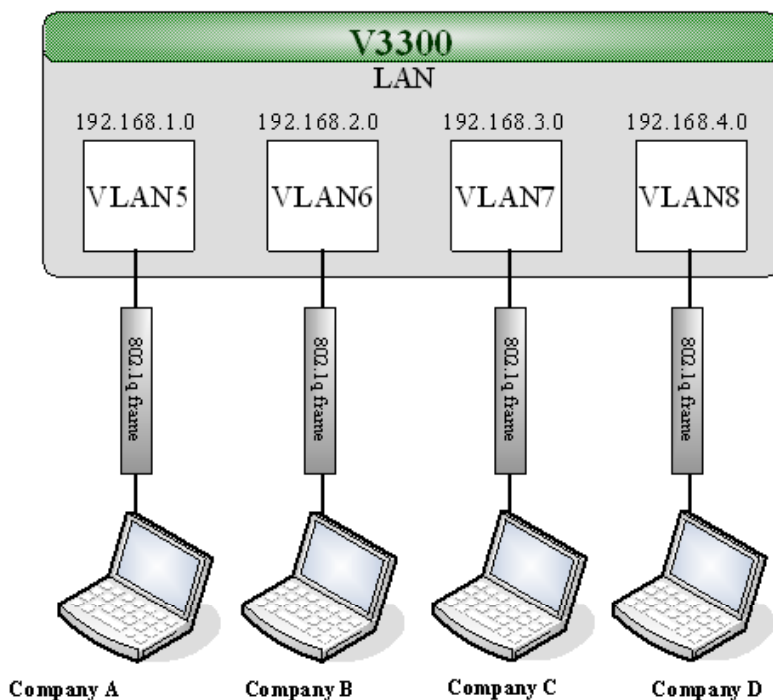


Figure 37-16. Application 3

#### Configuration:

1. Block LAN-to-LAN communication.
2. Create VLAN5, VLAN6, VLAN7 and VLAN8 Groups.
3. In the VLAN5, input “5” to VLAN ID. In the Member field, choose p1. Then choose the “Tagged” for Frame Tag Operation in p1. We can ignore the PVID (Port VLAN ID), because 802.1q tag will be inserted to the frame from the PC of company A.
4. In the VLAN6, input “6” to VLAN ID. In the Member field, choose p2. Then choose the “Tagged” for Frame Tag Operation in p2. We can ignore the PVID (Port VLAN ID), because 802.1q tag will be inserted to the frame from company B.
5. In the VLAN7, input “7” to VLAN ID. In the Member field, choose p3. Then choose the “Tagged” for Frame Tag Operation in p3. We can ignore the PVID (Port VLAN ID), because 802.1q tag will be inserted to the frame from the PC of company C.
6. In the VLAN8, input “8” to VLAN ID. In the Member field, choose p4. Then choose the “Tagged” for Frame Tag Operation in p4. We can ignore the PVID (Port VLAN ID), because 802.1q tag will be inserted to the frame from company D.

7. After applying the settings, the web page will be redirect to “reboot” web page. User can ignore it and continue to configure the Network setting. After Network setting, then you can do the reboot procedure.

**Note** After rebooting, the tagged ports will only communicate with 802.1Q tagged devices.

**Advanced - LAN VLAN Setting**

☐ Disable ☐ Port Base VLAN ☒ 802.1Q VLAN

Port Base VLAN: **802.1Q VLAN**

Group		Name	VLAN ID	Member				Frame Tag Operation			
Index	Active			P1	P2	P3	P4	P1	P2	P3	P4
1	<input checked="" type="checkbox"/>	VLAN5	5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Tagged	Tagged	Tagged	Tagged
2	<input checked="" type="checkbox"/>	VLAN6	6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Tagged	Tagged	Tagged	Tagged
3	<input checked="" type="checkbox"/>	VLAN7	7	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Tagged	Tagged	Tagged	Tagged
4	<input checked="" type="checkbox"/>	VLAN8	8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Tagged	Tagged	Tagged	Tagged

Management Port: ☐

**Port Setting**

P1:  P2:  P3:  P4:

Port VLAN ID:

Apply Reset Cancel

Figure 37-17. LAN VLAN setting

The network configuration is the same with application 1. Please refer to application 1 part.

#### Application 4:

A company wants to separate the Engineer Department, Sales Department, Marketing Department and guest to limit their communication with any department to ensure the security. So, we defined four VLANs that are VLAN5, VLAN6, VLAN7 and VLAN8, the subnet of VLAN5 is 192.168.1.0, the subnet of VLAN6 is 192.168.2.0, the subnet of VLAN7 is 192.168.3.0, and the subnet of VLAN8 is 192.168.4.0. However, the notebook of guest does not support 802.1Q.

