

VLAN Stacking

ZyXEL Ethernet Switch

Support Note

Jan 2006

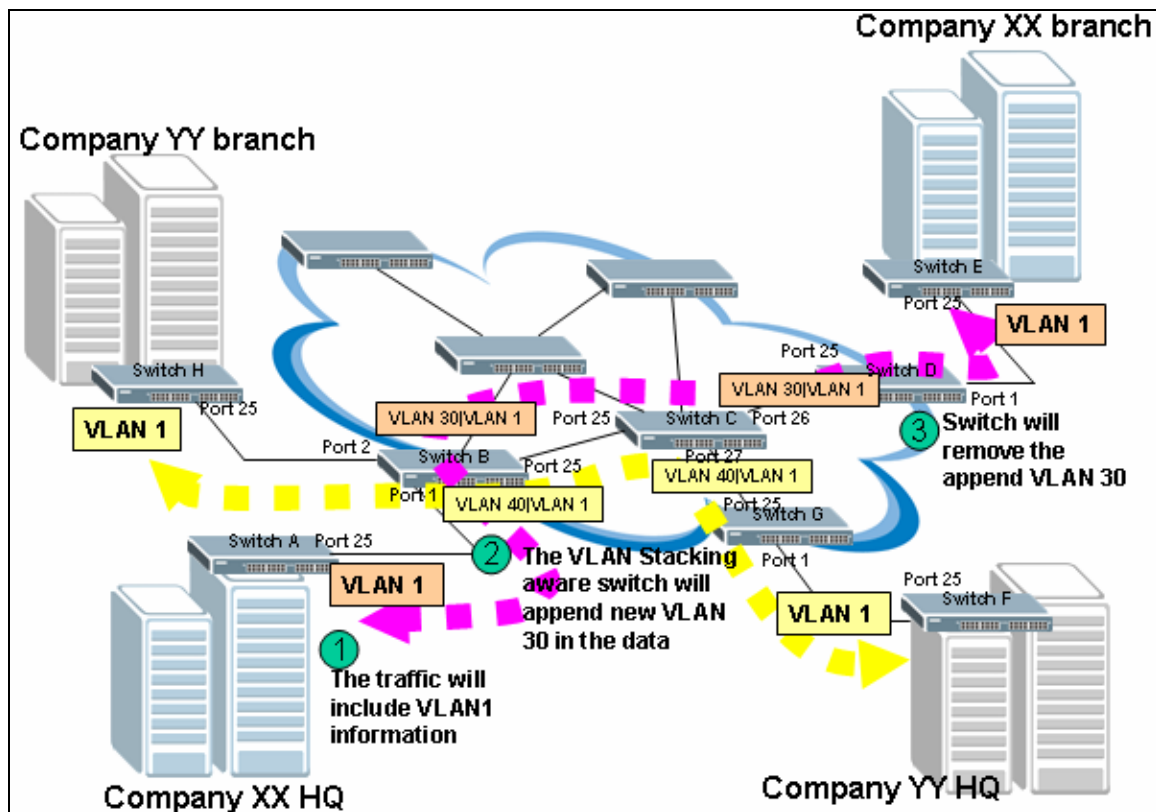


Overview

VLAN stacking is a technique that lets carriers offer multiple virtual LANs over a single circuit. In essence, the carrier creates an Ethernet VPN to tunnel customer VLANs across its WAN; this help avoids name conflicts among customers of service providers who connect to the carrier.

Stacking works by assigning two VLAN IDs to each frame header. One is a "backbone" VLAN ID used by the service provider, the other one of up to 4,096 unique 802.1Q VLAN tags.

Scenario



Company XX and company YY are both subscribing the same ISP for Internet service. Both company has an internally VLAN group number 1. In order to prevent those two companies can cross talk with each other, VLAN stacking is implemented within the ISP. And the ISP has assigned a service provider VID for each of the company. Company XX has been assigned SP VID 30 and company YY has been assigned SP VID 40.

Packets flow between **Company XX HQ** and **its branch office**.

Company XX HQ → Switch A → Switch B → Switch C → Switch D → Company XX Branch Office.

VLAN Stacking is used with access port on Switch B (port 1 and 2). It will append the SP tag for ingress and remove the appended SP tagged during egress. VLAN Stacking is used with Tunnel port on Switch B (port 25), C, and D. Static VLAN Tx Tagging Must be DISABLED on a port where you choose Normal or Access Port. Static VLAN Tx Tagging MUST be enabled on a port where you choose Tunnel port.

Packets flow between **Company YY HQ** and **its branch office**.

Company YY HQ → Switch F → Switch G → Switch C → Switch B → Switch H → Company YY Branch Office.

VLAN Stacking is used with access port on Switch G (port 1). Switch G will append the SP tag and it will also remove the appended SP tag during egress. VLAN Stacking is used with Tunnel port on Switch G (port 25), C, and B.

