
ONV-2126G+Switch

Example Configuration

16 MAY 2017

V1.0

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Revision record

Date	Version	Description
2017-05-16	V1.0	First Version
2017-11-13	V1.1	Add QinQ Configuration

Introduction

Readership

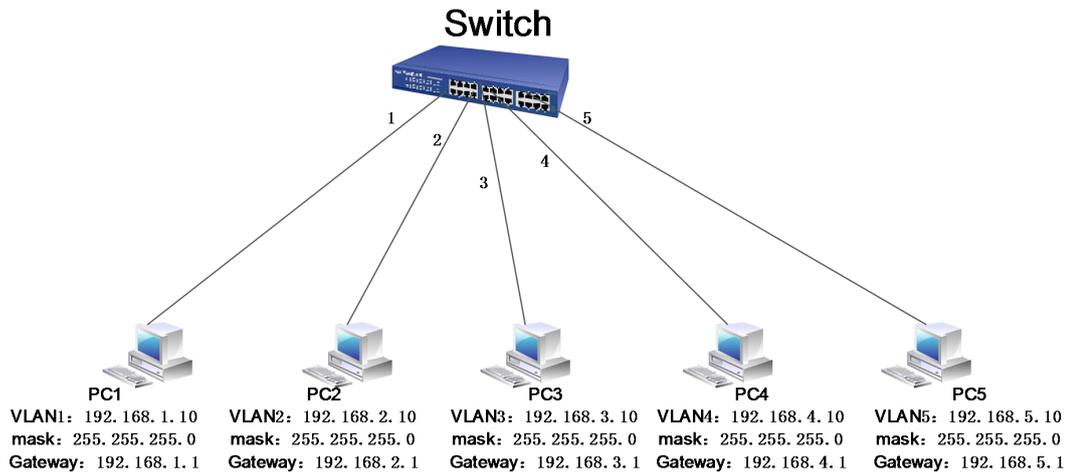
The manual is applicable to installers and system administrators who is responsible for installing, configuring, or maintaining the network, and assumes that the users understand all network usage of transmission and management protocols.

The manual also assumes that the users are familiar with related to networking equipment, protocols and interfaces, theoretical principles, practical skills, and specific expertise. Meanwhile the users must also have work experience of operating graphical user interfaces, command line interfaces, simple network management protocols and Web browser.

Case 1 Achieved communication between different VLAN through switch

It needs to Configure L3 routing function to achieve communication between different network segments.

1. Topology:



2. Configuration step for switch

A. Create VLAN1-5 and set them to vlan1-5 respectively.

Click “Advanced Configure - VLANs”, then input the value and click “save”, as below:

Global VLAN Configuration

Allowed Access VLANs: 1,5

Ethertype for Custom S-ports: 88A8

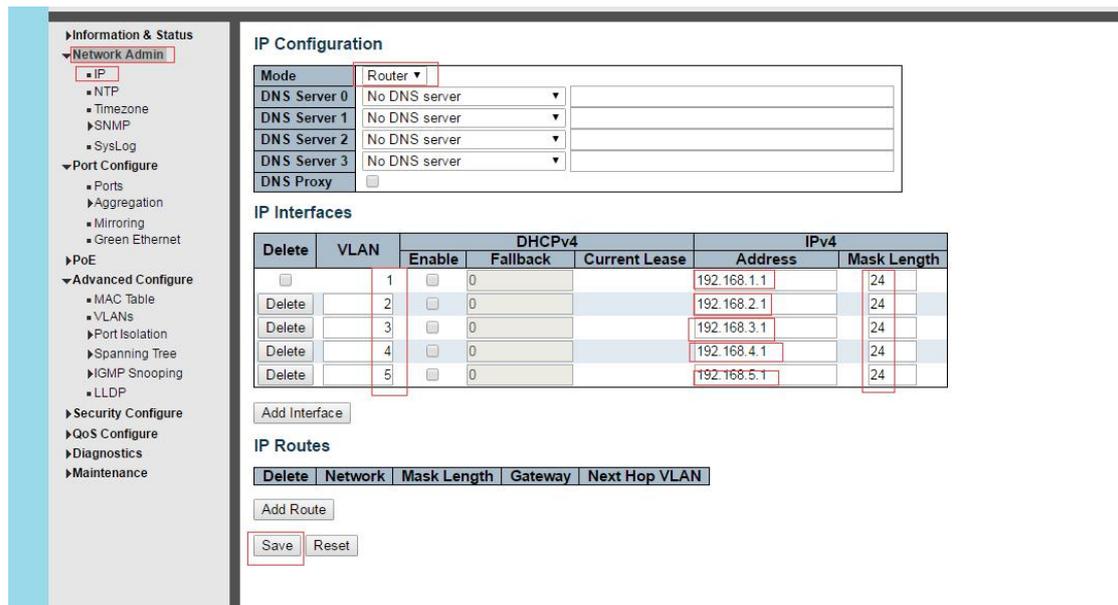
Port VLAN Configuration

Port	Mode	Port VLAN	Port Type	Ingress Filtering	Ingress Acceptance	Egress Tagging	Allowed VLANs	Forbidden VLANs
1	Access	1	C-Port	✓	Tagged and Untagged	Untag All	1	
2	Access	2	C-Port	✓	Tagged and Untagged	Untag All	2	
3	Access	3	C-Port	✓	Tagged and Untagged	Untag All	3	
4	Access	4	C-Port	✓	Tagged and Untagged	Untag All	4	
5	Access	5	C-Port	✓	Tagged and Untagged	Untag All	5	
6	Access	1	C-Port	✓	Tagged and Untagged	Untag All	1	
7	Access	1	C-Port	✓	Tagged and Untagged	Untag All	1	
8	Access	1	C-Port	✓	Tagged and Untagged	Untag All	1	
9	Access	1	C-Port	✓	Tagged and Untagged	Untag All	1	
10	Access	1	C-Port	✓	Tagged and Untagged	Untag All	1	
11	Access	1	C-Port	✓	Tagged and Untagged	Untag All	1	
12	Access	1	C-Port	✓	Tagged and Untagged	Untag All	1	
13	Access	1	C-Port	✓	Tagged and Untagged	Untag All	1	
14	Access	1	C-Port	✓	Tagged and Untagged	Untag All	1	
15	Access	1	C-Port	✓	Tagged and Untagged	Untag All	1	
16	Access	1	C-Port	✓	Tagged and Untagged	Untag All	1	
17	Access	1	C-Port	✓	Tagged and Untagged	Untag All	1	
18	Access	1	C-Port	✓	Tagged and Untagged	Untag All	1	
19	Access	1	C-Port	✓	Tagged and Untagged	Untag All	1	
20	Access	1	C-Port	✓	Tagged and Untagged	Untag All	1	
21	Access	1	C-Port	✓	Tagged and Untagged	Untag All	1	
22	Access	1	C-Port	✓	Tagged and Untagged	Untag All	1	
23	Access	1	C-Port	✓	Tagged and Untagged	Untag All	1	
24	Access	1	C-Port	✓	Tagged and Untagged	Untag All	1	

