ONV-2126G+Switch Example Configuration

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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:

	Allow	ed Access V	LANs	1-5					
Ports	Ethert	ype for Cust	om S-ports	88A8					
►Aggregation	Port V	AN Conf	iguration						
Green Ethernet	FOIL	LAN COM	iguration						
▶PoE	Port	Mode	Port	Port Type	Ingress	Ingress	Egress	Allowed	Forbidde
→Advanced Configure	*	0.1	1	0.1	Filtering	Acceptance	agging	VLAINS	VLANS
 MAC Table 	1	Access V	1	C-Port T		Tanged and Untagged V	Untag All	v 1	
VLANs	2	Access V	2	C-Port V	1	Tagged and Untagged	Untag All	* 2	
Snanning Tree	3	Access V	3	C-Port V	V	Tagged and Untagged T	Untag All	¥ 3	
►IGMP Snooping	4	Access V	4	C-Port V	4	Tagged and Untagged *	Untag All	¥ 4	
- LLDP	5	Access V	5	C-Port Y	9	Tagged and Untagged	Untag All	¥ 5	
▶ Security Configure	6	Access V	1	C-Port V	4	Tagged and Untagged	Untag All	v 1	
▶QoS Configure	7	Access V	1	C-Port V	1	Tagged and Untagged V	Untag All	v 1	
▶Diagnostics	8	Access V	1	C-Port V	1	Tagged and Untagged V	Untag All	v 1	
Maintenance	9	Access V	1	C-Port V	9	Tagged and Untagged V	Untag All	v 1	
	10	Access V	1	C-Port V	4	Tagged and Untagged V	Untag All	v 1	
	11	Access V	1	C-Port v	1	Tagged and Untagged V	Untag All	v 1	
	12	Access V	1	C-Port *	1	Tagged and Untagged *	Untag All	v 1	
	13	Access V	1	C-Port *	1	Tagged and Untagged *	Untag All	¥ 1	
	14	Access V	1	C-Port v	×.	Tagged and Untagged V	Untag All	v 1	
	15	Access V	1	C-Port v	1	Tagged and Untagged *	Untag All	* 1	
	16	Access V	1	C-Port v	1	Tagged and Untagged *	Untag All	v 1	
	17	Access •	1	C-Port V	9	Tagged and Untagged *	Untag All	* 1	
	18	Access V	1	C-Port v	1	Tagged and Untagged *	Untag All	¥ 1	
	19	Access V	1	C-Port v	1	Tagged and Untagged V	Untag All	* 1	
	20	Access V	1	C-Port v	V	Tagged and Untagged *	Untag All	¥ 1	
	21	Access V	1	C-Port v	Ø	Tagged and Untagged *	Untag All	¥ 1	
	22	Access V	1	C-Port v	Ø	Tagged and Untagged V	Untag All	v 1	
	23	Access V	1	C-Port v	×.	Tagged and Untagged V	Untag All	T 1	
	24	Access V	1	C.Port V		Tagged and Lintagged	Lintan All	v 1	

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:

•IP	Mode		Route	er 🔻						
• NTP	DNS Ser	ver 0	No D	NS server		•				
 Imezone SNMP 	DNS Ser	ver 1	No D	NS server		्र				
Syst og	DNS Ser	ver 2	No D	NS server		•				1
Port Configure	DNS Ser	ver 3	No D	NS server		۲				1
Ports	DNS Pro	ху								
Mirroring Green Ethernet	IP Interf	aces			DH	CPv	4	IF	Pv4	
PoE	Delete	VL	.AN	Enable	Fallbac	k	Current Lease	Address	Mask	Lengt
Ivanced Configure			1		0]	192.168.1.1	24	
MAC Table	Delete		2		0			192.168.2.1	24	
VLANS	Delete		3		0]	192.168.3.1	24	
Spanning Tree	Delete		4		0			192.168.4.1	24	
IGMP Snooping	Delete	11	5	0	0		1	192 168 5 1	24	-
LLDP					<u></u>		1			
curity Configure	Add Inter	face								
oS Configure										
liagnostics	IP Route	es								
aintenance	Delete	Netv	vork	Mask Lei	ngth Gate	eway	Next Hop VLA	N		
	Add Rou	te								
			10							