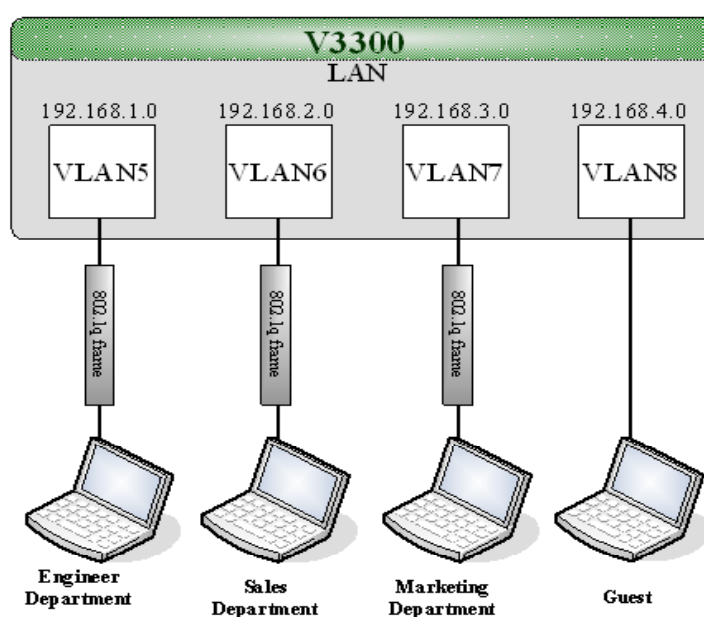


Figure 37-18. Application 4

## Configuration:

1. Block LAN-to-LAN communication.
2. Create VLAN5, VLAN6, VLAN7 and VLAN8 Groups.
3. In the VLAN5, input “5” to VLAN ID. In the Member field, choose p1. Then choose the “Tagged” for Frame Tag Operation in p1. We can ignore the PVID (Port VLAN ID), because 802.1q tag will be inserted to the frame from the PC of Engineer Department.
4. In the VLAN6, input “6” to VLAN ID. In the Member field, choose p2. Then choose the “Tagged” for Frame Tag Operation in p2. We can ignore the PVID (Port VLAN ID), because 802.1q tag will be inserted to the frame from Engineer Department.
5. In the VLAN7, input “7” to VLAN ID. In the Member field, choose p3. Then choose the “Tagged” for Frame Tag Operation in p3. We can ignore the PVID (Port VLAN ID), because 802.1q tag will be inserted to the frame from the PC of Engineer Department.
6. In the VLAN8, input “8” to VLAN ID. In the Member field, choose p4. Then choose the “Untagged” for Frame Tag Operation in p4. We should configure the PVID to “8”, because the device does not support 802.1Q VLAN.
7. After applying the settings, the web page will be redirected to “reboot” web page. User can ignore it and continue to configure the Network setting. After Network setting, then you can do the reboot procedure.

**Note** After rebooting, the tagged ports will only communicate with 802.1Q tagged devices.

**Advanced - LAN VLAN Setting**

☐ Disable ☐ Port Base VLAN ☒ 802.1Q VLAN

Port Base VLAN: **802.1Q VLAN**

Index	Active	Name	VLAN ID	Member				Frame Tag Operation			
				P1	P2	P3	P4	P1	P2	P3	P4
1	<input checked="" type="checkbox"/>	VLAN5	5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Tagged	Tagged	Tagged	Tagged
2	<input checked="" type="checkbox"/>	VLAN6	6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Tagged	Tagged	Tagged	Tagged
3	<input checked="" type="checkbox"/>	VLAN7	7	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Tagged	Tagged	Tagged	Tagged
4	<input checked="" type="checkbox"/>	VLAN8	8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Tagged	Tagged	Tagged	Untagged

Management Port: ☐

**Port Setting**

Port VLAN ID: P1: 5 P2: 6 P3: 7 P4: 8

Apply Reset Cancel

Figure 37-19. LAN VLAN setting

The network configuration is the same with application 1. Please refer to application 1 part.

### Application 5:

A company wants to separate the Engineer Department, Sales Department, Marketing Department and other departments to limit their communication with each other to ensure the security. Many employees of the company use some switches supported 802.1Q VLAN to expand the network. So, we defined four VLANs that are VLAN5, VLAN6, VLAN7 and VLAN8, each LAN port is Trunk port which supports multiple VLAN, the subnet of VLAN5 is 192.168.1.0, the subnet of VLAN6 is 192.168.2.0, the subnet of VLAN7 is 192.168.3.0, and the subnet of VLAN8 is 192.168.4.0.