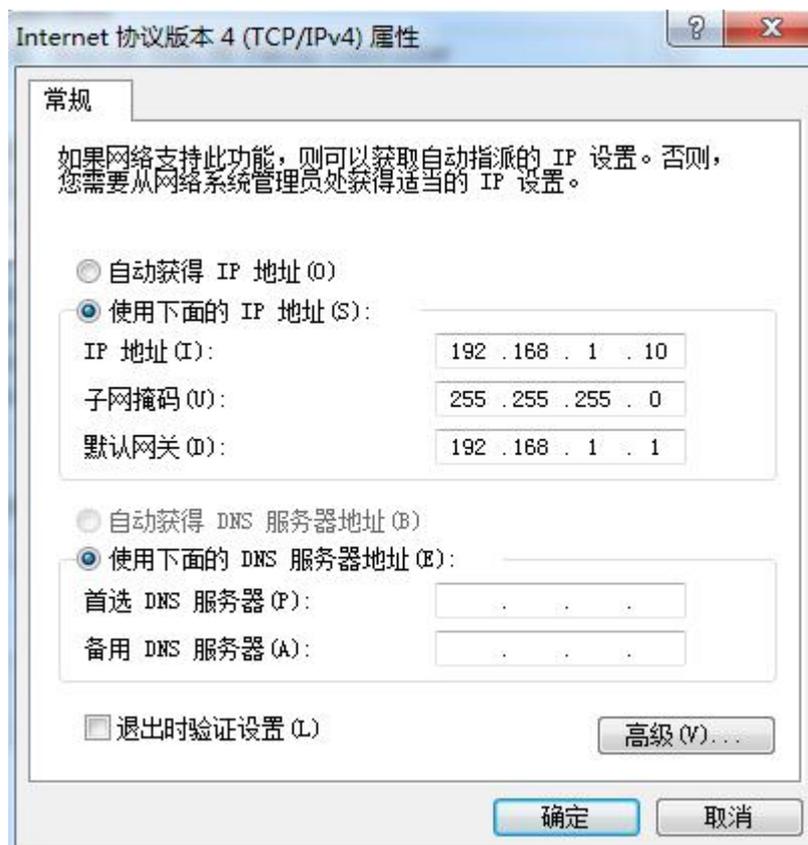
Save Reset

B. Set the switch to router mode, and set the IP, VLAN1:192.168.1.1, VLAN2: 192.168.2.1, VLAN3: 192.168.3.1, VLAN4: 192.168.4.1, VLAN5: 192.168.5.1.

Click “Network Admin - IP”, then input value and click “save”, as below:



3. Configure IP, mask and gateway of PC1, same setting way for PC2 - PC5. Click " local connection - properties - TCO/IPV4 - properties - confirm"

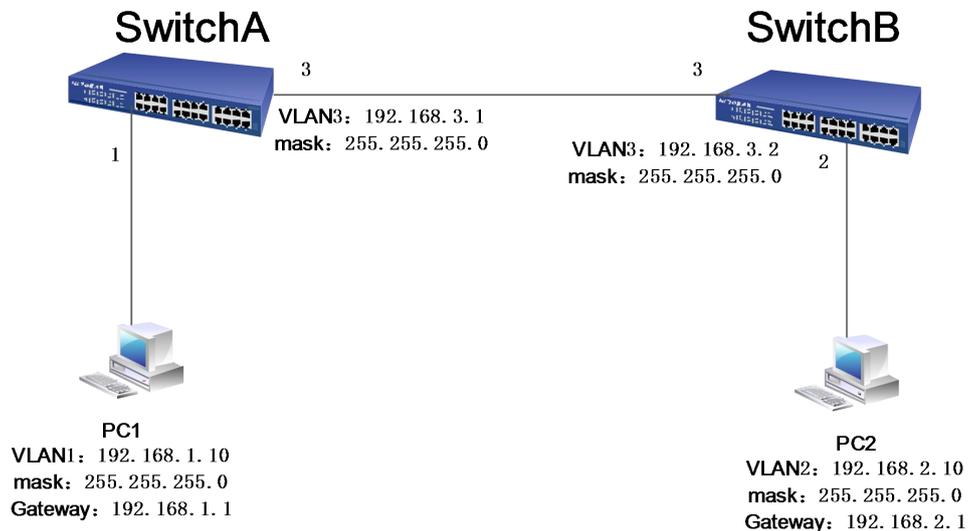


4. Testing the communication result between PC1-PC5.

Case 2 Configuration of Static Router

It needs to Configure static router or default router function of the switch to achieve communication between different network segments.

1. Topology:



2. Configuration step of switch

A. Create VLAN1, VLAN3, PORT 1, PORT 3 in switch A and set them to VLAN 1 VLAN 3 respectively.

Click “Advanced Configure - VLANs”, then input the value and click “save”, as below:

Global VLAN Configuration

Allowed Access VLANs: 1-3

Ethertype for Custom S-ports: 88&8

Port VLAN Configuration

Port	Mode	Port VLAN	Port Type	Ingress Filtering	Ingress Acceptance	Egress Tagging	Allowed VLANs	Forbidden VLANs
1	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
2	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
3	Access	3	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	3	
4	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
5	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
6	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
7	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
8	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
9	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
10	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	

Save Reset

B. Create VLAN2, VLAN3, PORT 2, PORT 3 in switch B and set them to VLAN 2 VLAN 3 respectively.

Information & Status

Network Admin

Port Configure

PoE

Advanced Configure

- MAC Table
- VLANs
- Port Isolation
- Loop Protection
- Spanning Tree
- MEP
- ERPS
- IGMP Snooping
- LLDP

Security Configure

QoS Configure

Diagnostics

Maintenance

Global VLAN Configuration

Allowed Access VLANs: 1-3

Ethertype for Custom S-ports: 88a8

Port VLAN Configuration

Port	Mode	Port VLAN	Port Type	Ingress Filtering	Ingress Acceptance	Egress Tagging	Allowed VLANs	Forbidden VLANs
*	<>	1	<>	<input checked="" type="checkbox"/>	<>	<>	1	
1	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
2	Access	2	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	2	
3	Access	3	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	3	
4	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
5	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
6	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
7	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
8	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
9	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
10	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	

Save Reset

C. Configure Switch A to router mode, set IP, VLAN1:192.168.1.1, VLAN3: 192.168.3.1
And Configure static router IP

Click "Network Admin - IP", then input value and click "save", as below:

Information & Status

Network Admin

- IP
- NTP
- Timezone
- SNMP
- SysLog

Port Configure

PoE

Advanced Configure

Security Configure

QoS Configure

Diagnostics

Maintenance

IP Configuration

Mode: Router

DNS Server: No DNS server

DNS Proxy:

IP Interfaces

Delete	VLAN	IPv4 DHCP			IPv4	
		Enable	Fallback	Current Lease	Address	Mask Length
<input type="checkbox"/>	1	<input type="checkbox"/>	0		192.168.1.1	24
Delete	3	<input type="checkbox"/>	0		192.168.3.1	24

Add Interface

IP Routes

Delete	Network	Mask Length	Gateway	Next Hop VLAN
Delete	192.168.2.0	24	192.168.3.2	0

Add Route

Save Reset

D. Configure Switch B to router mode, set IP, VLAN1:192.168.2.1, VLAN3: 192.168.3.2
And Configure static router IP

Click "Network Admin - IP", then input value and click "save", as below:

Information & Status

Network Admin

- IP
- NTP
- Timezone
- SNMP
- SysLog

Port Configure

PoE

Advanced Configure

Security Configure

QoS Configure

Diagnostics

Maintenance

IP Configuration

Mode: Router

DNS Server: No DNS server

DNS Proxy:

IP Interfaces

Delete	VLAN	IPv4 DHCP			IPv4	
		Enable	Fallback	Current Lease	Address	Mask Length
<input type="checkbox"/>	1	<input type="checkbox"/>	0		192.168.10.1	24
Delete	2	<input type="checkbox"/>	0		192.168.2.1	24
Delete	3	<input type="checkbox"/>	0		192.168.3.2	24

Add Interface

IP Routes

Delete	Network	Mask Length	Gateway	Next Hop VLAN
Delete	192.168.1.0	24	192.168.3.1	0

Add Route

Save Reset

3. Configure IP, mask and gateway of PC1, same setting way for PC2.
Click "local connection - properties - TCO/IPV4 - properties - confirm"

Internet 协议版本 4 (TCP/IPv4) 属性

常规

如果网络支持此功能，则可以获取自动指派的 IP 设置。否则，您需要从网络系统管理员处获得适当的 IP 设置。

自动获得 IP 地址 (O)

使用下面的 IP 地址 (S):

IP 地址 (I): 192 . 168 . 1 . 10

子网掩码 (M): 255 . 255 . 255 . 0

默认网关 (D): 192 . 168 . 1 . 1

自动获得 DNS 服务器地址 (B)

使用下面的 DNS 服务器地址 (E):

首选 DNS 服务器 (P): . . .

备用 DNS 服务器 (A): . . .

退出时验证设置 (L)

高级 (V)...

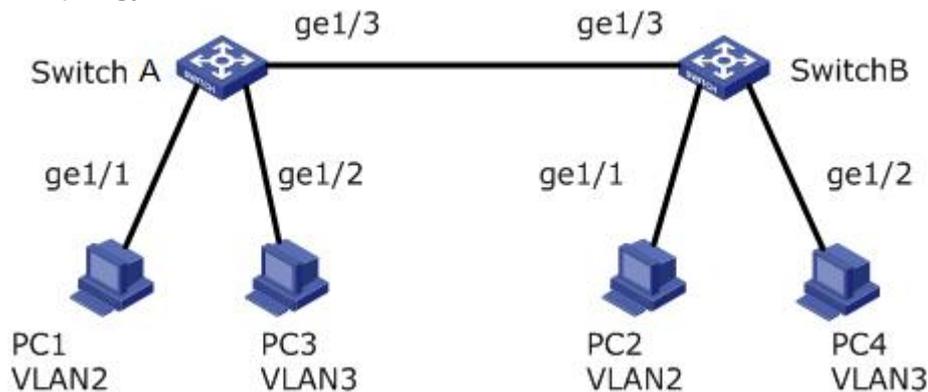
确定 取消

4. Testing the communication result between PC1-PC2.

Case 3 VLAN Configuration

To enable the link between Switch A and Switch B to support user communication under VLAN2 and user communication under VLAN3, you need to configure the connection interface to add two vlans at the same time. Namely the Ethernet interface ge1/3 of switch A and Ethernet interface ge1/3 of switch B should be added in VLAN2 and VLAN3 at the same time.

1. Topology



2. Configuration step of switch

A. Create VLAN2 and VLAN3 in Switch A and add the user's connection interface into VLAN respectively, and set ge1/3 to the trunk mode. Click the "Advanced Configure > VLANs", enter the "VLANs" interface, fill in the corresponding configuration items, click "SAVE" to complete the configuration. The same configuration way for Switch B. See as below:

- Information & Status
- Network Admin
- Port Configure
- PoE
- Advanced Configure
 - MAC Table
 - VLANs
 - Port Isolation
 - Loop Protection
 - Spanning Tree
 - MEP
 - ERPS
 - IGMP Snooping
 - LLDP
- Security Configure
- QoS Configure
- Diagnostics
- Maintenance

Global VLAN Configuration

Allowed Access VLANs: 1-3

Ethertype for Custom S-ports: 88A8

Port VLAN Configuration

Port	Mode	Port VLAN	Port Type	Ingress Filtering	Ingress Acceptance	Egress Tagging	Allowed VLANs	Forbidden VLANs
1	Access	2	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	2	
2	Access	3	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	3	
3	Trunk	1	C-Port	<input checked="" type="checkbox"/>	Tagged Only	Tag All	1-4095	
4	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
5	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
6	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
7	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
8	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
9	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
10	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	

Save Reset

B. Testing configuration result

Configure PC1 and PC2 into a same network segment, such as 192.168.100.0/24; Configure PC3 and PC4 into a same network segment, such as 192.168.200.0/24.

PC1 and PC2 can ping each other, but they cannot ping PC3 and PC4. PC3 and PC4 can ping each other, but they can't ping PC1 and PC2.

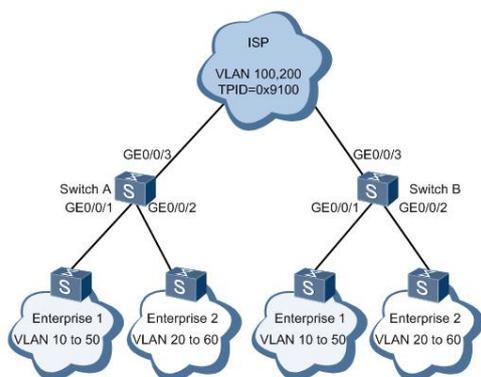
Case 4 QINQ Configuration

There are two enterprises in the network, enterprise 1 has two branches, and enterprise 2 has two branches. The network of each of the two enterprises is connected to the Switch A and Switch B in the operator network respectively, and there are other manufacturers in the public network, and the TPID value of the outer VLAN Tag is 0x9100.

Now it needs to be realized:

- Set independent division of VLAN for enterprise 1 and 2, both can't influence each other.
- Data transparent transmission between two branches of each enterprise. Intercommunication for same business, isolation for different business.

It can be achieved through configuring QinQ to above demands. Using the VLAN100 provided by the public network to enable the enterprise1 to intercommunicate with each other. Using the VLAN200 provided by the public network to enable enterprise 2 to intercommunicate with each other. And separate different enterprises from each other. By configuring the TPID value of QinQ outer VLAN Tag on the interface connect with the device of other manufacturers to achieve the intercommunication with other manufacturers equipment.



Configuration Idea

1. VLAN 100 and VLAN 200 both in switch A and switch B, configure the interfaces connected network services to QinQ type, and add into VLAN respectively. It enables different services add different outer layer VLAN Tag.
2. Configure interface connected with public network added into corresponding VLAN in switch A and switch B. And enable traffic communication between VLAN 100 and 200.

3. Configure TPID value of outer layer VLAN tag of interfaces connected with public network in switch A and switch B, enable communication with other brand equipment.

Configuration Steps

1. Create VLAN

#Create VLAN 100 and VLAN 200 in switch A

Global VLAN Configuration

Allowed Access VLANs: 1,100,200
 Ethertype for Custom S-ports: 88A8

Port VLAN Configuration

Port	Mode	Port VLAN	Port Type	Ingress Filtering	Ingress Acceptance	Egress Tagging	Allowed VLANs
*	<>	1	<>	<input checked="" type="checkbox"/>	<>	<>	1
1	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1
2	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1
3	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1
4	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1
5	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1
6	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1
7	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1
8	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1
9	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1
10	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1

#Create VLAN 100 and VLAN 200 in switch B, same as above.