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

常规 如果网络支持此功能,则可以薪 您需要从网络系统管理员处获得	取自动指派的 IP 设置。否则, 适当的 IP 设置。
	n an stand an
◎ 目动获得 IP 地址(0) ~◎ 使用下面的 TP 地址(S)・	
IP 地址(I):	192 . 168 . 1 . 10
子网摘码(0):	255 . 255 . 255 . 0
默认网关 (0):	192 . 168 . 1 . 1
 自动获得 DNS 服务器地址 使用下面的 DNS 服务器地; 首选 DNS 服务器(P): 备用 DNS 服务器(A); 	08) <u> <u> </u> </u>
🔲 退出时验证设置 (L)	_ 高级(♡)

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:

etwork Admin ort Configure	Allow	ed Access	VLANs	1-3					
οE	Ether	type for Cu	ustom S-p	BAR 88A8					
vanced Configure	Port V	AN Con	figuratio	an l					
MAC Table VLANs Port Isolation	Port	Mode	Port	Port Type	Ingress	Ingress Acceptance	Egress Tagging	Allowed VLANs	Forbidder VLANs
Loop Protection	*	<> -	1	♦ .	V	♦ •	<u>۰</u>	1	
Spanning Tree	1	Access 👻	1	C-Port -	1	Tagged and Untagged -	Untag Port VLAN -	1	
MEP	2	Access 🔻	1	C-Port -		Tagged and Untagged *	Untag Port VLAN -	1	
IGMP Snooping	3	Access 🔻	3	C-Port -	V	Tagged and Untagged 👻	Untag Port VLAN 👻	3	
LLDP	4	Access 👻	1	C-Port +		Tagged and Untagged *	Untag Port VLAN 👻	1	
curity Configure	5	Access 👻	1	C-Port *	V	Tagged and Untagged *	Untag Port VLAN *	1	
S Configure	6	Access 🔻	1	C-Port -		Tagged and Untagged *	Untag Port VLAN 👻	1	
gnostics	7	Access 👻	1	C-Port -	V	Tagged and Untagged 👻	Untag Port VLAN 👻	1	
gnosues	8	Access 👻	1	C-Port -		Tagged and Untagged 👻	Untag Port VLAN -	1	
intenance	9	Access 🔻	1	C-Port -	V	Tagged and Untagged *	Untag Port VLAN -	1	
	10	Access -	1	C-Port -		Tagged and Untagged +	Untag Port VLAN -	1	

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

ure Allow	ed Access	VLANs	1-3					
Ethe	rtype for C	ustom S-p	oorts 88A8					
configure Port	VI AN Cor	figuratio	on.					
le	Chit Gol	inguruus						
Port	Mode	Port VLAN	Port Type	Filtering	Ingress Acceptance	Egress Tagging	Allowed	Forbidden VLANs
on	↔ -	1	<> -	7	↔	↔ .	1	
1	Access -	1	C-Port +		Tagged and Untagged -	Untag Port VLAN -	1	
2	Access 🔻	2	C-Port -		Tagged and Untagged -	Untag Port VLAN -	2	
3	Access -	3	C-Port +		Tagged and Untagged -	Untag Port VLAN -	3	
4	Access -	- 1	C-Port +		Tagged and Untagged -	Untag Port VLAN -	1	
5	Access 🔻	1	C-Port -	1	Tagged and Untagged -	Untag Port VLAN -	1	
6	Access -	1	C-Port -		Tagged and Untagged -	Untag Port VLAN -	1	
7	Access 👻	1	C-Port -	V	Tagged and Untagged -	Untag Port VLAN -	1	
8	Access -	1	C-Port -		Tagged and Untagged -	Untag Port VLAN -	1	
9	Access -	1	C-Port -	V	Tagged and Untagged -	Untag Port VLAN -	1	
10	Access -	1	C-Port -		Tagged and Untagged -	Untag Port VLAN -	1	

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

►Information & Status ►Network Admin IP NTP Timezone ►SNMP SysLog 	IP Conf Mode DNS Se DNS Pro	iguration Router rver No DN oxy	IS server	•				
▶Port Configure			+		CP		IDv/	
▶PoE	Delete	VLAN	Enable	Fallback	Current Lease	Addres	s Mask Len	gth
Advanced Configure		1		0		192.168.1.1	24	
Security Configure	Delete	3		0		192.168.3.1	24	
▶Diagnostics ▶Maintenance	Add Inte	erface es					-	
	Delete	Netw	ork	Mask Leng	th Gatewa	y Next	Hop VLAN	
	Delete	192.168.2.0		24	192.168.3.2	0	6	
	Add Rou Save	ute Reset						