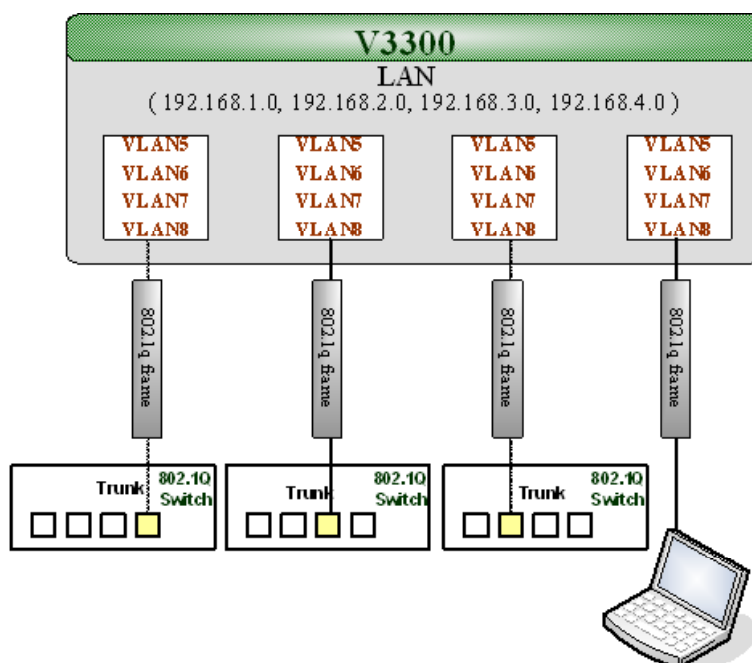


Figure 37-20. Application 5

## Configuration:

1. Block LAN-to-LAN communication.
2. Create VLAN5, VLAN6, VLAN7 and VLAN8 Groups.
3. In the VLAN5, input “5” to VLAN ID. In the Member field, choose p1, p2, p3 and p4. Then choose the “Tagged” for Frame Tag Operation in p1, p2, p3 and p4. We can ignore the PVID (Port VLAN ID), because 802.1q tag will be inserted to the frame from the switch.
4. In the VLAN6, input “6” to VLAN ID. In the Member field, choose p1, p2, p3 and p4. Then choose the “Tagged” for Frame Tag Operation in p1, p2, p3 and p4. We can ignore the PVID (Port VLAN ID), because 802.1q tag will be inserted to the frame from switch.
5. In the VLAN7, input “7” to VLAN ID. In the Member field, choose p1, p2, p3 and p4. Then choose the “Tagged” for Frame Tag Operation in p1, p2, p3 and p4. We can ignore the PVID (Port VLAN ID), because 802.1q tag will be inserted to the frame from the switch.
6. In the VLAN8, input “8” to VLAN ID. In the Member field, choose p1, p2, p3 and p4. Then choose the “Tagged” for Frame Tag Operation in p1, p2, p3 and p4. We can ignore the PVID (Port VLAN ID), because 802.1q tag will be inserted to the frame from some users.
7. After applying the settings, the web page will be redirected to “reboot” web page. User can ignore it and continue to configure the Network setting. After Network setting, then you can do the reboot procedure.

**Note** After rebooting, the tagged ports will only communicate with 802.1Q tagged devices.

**Advanced - LAN VLAN Setting**

☐ Disable ☐ Port Base VLAN ☒ 802.1Q VLAN

Port Base VLAN **802.1Q VLAN**

Index	Active	Name	VLAN ID	Member				Frame Tag Operation			
				P1	P2	P3	P4	P1	P2	P3	P4
1	<input checked="" type="checkbox"/>	VLAN5	5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Tagged	Tagged	Tagged	Tagged
2	<input checked="" type="checkbox"/>	VLAN6	6	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Tagged	Tagged	Tagged	Tagged
3	<input checked="" type="checkbox"/>	VLAN7	7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Tagged	Tagged	Tagged	Tagged
4	<input checked="" type="checkbox"/>	VLAN8	8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Tagged	Tagged	Tagged	Tagged

Management Port: ☐

**Port Setting**

	P1	P2	P3	P4
Port VLAN ID	5	6	7	8

Apply Reset Cancel

Figure 37-21. LAN VLAN setting

The network configuration is the same with application 1. Please refer to application 1 part.