2. Configure the interface type to QinQ

#Configure interface GE0/0/1 and GE0/0/2 to QinQ type in switch A. And outer layer tag of GE0/0/1 is VLAN 100, outer layer tag of G0/0/2 is VLAN 200

Global VLAN Configuration

Allowed Access VLANs: 1,100,200
 Ethertype for Custom S-ports: 88A8

Port VLAN Configuration

Port	Mode	Port VLAN	Port Type	Ingress Filtering	Ingress Acceptance	Egress Tagging	Allowed VLANs	Forbidden VLANs
*	<>	100	<>	<input type="checkbox"/>	<>	<>	1-4095	
1	Hybrid	100	Unaware	<input type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1-4095	
2	Hybrid	200	Unaware	<input type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1-4095	
3	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
4	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
5	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
6	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
7	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
8	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
9	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
10	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	

#Configure interface GE0/0/1 and GE0/0/2 to QinQ type in switch B. And outer layer tag of GE0/0/1 is VLAN 100, outer layer tag of G0/0/2 is VLAN 200

3. Configure switch interface connected with public network

#Configure switch A's interface GE0/0/3 added into VLAN 100 and VLAN 200. Same configuration step for switch B.

Information & Status
 Network Admin
 Port Configure
 PoE
 Advanced Configure
 MAC Table
 Ethernet Services
VLANs
 Port Isolation
 Spanning Tree
 IPMC Profile
 MEP
 ERPS
 IGMP Snooping
 IPv6 MLD Snooping
 LLD
 Security Configure
 QoS Configure
 Diagnostics
 Maintenance

Global VLAN Configuration

Allowed Access VLANs: 1,100,200
 Ethertype for Custom S-ports: 88A8

Port VLAN Configuration

Port	Mode	Port VLAN	Port Type	Ingress Filtering	Ingress Acceptance	Egress Tagging	Allowed VLANs	Forbidden VLANs
1	Hybrid	100	Unaware	<input type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1-4095	
2	Hybrid	200	Unaware	<input type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1-4095	
3	Hybrid	1	S-Custom-Port	<input type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1,100,200	
4	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
5	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
6	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
7	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
8	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
9	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
10	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	

Save Reset

4. Configure TPID value of outer VLAN tag, same configuration for switch B.

Information & Status
 Network Admin
 Port Configure
 PoE
 Advanced Configure
 MAC Table
 Ethernet Services
VLANs
 Port Isolation
 Spanning Tree
 IPMC Profile
 MEP
 ERPS
 IGMP Snooping
 IPv6 MLD Snooping
 LLD
 Security Configure
 QoS Configure
 Diagnostics
 Maintenance

Global VLAN Configuration

Allowed Access VLANs: 1,100,200
 Ethertype for Custom S-ports: 9100

Port VLAN Configuration

Port	Mode	Port VLAN	Port Type	Ingress Filtering	Ingress Acceptance	Egress Tagging	Allowed VLANs	Forbidden VLANs
1	Hybrid	100	Unaware	<input type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1-4095	
2	Hybrid	200	Unaware	<input type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1-4095	
3	Hybrid	1	S-Custom-Port	<input type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1,100,200	
4	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
5	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
6	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
7	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
8	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
9	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
10	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	

Save Reset

5. Testing configuration result

Test if A PC in any VLAN of any branch in enterprise 1 can ping the PC in the same VLAN of any branch in enterprise 1. It indicates that it can intercommunicate in enterprise 1.

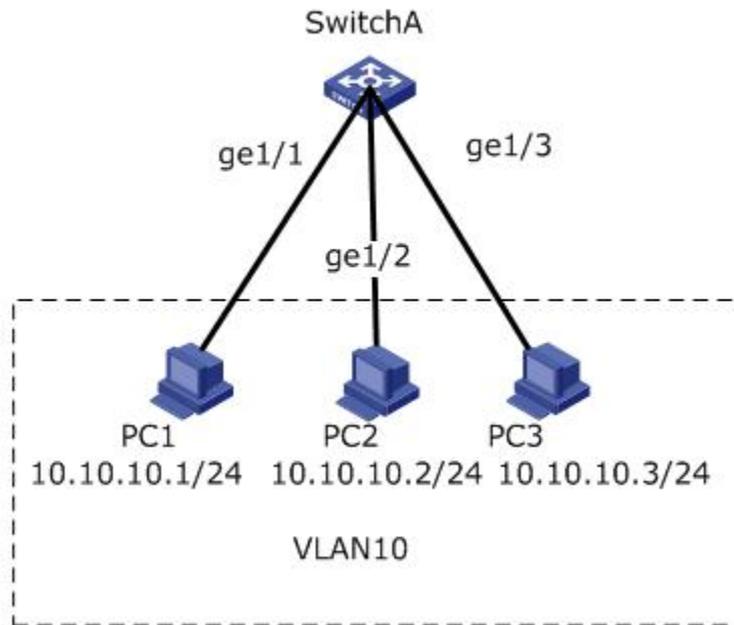
Test if A PC in any VLAN of any branch in enterprise 2 can ping the PC in the same VLAN of any branch in enterprise 2. It indicates that it can intercommunicate in enterprise 2.

Test if A PC in any VLAN of any branch in enterprise 1 can ping the PC in the same VLAN of any branch in enterprise 2. If it cant, the communication isolated between enterprise 1 and enterprise 2.

Case 5 Port Isolation

Definition of port isolation: there is no communication between the same isolation group PC1, PC2 and PC3 belong to VLAN10. Users hope that PC1 and PC2 will not be able to access each other in VLAN10, PC1 and PC3 can be accessed from each other, and PC2 and PC3 can be accessed from each other.

1. Topology



2. Configuration step of switch

A. Create VLAN10 to determine the VLAN of the PC. Click the "Advanced Configure > VLANs", enter the "VLANs" interface, fill in the corresponding configuration items, and click "SAVE" to complete the configuration, as below.