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

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 Config	uration							
•IP	Mode	Router	•						
NTP	DNS Serve	er No DN	S server	T					
Timezone SNMP	DNS Prox	y 💿		124					
 SysLog 	IP Interfa	ces							
▶Port Configure				IPv4 D	ICP		IP	14	
▶ PoE	Delete	VLAN	Enable	Fallback	Current Lease	A	ddress	Mask Leng	yth
Advanced Configure		1		0	1	192.168	.10.1	24	
NOOS Configure	Delete	2		0		192.168	.2.1	24	
Diagnostics	Delete	3		0		192.168	.3.2	24	
Maintenance	Add Interfa IP Routes Delete 1 Add Route Save Re	Netwo 92.168.1.0	ork	Mask Leng 24	th Gatewa 192.168.3.1	<u>ay</u>	Next Hop 0	VLAN	

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

~~~	薪取息劫指派的_IP 设置。否则,
S需女从内有承知目珪贝处铁	1919年1月11年1月14日。
◎ 自动获得 IP 地址(0)	
◎ 使用下面的 IP 地址(S):	
IP 地址(I):	192 .168 . 1 . 10
子网摘码(0):	255 .255 .255 .0
默认网关(0):	192 . 168 . 1 . 1
<ul> <li>自动获得 DNS 服务器地</li> <li>使用下面的 DNS 服务器</li> <li>首选 DNS 服务器 (P):</li> <li>各田 DNS 服务器(A):</li> </ul>	止(B) 也址(E):
留用 UNS 服务器 (A):	<u>13 17 18</u>
🔲 退出时验证设置 (L)	高级(V)

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.



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:

Port	Mode	Port VLAN	Port Type	Ingress Filtering	Ingress Acceptance	Egress Tagging	Allowed	Forbidden VLANs
	<> ▼	1	<> •		<> ▼	<> T	1	
1	Access 🔻	2	C-Port V	Ø	Tagged and Untagged V	Untag Port VLAN *	2	
2	Access <b>v</b>	3	C-Port v	1	Tagged and Untagged V	Untag Port VLAN *	3	
3	Trunk 🔻	1	C-Port v		Tagged Only 🔻	Tag All 🔹	1-4095	
4	Access 🔻	1	C-Port V	1	Tagged and Untagged *	Untag Port VLAN *	1	
5	Access 🔻	1	C-Port *	1	Tagged and Untagged V	Untag Port VLAN *	1	
6	Access •	1	C-Port *	1	Tagged and Untagged V	Untag Port VLAN V	1	
7	Access *	1	C-Port •	1	Tagged and Untagged *	Untag Port VLAN *	1	
8	Access 🔻	1	C-Port *	1	Tagged and Untagged V	Untag Port VLAN *	1	
9	Access 🔻	1	C-Port 🔻	(d)	Tagged and Untagged V	Untag Port VLAN V	1	
10	Access <b>*</b>	1	C-Port V	4	Tagged and Untagged V	Untag Port VLAN V	1	

### 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 cant 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

rt Configure E vanced Configure MAC Table	Allow Ethert Port V	ed Access V ype for Cust /LAN Conf	LANs com S-ports figuration	100.200 88A8						
Ethernet Services	Port	Mode	Port VLAN	Port Ty	pe	Ingress Filtering	Ingress Acceptance	Egress Taggin	g	A
Port Isolation	*	<> ▼	1	$\diamond$	۲		<> •	<>	۲	1
Spanning Iree	1	Access V	1	C-Port	Ŧ	1	Tagged and Untagged V	Untag All	٣	1
	2	Access V	1	C-Port	٣	1	Tagged and Untagged V	Untag All	٧	1
3	3	Access V	1	C-Port	٧	1	Tagged and Untagged V	Untag All	٧	1
Snooping	4	Access V	1	C-Port	٣	1	Tagged and Untagged V	Untag All	٣	1
_D Snooping	5	Access *	1	C-Port	٣	1	Tagged and Untagged V	Untag All	٧	1
	6	Access •	1	C-Port	Ψ.	1	Tagged and Untagged V	Untag All	٧	1
nfigure	7	Access V	1	C-Port	Ŧ	1	Tagged and Untagged V	Untag All	v	1
gure	8	Access •	1	C-Port	٣	1	Tagged and Untagged V	Untag All	٣	1
5	9	Access V	1	C-Port	٧	1	Tagged and Untagged V	Untag All	v	1
nce	10	Access •	1	C-Port	٣	1	Tagged and Untagged V	Untag All	٧	1

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

2. Configure the interface type to QionQ

#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

ort Configure	Allow	ed Access V	LANs	1,100,200					
E	Ethert	ype for Cust	om S-ports	88A8					
MAC Table	Port V	LAN Conf	iguration						
Ethernet Services	Port	Mode	Port VLAN	Port Type	Ingress Filtering	Ingress Acceptance	Egress Tagging	Allowed VLANs	Forbidden VLANs
Port Isolation	*	<> ▼	100	<> •		<> •		1-4095	
Spanning Tree	1	Hybrid 🔻	100	Unaware 🔻		Tagged and Untagged V	Untag Port VLAN V	1-4095	
MED	2	Hybrid 🔻	200	Unaware 🔻		Tagged and Untagged V	Untag Port VLAN V	1-4095	
ERPS	3	Access V	1	C-Port V	1	Tagged and Untagged V	Untag All 🔹	1	
GMP Snooping	4	Access V	1	C-Port V	1	Tagged and Untagged V	Untag All 🔹	1	
PV6 MLD Snooping	5	Access V	1	C-Port V	1	Tagged and Untagged V	Untag All 🔻	1	
LDP	6	Access V	1	C-Port V	1	Tagged and Untagged V	Untag All 🔻	1	
urity Configure	7	Access V	1	C-Port V	1	Tagged and Untagged V	Untag All 🔻	1	
Configure	8	Access *	1	C-Port V	1	Tagged and Untagged V	Untag All 🔻	1	
nostics	9	Access *	1	C-Port V	1	Tagged and Untagged V	Untag All 🔻	1	-
ntenance	10	Access T	1	C-Port V	1	Tagged and Untagged V	Untag All V	1	19

#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.

	Allowe	ed Access V	LANs	1,100,200					
	Etherty	ype for Cust	om S-ports	88A8					
figure	Port V	LAN Conf	iguration						
es l	Port	Mode	Port VLAN	Port Type	Ingress Filtering	Ingress Acceptance	Egress Tagging	Allowed VLANs	Forbidder VLANs
	*	<> ▼	100	<> ▼		<> ▼	<> •	1-4095	
	1	Hybrid 🔻	100	Unaware 🔻		Tagged and Untagged V	Untag Port VLAN V	1-4095	
	2	Hybrid <b>T</b>	200	Unaware 🔻		Tagged and Untagged V	Untag Port VLAN V	1-4095	
	3	Hybrid 🔻	1	S-Custom-Port V		Tagged and Untagged V	Untag Port VLAN V	1,100,200	
	4	Access V	1	C-Port 🔻	1	Tagged and Untagged V	Untag All 🔹	1	
	5	Access *	1	C-Port 🔻	1	Tagged and Untagged V	Untag All 🔻	1	
	6	Access •	1	C-Port 🔻	1	Tagged and Untagged V	Untag All 🔻	1	
н.	7	Access V	1	C-Port V	1	Tagged and Untagged V	Untag All 🔻	1	
	8	Access V	1	C-Port 🔻	1	Tagged and Untagged *	Untag All 🔻	1	
	9	Access V	1	C-Port 🔻	1	Tagged and Untagged V	Untag All 🔻	1	
	10	Access V	1	C-Port V	9	Tagged and Untagged V	Untag All	1	1

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

Port Configure	Allow	ed Access V	LANs	1,100,200					
PoE	Ethert	ype for Cust	tom S-ports	9100					
Advanced Configure MAC Table	Port V	LAN Cont	figuration						
VLANs	Port	Mode	Port VLAN	Port Type	Ingress Filtering	Ingress Acceptance	Egress Tagging	Allowed VLANs	Forbidden VLANs
Port Isolation	*	<> •	100	<> •		<> ▼	<> •	1-4095	
Spanning Iree	1	Hybrid 🔻	100	Unaware •		Tagged and Untagged V	Untag Port VLAN V	1-4095	
MEP	2	Hybrid 🔻	200	Unaware 🔹		Tagged and Untagged •	Untag Port VLAN V	1-4095	
- ERPS	3	Hybrid 🔻	1	S-Custom-Port *		Tagged and Untagged V	Untag Port VLAN V	1,100,200	
IGMP Snooping	4	Access •	1	C-Port •	1	Tagged and Untagged V	Untag All 🔹	1	
▶IPV6 MLD Snooping	5	Access •	1	C-Port *	1	Tagged and Untagged V	Untag All 🔹	1	
LLDP	6	Access •	1	C-Port *	1	Tagged and Untagged V	Untag All 🔹	1	
Security Configure	7	Access V	1	C-Port *	1	Tagged and Untagged V	Untag All 🔹	1	