Global VLAN Configuration

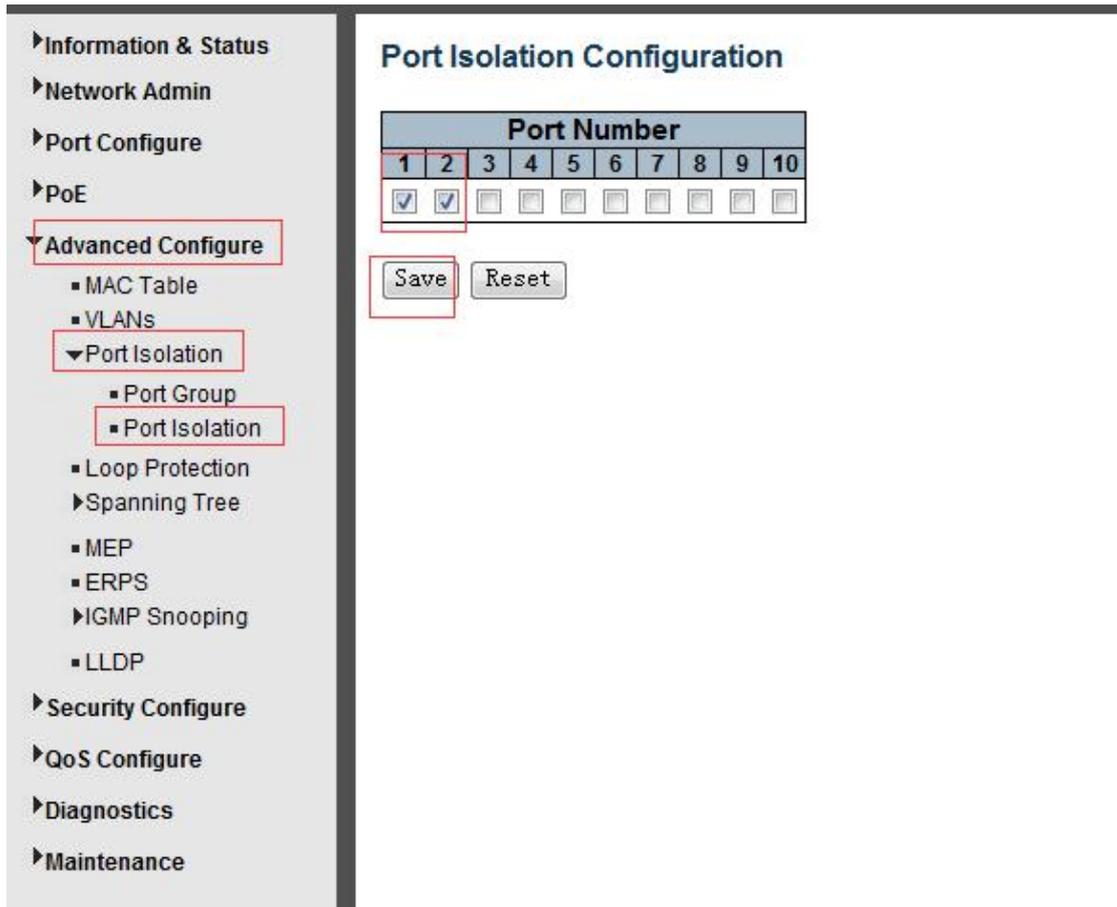
Allowed Access VLANs: 1-10
 Ethertype for Custom S-ports: 88A8

Port VLAN Configuration

Port	Mode	Port VLAN	Port Type	Ingress Filtering	Ingress Acceptance	Egress Tagging	Allowed VLANs	Forbidden VLANs
1	Access	10	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	10	
2	Access	10	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	10	
3	Access	10	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	10	
4	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
5	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
6	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
7	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
8	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
9	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
10	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	

Save Reset

B. Configuration ge1/1, ge1/2 Port Isolation function, click the "Advanced Configure > Port Isolation > Port Isolation", and enter the "Port Isolation", through selecting ge1 Port / 1, ge1/2 to set Isolation group, click the "Save" to complete the configuration, as below.

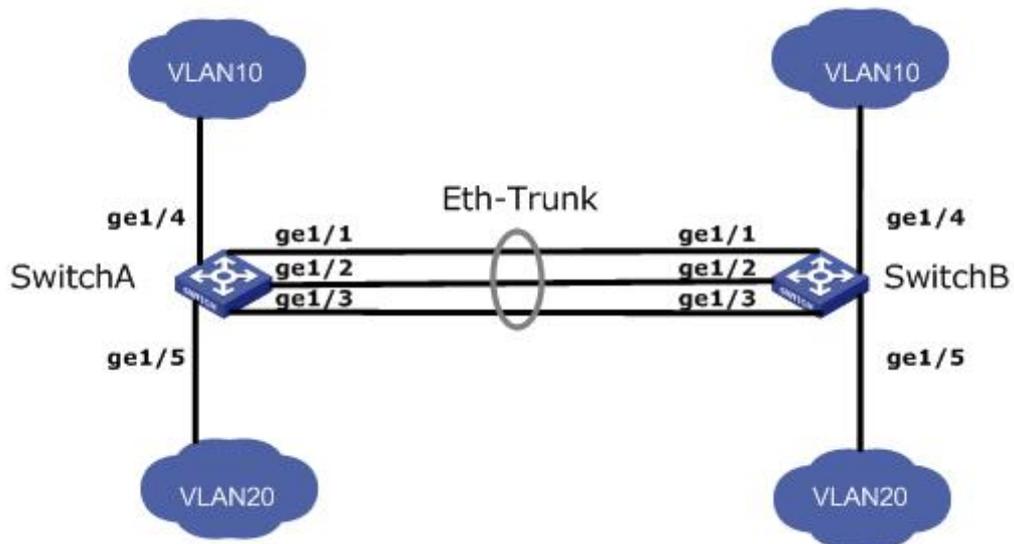


- C. Testing configuration result
- # PC1 and PC2 cant ping with each other
 - # PC1 and PC3 can ping with each other
 - # PC2 and PC3 can ping with each other

Case 6 Static Aggregation

As shown in the figure below, Switch A and Switch B is connected with the network of VLAN10 and VLAN20 respectively via Ethernet link, and there is a large data traffic between Switch A and Switch B. If users want that there is greater link bandwidth between switch A and switch B to enable communication between each other in the same VLAN. At the same time, it is able to provide some redundancy to ensure the reliability of data transmission and link.

1. Topology



2. Configuration of Switch

A. Create the eth-trunk interface of switch A and add sub interface, aiming to increase the link bandwidth. Same configuration for the switch

B. Click "Port Configure > Aggregation > Static", and enter the "Static", then select all of the load sharing mode and the group ID" 1 ". Select required Aggregation port -ge1 / 1, 2, ge1 / ge1/3, click the "Save", as shown in the figure below.

- ▶ Information & Status
- ▶ Network Admin
- ▼ Port Configure
 - Ports
 - ▼ Aggregation
 - Static
 - LACP
 - Mirroring
 - Thermal Protection
 - Green Ethernet
- ▶ PoE
- ▼ Advanced Configure
 - MAC Table
 - VLANs
 - ▼ Port Isolation
 - Port Group
 - Port Isolation
 - Loop Protection
 - ▶ Spanning Tree
 - MEP
 - ERPS
 - ▶ IGMP Snooping
 - LLDP
- ▶ Security Configure
- ▶ QoS Configure
- ▶ Diagnostics
- ▶ Maintenance

Aggregation Mode Configuration

Hash Code Contributors

Source MAC Address

Destination MAC Address

IP Address

TCP/UDP Port Number

Aggregation Group Configuration

	Port Members									
Group ID	1	2	3	4	5	6	7	8	9	10
Normal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
1	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	<input type="radio"/>									
3	<input type="radio"/>									
4	<input type="radio"/>									
5	<input type="radio"/>									

C. Please check case 3 for the reference of VLAN configuration

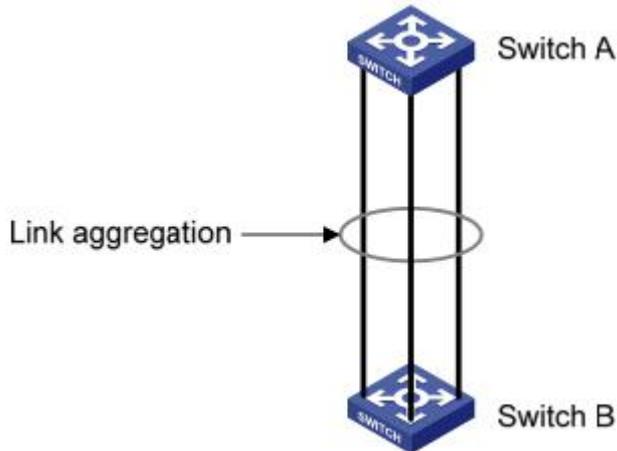
Case 7 LACP Configuration

Ethernet Switch A USES three ports (GE1 ~ GE3) to aggregation

Then adding the Switch B, to ensure load sharing among sub ports.