QoS Configure	8	Access •	1	C-Port •	1	Tagged and Untagged *	Untag All 🔹	1	
Diagnostics	9	Access •	1	C-Port v	1	Tagged and Untagged V	Untag All 🔹	1	
waintenance	10	Access •	1	C-Port *	1	Tagged and Untagged V	Untag All 🔹	1	

### 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. 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.

Port Configure	Allow	ved Access \ type for Cus	/LANs tom S-po	1-10 orts 88A8					
Advanced Configure	Port \	/LAN Con	figurati	on	1.	-			
▶Port Isolation	Port	Mode	VLAN	Port Type	Filtering	Acceptance	Egress Tagging	VLANs	VLANs
Loop Protection	*	<> ▼	1	↔ -	V	↔ •	↔ •	1	
Spanning Tree	1	Access 👻	10	C-Port -		Tagged and Untagged -	Untag Port VLAN -	10	
• MEP	2	Access 👻	10	C-Port -		Tagged and Untagged -	Untag Port VLAN -	10	
ERPS     MGMP Snooping	3	Access 👻	10	C-Port -	V	Tagged and Untagged -	Untag Port VLAN -	10	
•LLDP	4	Access 👻	1	C-Port -		Tagged and Untagged -	Untag Port VLAN -	1	
Focurity Configure	5	Access 🔻	1	C-Port +		Tagged and Untagged -	Untag Port VLAN -	1	
security configure	6	Access 👻	1	C-Port -		Tagged and Untagged -	Untag Port VLAN -	1	
20S Configure	7	Access 🔻	1	C-Port +		Tagged and Untagged -	Untag Port VLAN 👻	1	
Diagnostics	8	Access 👻	1	C-Port -		Tagged and Untagged 👻	Untag Port VLAN 👻	1	
Maintenance	9	Access 🔻	1	C-Port -	1	Tagged and Untagged 👻	Untag Port VLAN 👻	1	
	10	Access -	1	C-Port -		Tagged and Untagged -	Untag Port VLAN -	1	

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.



# 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.



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.



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.



▶ Maintenance

### LACP Port Configuration

Port	LACP Enabled	Key	Role	Timeout	Prio
*		◇ -	<	<> ▼	32768
1		Auto 👻	Active 👻	Fast 👻	100
2		Auto 👻	Active 👻	Fast 💌	100
3		Auto 👻	Active 👻	Fast 💌	100
4		Auto 👻	Active 👻	Fast 👻	32768
5		Auto 👻	Active 👻	Fast 💌	32768
6		Auto 👻	Active 👻	Fast 💌	32768
7		Auto 👻	Active 👻	Fast 🔻	32768
8		Auto 👻	Active 👻	Fast 💌	32768
9		Auto 👻	Active 👻	Fast 💌	32768
10		Auto 👻	Active 👻	Fast 🔻	32768

Save Reset

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

* 1 2 3		<> Auto	•	$\diamond$	٠	<> ▪	32768
1 2 3	7	Auto					
2			•	Passive		Fast 🗸	100
3	Refeed.	Auto	-	Passive	•	Fast 💌	100
~	V	Auto	-	Passive	•	Fast 👻	100
4		Auto	· •	Active	•	Fast 💌	32768
5		Auto	•	Active	•	Fast 🕶	32768
6		Auto	•	Active	•	Fast 👻	32768
7		Auto	•	Active	•	Fast 🕶	32768
8		Auto	•	Active		Fast 👻	32768
9		Auto	•	Active	•	Fast 💌	32768
10		Auto	•	Active	•	Fast 👻	32768
	5 6 7 8 9 10 ave F	5	5 Auto 6 Auto 7 Auto 8 Auto 9 Auto 10 Auto	5 Auto - 6 Auto - 7 Auto - 8 Auto - 9 Auto - 10 Auto - Reset	5   Auto   Active     6   Auto   Active     7   Auto   Active     8   Auto   Active     9   Auto   Active     10   Auto   Active	5     Auto     Active       6     Auto     Active       7     Auto     Active       8     Auto     Active       9     Auto     Active       10     Auto     Active	5       Auto       Active       Fast *         6       Auto       Active       Fast *         7       Auto       Active       Fast *         8       Auto       Active       Fast *         9       Auto       Active       Fast *         10       Auto       Active       Fast *         ave       Reset       Reset       Fast *

١

Security Configure

▶QoS Configure

▶Diagnostics

▶ Maintenance

# 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.

▶Information & Status	STD Dridge Configurati				
Network Admin	STP Bridge Conliguration	on			
▼Port Configure	Basic Settings		1		
Ports	Protocol Version	MSTP T			
✓Aggregation	Bridge Priority	STP			
<ul> <li>Static</li> </ul>	Forward Delay	RSTP			
LACP	Max Age	20			
Mirroring     Theorem I Deste stiller	Maximum Hop Count	20			
Green Ethernet	Transmit Hold Count	6			
PoF					
XAdvanced Configure					
MAC Table					
VLANs	Save Reset				
✓Port Isolation					
Port Group					
<ul> <li>Port Isolation</li> </ul>					
Loop Protection					
▼Spanning Tree					
Bridge Settings     MSTI Mapping					
<ul> <li>MSTI Priorities</li> </ul>					
<ul> <li>CIST Ports</li> </ul>					
MSTI Ports					
• MEP					
IGMP Snooping					
•ILDP					
Security Configure					
Poos Configure					
Diagnostics					
- Diagnostics					
Maintenance					

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.

egation	Port	STP	P	ath Cost	Priority	Admin Edge	Auto Edge	Restr	TCN	BPDU Guard	Point-to-
tatic	_		Auto	+	128 -	Non-Edge -				E	Forced True V
ACP			1.5555550			(1111-1-1-1)		Kinal	Lind		I name name na
ring	CIST	Normal Port C	onfiguratio	m							
nal Protection	CIGT	STP	unigeratio					Restr	icted		Point-to-
Ethemet	Port	Enabled	P	ath Cost	Priority	Admin Edge	Auto Edge	Role	TCN	BPDU Guard	point
d Canflaine	*		$\diamond$	•	◇ •	<> •					<> ▼
Table	1		Auto	+	128 🗸	Non-Edge 🔻				<b>—</b>	Auto 👻
Is	2	V	Auto	•	128 💌	Non-Edge 🔻	<b>V</b>	(T)	177		Auto 👻
solation	3		Auto	•	128 -	Non-Edge -					Auto 👻
ort Group	4		Auto	-	128 🗸	Non-Edge 👻					Auto 👻
ort Isolation	5		Auto	-	128 -	Non-Edge +		0	1	m	Auto 🗸
ning Tree	6	E	Auto	-	128 -	Non-Edge -		(FT)		E	Auto 🔻
idge Settings	7		Auto	•	128 -	Non-Edge -		m	m		Auto -
STI Mapping			Auto		128 -	Non-Edge			100		Auto -
STI Priorities	0		Auto		100 -	Non-Edge		20	122		hato -
STI Ports	9		Auto	-	120 •	Non Euge +					Auto
	10		Auto		120 •	Non-Luge 👻	V		100		Auto •
3	- 22										
Snooping	Save R	eset									
		10.5									

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.

bE dvanced Configure	Ethert Port V	ed Access V ype for Cus	LANs tom S-ports figuration	1-20 88A8					
VLANs Port Isolation	Port	Mode	Port VLAN	Port Type	Ingress Filtering	Ingress Acceptance	Egress Tagging	Allowed VLANs	Forbidden VLANs
Spanning Tree	-	<> •	1	<> •	2	<> •	<> •	1	
MEP	1	Trunk •	1	C-Port V	1	Tagged Only V	Tag All	1-4095	
ERPS	2	Trunk 🔻	1	C-Port V	1	Tagged Only V	Tag All 🔹	1-4095	
IGMP Snooping	3	Access V	1	C-Port V	1	Tagged and Untagged V	Untag Port VLAN V	1	
LLDP	4	Access V	1	C-Port *	1	Tagged and Untagged V	Untag Port VLAN 🔻	1	1
urity Configure	5	Access *	1	C-Port *	1	Tagged and Untagged *	Untag Port VLAN V	1	
Configure	6	Access V	1	C-Port V	1	Tagged and Untagged *	Untag Port VLAN *	1	