In the actual configuration below, dynamic convergence is used for reference.

1. Topology



2. Configuration Step of Switch

A. Create the eth-trunk on the Switch A and configure it to be LACP mode, and set the system priority to 100 for the Switch A, making it LACP active terminal. Click "Port Configure > Aggregation > LACP", enter "LACP", select the Port ge1/1, ge1/2, ge1/3, select key "auto", select the role "Active", select Timeout "Fast" and click "Save" to complete the configuration. Shown in the figure below.

- ▶ Information & Status
- ▶ Network Admin
- ▼ Port Configure
 - Ports
 - ▼ Aggregation
 - Static
 - **LACP**
 - Mirroring
 - Thermal Protection
 - Green Ethernet
- ▶ PoE
- ▼ Advanced Configure
 - MAC Table
 - VLANs
 - ▼ Port Isolation
 - Port Group
 - Port Isolation
 - Loop Protection
 - ▶ Spanning Tree
 - MEP
 - ERPS
 - ▶ IGMP Snooping
 - LLDP
- ▶ Security Configure
- ▶ QoS Configure
- ▶ Diagnostics
- ▶ Maintenance

LACP Port Configuration

Port	LACP Enabled	Key	Role	Timeout	Prio
*	<input checked="" type="checkbox"/>	<>	<>	<>	32768
1	<input checked="" type="checkbox"/>	Auto	Active	Fast	100
2	<input checked="" type="checkbox"/>	Auto	Active	Fast	100
3	<input checked="" type="checkbox"/>	Auto	Active	Fast	100
4	<input type="checkbox"/>	Auto	Active	Fast	32768
5	<input type="checkbox"/>	Auto	Active	Fast	32768
6	<input type="checkbox"/>	Auto	Active	Fast	32768
7	<input type="checkbox"/>	Auto	Active	Fast	32768
8	<input type="checkbox"/>	Auto	Active	Fast	32768
9	<input type="checkbox"/>	Auto	Active	Fast	32768
10	<input type="checkbox"/>	Auto	Active	Fast	32768

B. The Switch B configuration process is similar to the Switch A, with the priority default 32768, which makes it LACP passive end. Click "Port Configure > Aggregation > LACP", enter "LACP", select the Port ge1/1, ge1/2, ge1/3, select key "auto", select the role "Passive", select Timeout "Fast" and click "Save" to complete the configuration. Shown as below

- ▶ Information & Status
- ▶ Network Admin
- ▼ Port Configure
 - Ports
 - ▼ Aggregation
 - Static
 - LACP
 - Mirroring
 - Thermal Protection
 - Green Ethernet
- ▶ PoE
- ▼ Advanced Configure
 - MAC Table
 - VLANs
 - ▼ Port Isolation
 - Port Group
 - Port Isolation
 - Loop Protection
 - ▶ Spanning Tree
 - MEP
 - ERPS
 - ▶ IGMP Snooping
 - LLDP
- ▶ Security Configure
- ▶ QoS Configure
- ▶ Diagnostics
- ▶ Maintenance

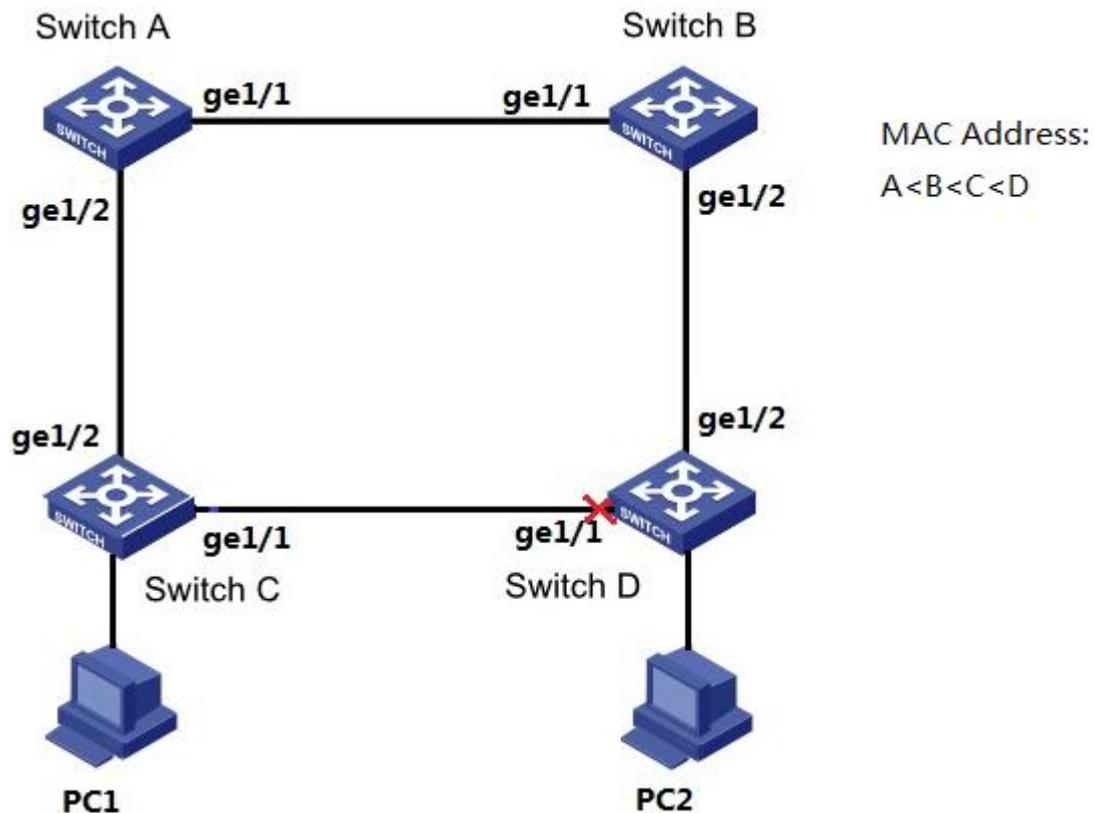
LACP Port Configuration

Port	LACP Enabled	Key	Role	Timeout	Prio
*	<input checked="" type="checkbox"/>	<>	<>	<>	32768
1	<input checked="" type="checkbox"/>	Auto	Passive	Fast	100
2	<input checked="" type="checkbox"/>	Auto	Passive	Fast	100
3	<input checked="" type="checkbox"/>	Auto	Passive	Fast	100
4	<input type="checkbox"/>	Auto	Active	Fast	32768
5	<input type="checkbox"/>	Auto	Active	Fast	32768
6	<input type="checkbox"/>	Auto	Active	Fast	32768
7	<input type="checkbox"/>	Auto	Active	Fast	32768
8	<input type="checkbox"/>	Auto	Active	Fast	32768
9	<input type="checkbox"/>	Auto	Active	Fast	32768
10	<input type="checkbox"/>	Auto	Active	Fast	32768

Case 8 STP/ RSTP/ MSTP Configuration

STP (Spanning Tree Protocol) is designed to reduce link failures on the network and prevent loops from providing protection to the network. In complex structural networks it is easy to generate an unconscious loop storm. The switch's MSTP function is enabled by default. The switch supports three versions of generation tree protocol: STP, RSTP, and MSTP. In the following figure, the four switches have the same priority, all of which are 32768. Enable the generation tree protocol to block a port, making the loop a tree structure.

1. Topology



2. Switch Configuration

A. Enable STP under global mode for switch A. Click the "Advanced Configure > Spanning Tree > Bridge Settings", and enter "STP Bridge Configuration", users can choose MSTP, RSTP or STP. Same configuration step for switch B, switch C, switch D.

STP Bridge Configuration

Basic Settings

Protocol Version	MSTP
Bridge Priority	STP
Forward Delay	RSTP
Max Age	20
Maximum Hop Count	20
Transmit Hold Count	6

Save Reset

B. Enable the STP function of PORT1 and PORT2. Click "Advanced Configure > Spanning Tree > CIST PORTS", enter "STP CIST PORT CONFIGURATION", click PORT1 and PORT2. Same configuration step for Switch B, Switch C and Switch D.

STP CIST Port Configuration

CIST Aggregated Port Configuration

Port	STP Enabled	Path Cost	Priority	Admin Edge	Auto Edge	Restricted Role	TCN	BPDU Guard	Point-to-point
-	<input checked="" type="checkbox"/>	Auto	128	Non-Edge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Forced True

CIST Normal Port Configuration

Port	STP Enabled	Path Cost	Priority	Admin Edge	Auto Edge	Restricted Role	TCN	BPDU Guard	Point-to-point
*	<input checked="" type="checkbox"/>	<>	<>	<>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<>
1	<input checked="" type="checkbox"/>	Auto	128	Non-Edge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Auto
2	<input checked="" type="checkbox"/>	Auto	128	Non-Edge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Auto
3	<input type="checkbox"/>	Auto	128	Non-Edge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Auto
4	<input type="checkbox"/>	Auto	128	Non-Edge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Auto
5	<input type="checkbox"/>	Auto	128	Non-Edge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Auto
6	<input type="checkbox"/>	Auto	128	Non-Edge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Auto
7	<input type="checkbox"/>	Auto	128	Non-Edge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Auto
8	<input type="checkbox"/>	Auto	128	Non-Edge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Auto
9	<input type="checkbox"/>	Auto	128	Non-Edge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Auto
10	<input type="checkbox"/>	Auto	128	Non-Edge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Auto

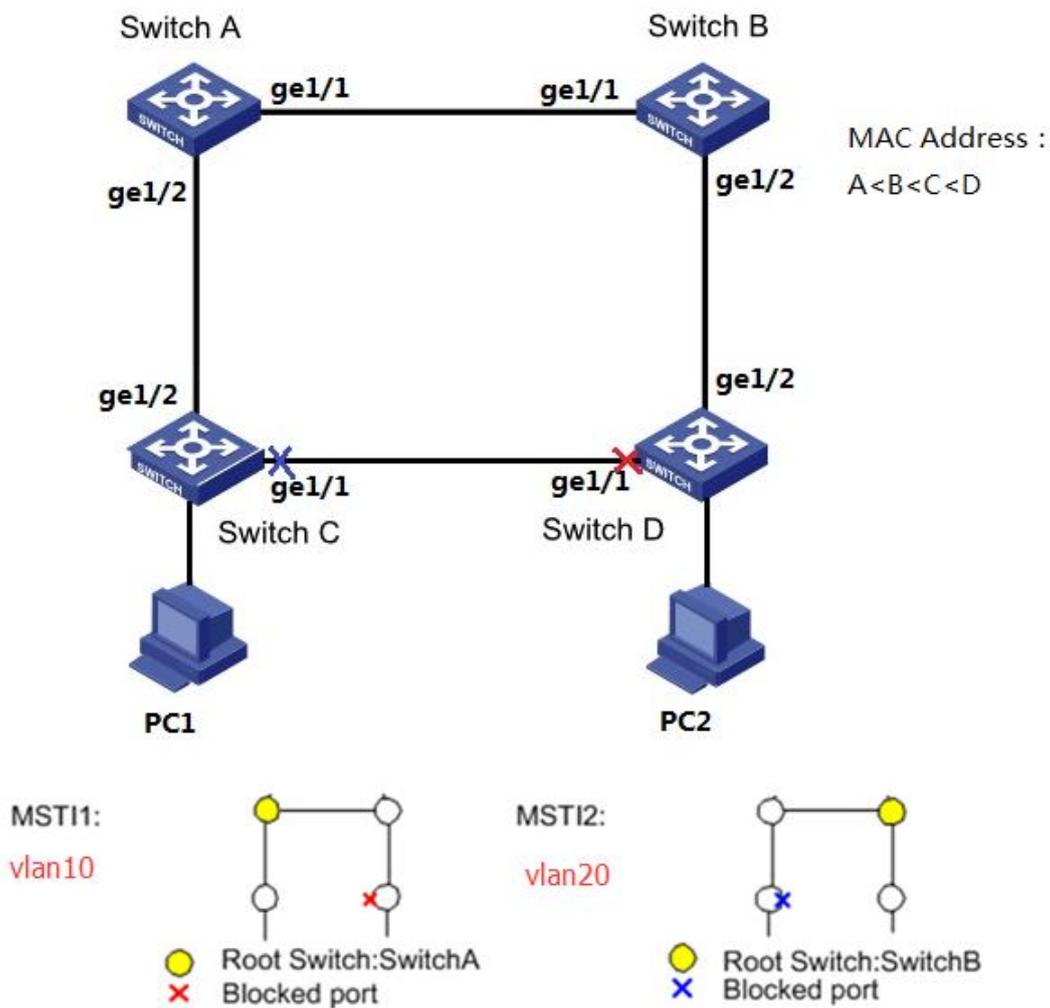
Save Reset

3. Testing configuration result. The port 1 of switch D is blocked. The network structure is tree type.

Case 9 MSTP multi-instance mapping VLAN configuration

Enable MSTP for switch A, switch B, switch C and switch D. To realize the load sharing of VLAN10 and VLAN20, MSTP introduces multiple instances. The MSTP can set up the VLAN mapping table, associating the VLAN with the STP instance, instance 1 mapping to VLAN10, instance 1 mapping to VLAN20. And the switch defaults to instance 0.

1. Topology



2. Switch Configuration

A. Configure the L2 forwarding function of the device in the looped network, and create VLAN10, vlan20, on the Switch A, Switch B, Switch C and Switch D. Set the switch port connected with lopped network to Trunk mode, click "the Advanced Configure > VLANs", enter "VLANs", fill in the corresponding configuration, click the "SAVE" to complete the configuration, as shown in the figure below.