nostics	7	Access V	1	C-Port V	1	Tagged and Untagged V	Untag Port VLAN V	1	
nance	8	Access V	1	C-Port V	1	Tagged and Untagged V	Untag Port VLAN 🔻	1	1
	9	Access *	1	C-Port *	1	Tagged and Untagged *	Untag Port VLAN *	1	
	10	Access V	1	C-Port *	1	Tagged and Untagged *	Untag Port VLAN V	1	

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	STP Bridge Configurat	tion		
Network Admin	on Bhage conligura	lion		
▼Port Configure	Basic Settings			
Ports	Protocol Version	MSTP -	h	
<ul> <li>Aggregation</li> </ul>	Bridge Priority	32768 -	1	
Static	Forward Delay	15		
• LACP	Max Age	20		
INirroring     Thermal Protection	Maximum Hop Count	20		
Green Ethernet	Transmit Hold Count	6		
PoF				
Loop Protection     Spanning Tree     Bridge Settings     MSTI Mapping     MSTI Priorities     CIST Ports     MSTI Ports     MEP     ERPS     MCME Secondary				
Security Configure				
Oos Configuro				
Picos conligure				
Diagnostics				
Maintenance				

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.

s	Port	STP	Pa	th Cost	Priority	Admin Edge	Auto Edge	Rest	ricted	BPDU Guard	Point-to-	
regation		Enabled				, tanin Lugo	Auto Lugo	Role	TCN	Di Do Guara	point	
ACP	-	V	Auto	•	128 •	Non-Edge 🔻	V		0		Forced True	•
oring	-			-								
mal Protection	CIST	Normal Port C	onfiguration	0	_			_				_
en Ethernet	Port	STP	Pa	th Cost	Priority	Admin Edge	Auto Edge	Rest	ricted	BPDU Guard	Point-to-	
		Enabled	~	_		-	-	Role	ICN		point	
ed Configure			N/	•	V •	· · ·	×.				~	-
Table	1	V	Auto	-	128 -	Non-Edge -					Auto	-
Ns	2	V	Auto	•	128 -	Non-Edge 👻	V		1		Auto	-
Isolation	3		Auto	•	128 -	Non-Edge 👻					Auto	-
Port Group Port Isolation	4		Auto	•	128 👻	Non-Edge 👻	$\mathbf{\nabla}$				Auto	•
Protection	5		Auto	•	128 -	Non-Edge 👻			1		Auto	-
ning Tree	6		Auto	•	128 💌	Non-Edge 👻			1		Auto	-
Bridge Settings	7		Auto	•	128 -	Non-Edge 👻					Auto	-
ASTI Mapping	8		Auto	•	128 •	Non-Edge 👻	1	0	10	E	Auto	-
CIST Priorities	9		Auto	-	128 -	Non-Edge -		m	(P1	m	Auto	-
ISTI Ports	10		Auto	_	128 -	Non-Edge =			-		Auto	
2			mato		100 .	non Edgo		End	End		nato	
S												
P Snooping	Save R	eset										
P												
Configure												
nfigure												
tion												

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.

etwork Admin	Add VI ANE	senarated by snar	ee or comma			
•IP	AUU VLANS	separated by space	es or comma.			
• NTP	Unmapped	VLANs are mapp	ed to the CI	ST. (The default bridge in	nstance).	
■ Timezone ■ SNMP						
<ul> <li>SysLog</li> </ul>	Configur	ation Identification				
Port Configure	Configu	ration Name	mstp			
PoF	Configu	ration Revision	0			
Advanced Configure						
• MAC Table	MSTI Ma	apping			24	
• VLANs	MSTI			VLANs Mapped		
Port Isolation	MSTI1	10			<u>^</u>	
Loop Protection		20				
	MSTI2				-	
Bridge Settings	MSTI3				*	
MSTI Priorities	MOTIO				*	
CIST Ports	MSTI4				<u>^</u>	
<ul> <li>MSTI Ports</li> </ul>						
• MEP	MSTI5				*	
ERPS	MSTIG				*	
FIGMP Shooping	MISTIO				τ.	
	MSTI7				<u>^</u>	
Security Configure						
QoS Configure						
Diagnostics	Save Res	et				

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





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