Information & Status
 Network Admin
 Port Configure
 PoE
Advanced Configure
 MAC Table
 VLANs
 Port Isolation
 Loop Protection
 Spanning Tree
 MEP
 ERPS
 IGMP Snooping
 LLDP
 Security Configure
 QoS Configure
 Diagnostics
 Maintenance

Global VLAN Configuration

Allowed Access VLANs: 1-20
 Ethertype for Custom S-ports: 88A8

Port VLAN Configuration

Port	Mode	Port VLAN	Port Type	Ingress Filtering	Ingress Acceptance	Egress Tagging	Allowed VLANs	Forbidden VLANs
1	Trunk	1	C-Port	<input checked="" type="checkbox"/>	Tagged Only	Tag All	1-4095	
2	Trunk	1	C-Port	<input checked="" type="checkbox"/>	Tagged Only	Tag All	1-4095	
3	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
4	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
5	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
6	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
7	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
8	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
9	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	
10	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1	

Save Reset

B. Enable STP under global mode for switch A. Click the "Advanced Configure > Spanning Tree > Bridge Settings", and enter "STP Bridge Configuration", click MSTP. Same configuration step for switch B, switch C, switch D.

Information & Status
 Network Admin
 Port Configure
 Ports
 Aggregation
 Static
 LACP
 Mirroring
 Thermal Protection
 Green Ethernet
 PoE
Advanced Configure
 MAC Table
 VLANs
 Port Isolation
 Port Group
 Port Isolation
 Loop Protection
Spanning Tree
 Bridge Settings
 MSTI Mapping
 MSTI Priorities
 CIST Ports
 MSTI Ports
 MEP
 ERPS
 IGMP Snooping
 LLDP
 Security Configure
 QoS Configure
 Diagnostics
 Maintenance

STP Bridge Configuration

Basic Settings

Protocol Version	MSTP
Bridge Priority	32768
Forward Delay	15
Max Age	20
Maximum Hop Count	20
Transmit Hold Count	6

Save Reset

C. Enable the MSTP function of PORT1 and PORT2. Click "Advanced Configure > Spanning Tree > CIST PORTS", enter "STP CIST PORT CONFIGURATION", click PORT1 and PORT2. Same configuration step for Switch B, Switch C and Switch D.

Information & Status

- Network Admin
 - Port Configure
 - Ports
 - Aggregation
 - Static
 - LACP
 - Mirroring
 - Thermal Protection
 - Green Ethernet
 - PoE
 - Advanced Configure
 - MAC Table
 - VLANs
 - Port Isolation
 - Port Group
 - Port Isolation
 - Loop Protection
 - Spanning Tree
 - Bridge Settings
 - MSTI Mapping
 - MSTI Priorities
 - CIST Ports
 - MSTI Ports
 - MEP
 - ERPS
 - IGMP Snooping
 - LLDP
 - Security Configure
 - QoS Configure
 - Diagnostics
 - Maintenance

STP CIST Port Configuration

CIST Aggregated Port Configuration

Port	STP Enabled	Path Cost	Priority	Admin Edge	Auto Edge	Restricted Role	TCN	BPDU Guard	Point-to-point
-	<input checked="" type="checkbox"/>	Auto	128	Non-Edge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Forced True

CIST Normal Port Configuration

Port	STP Enabled	Path Cost	Priority	Admin Edge	Auto Edge	Restricted Role	TCN	BPDU Guard	Point-to-point
1	<input checked="" type="checkbox"/>	Auto	128	Non-Edge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Auto
2	<input checked="" type="checkbox"/>	Auto	128	Non-Edge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Auto
3	<input type="checkbox"/>	Auto	128	Non-Edge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Auto
4	<input type="checkbox"/>	Auto	128	Non-Edge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Auto
5	<input type="checkbox"/>	Auto	128	Non-Edge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Auto
6	<input type="checkbox"/>	Auto	128	Non-Edge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Auto
7	<input type="checkbox"/>	Auto	128	Non-Edge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Auto
8	<input type="checkbox"/>	Auto	128	Non-Edge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Auto
9	<input type="checkbox"/>	Auto	128	Non-Edge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Auto
10	<input type="checkbox"/>	Auto	128	Non-Edge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Auto

Save Reset

D. Configure switch A's instance MSTI1 and MSTI2, MSTI1 mapping vlan10, MSTI1 mapping vlan20. Click "Advanced Configure > Spanning Tree > MSTI Mapping", enter "MSTI Mapping" only, Set to same of the Configuration Name and Configuration Revision. Set MSTI1 Mapping to VLAN10, MSTI1 Mapping to VLAN20, click the "save". Same configuration step for switch B, switch C and switch D. Shown as below.

Information & Status

- Network Admin
 - IP
 - NTP
 - Timezone
 - SNMP
 - SysLog
- Port Configure
- PoE
- Advanced Configure
 - MAC Table
 - VLANs
 - Port Isolation
 - Loop Protection
 - Spanning Tree
 - Bridge Settings
 - MSTI Mapping
 - MSTI Priorities
 - CIST Ports
 - MSTI Ports
 - MEP
 - ERPS
 - IGMP Snooping
 - LLDP
 - Security Configure
 - QoS Configure
 - Diagnostics
 - Maintenance

MSTI Configuration

Add VLANs separated by spaces or comma.

Unmapped VLANs are mapped to the CIST. (The default bridge instance).

Configuration Identification

Configuration Name	mstp
Configuration Revision	0

MSTI Mapping

MSTI	VLANs Mapped
MSTI1	10
MSTI2	20
MSTI3	
MSTI4	
MSTI5	
MSTI6	
MSTI7	

Save Reset

E. Configure root bridge and root bridge backup of MSTI 1 and MSTI 2 under MSTP. Set switch A as the root bridge of MSTI 1 and switch B as the back root bridge of MSTI 2. When configuring switch A, set the priority level of MSTI 1 to 0 and priority level of MSTI 2

to 4096. And when configuring switch B, set priority level of MSTI 1 to 4096 and priority level of MSTI 2 to 0. Click "Advanced Configure > Spanning Tree >MSTI Mapping", enter "MSTI Mapping", fill in the corresponding parameters, click "save". Shown as below

Information & Status

- Network Admin
 - IP
 - NTP
 - Timezone
 - SNMP
 - SysLog
- Port Configure
- PoE
- Advanced Configure**
 - MAC Table
 - VLANs
 - Port Isolation
 - Loop Protection
 - Spanning Tree**
 - Bridge Settings
 - MSTI Mapping
 - MSTI Priorities**
 - CIST Ports
 - MSTI Ports
 - MEP
 - ERPS
 - IGMP Snooping
 - LLDP
- Security Configure
- QoS Configure
- Diagnostics
- Maintenance

MSTI Configuration

MSTI Priority Configuration

MSTI	Priority
*	<>
CIST	32768
MSTI1	0
MSTI2	4096
MSTI3	32768
MSTI4	32768
MSTI5	32768
MSTI6	32768
MSTI7	32768

Save Reset

SwitchA

Information & Status

Network Admin

- IP
- NTP
- Timezone
- SNMP
- SysLog

Port Configure

PoE

Advanced Configure

- MAC Table
- VLANs
- Port Isolation
- Loop Protection
- Spanning Tree**
 - Bridge Settings
 - MSTI Mapping
 - MSTI Priorities**
 - CIST Ports
 - MSTI Ports
- MEP
- ERPS
- IGMP Snooping
- LLDP

Security Configure

QoS Configure

Diagnostics

Maintenance

MSTI Configuration

MSTI Priority Configuration

MSTI	Priority
*	<>
CIST	32768
MSTI1	4096
MSTI2	0
MSTI3	32768
MSTI4	32768
MSTI5	32768
MSTI6	32768
MSTI7	32768

Save Reset

SwitchB

F. After above configuration, the network structure would be tree type.