From Switch A to Switch H

- **Switch A:**
Enabled VLAN, VLAN1, Port 25 egress tagged
Port 1 connected to another building access Switch.
Port 25 connected to Switch B's port 1
- **Switch B:**
Enabled VLAN Stacking and STP
Port 1 connected to Switch A's port 25
Port 2 connected to Switch H's port 25
Port 25 connected to Switch C's port 25
- **Switch C:**
Enabled VLAN Stacking and STP
Port 27 connected to Switch G's port 25
Port 26 connected to Switch D's port 25
Port 25 connected to Switch B's port 25
- **Switch D:**
Enabled VLAN Stacking

Port 1 connected to Switch E's port 25

Port 25 connected to Switch C's port 26

- **Switch E:**

Enabled VLAN, VLAN1, Port 25 egress tagged

Port 1 connected to another building access Switch.

Port 25 connected to Switch D's port 1

- **Switch F:**

Enabled VLAN, VLAN1, Port 25 egress tagged

Port 1 connected to another building access Switch.

Port 25 connected to Switch G's port 1

- **Switch G:**

Enabled VLAN Stacking

Port 1 connected to Switch F's port 25

Port 25 connected to Switch C's port 27

- **Switch H:**

Enabled VLAN, VLAN1, Port 25 egress tagged

Port 1 connected to another building access Switch.

Port 25 connected to Switch B's port 2

Configuring Switch A, E, F, H via GUI

1. What we need in Switches A, E, F, H is just to create a VLAN 1 which contains all the port members. And by default VLAN1 is already created for you. The only thing you need to take care is to make sure that Port 25 is part of VLAN Group 1 and remain tagged during Egress.

*By default all the ports in VLAN 1 are untagged during Egress.

Configuring Switch B via GUI

1. Connect the MGMT port with a PC or Notebook via the RJ45 Cable.
2. By default the IP on the MGMT port is 192.168.0.1/24
3. Set your NIC to 192.168.0.2/24
4. Open an Internet browser such as IE and give <http://192.168.0.1> on the URL.
5. By default you will need to put “admin” as the username and “1234” as the password.
6. After you login successfully, you will see a similar screen like below.

ZyXEL Status Logout Help

MENU
Basic Setting
Advanced Application
Routing Protocol
Management

Status
System Up Time : 29:10:27

Port	Link	State	LACP	TxPkts	RxPkts	Errors	Tx KB/s	Rx KB/s	Up T
1	100M/F	FORWARDING	Disabled	6199	2356	0	0.0	0.0	2:13
2	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
3	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
4	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
5	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
6	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
7	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
8	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
9	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
10	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
11	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
12	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
13	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
14	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
15	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
16	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
17	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00

Poll Interval(s) 40 Set Interval Stop

Port ALL Clear Counter

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7. First, you will need to create those outer VLAN port groups. They include VLAN 30(for company XX), and VLAN40(for company YY).Go “Advanced Application”, click VLAN and choose Static VLAN.

ZyXEL Status Logout Help

MENU
 Basic Setting
 Advanced Application
 Routing Protocol
 Management

VLAN Status
 The Number Of VLAN = 1

VLAN Port Setting Static VLAN

Index	VID	Port Number																Elapsed Time	Sta
		2	4	6	8	10	12	14	16	18	20	22	24	26	28				
1	1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0:00:20	Sta	

Poll Interval(s): 40 Set Interval Stop

Change Pages Previous Page Next Page

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Add VLAN30 and make Port 1 to be “Fixed” and no “Tx Tagging”. Make Port 25 to be “Fixed” and keep “Tx Taggin”.

ZyXEL Status Logout Help

MENU
 Basic Setting
 Advanced Application
 Routing Protocol
 Management

Static VLAN VLAN Status

ACTIVE ☒

Name: VLAN30

VLAN Group ID: 30

Port	Control	Tagging
1	<input checked="" type="radio"/> Normal <input checked="" type="radio"/> Fixed <input type="radio"/> Forbidden	<input type="checkbox"/> Tx Tagging
2	<input checked="" type="radio"/> Normal <input type="radio"/> Fixed <input type="radio"/> Forbidden	<input checked="" type="checkbox"/> Tx Tagging
3	<input checked="" type="radio"/> Normal <input type="radio"/> Fixed <input type="radio"/> Forbidden	<input checked="" type="checkbox"/> Tx Tagging
4	<input checked="" type="radio"/> Normal <input type="radio"/> Fixed <input type="radio"/> Forbidden	<input checked="" type="checkbox"/> Tx Tagging
5	<input checked="" type="radio"/> Normal <input type="radio"/> Fixed <input type="radio"/> Forbidden	<input checked="" type="checkbox"/> Tx Tagging
6	<input checked="" type="radio"/> Normal <input type="radio"/> Fixed <input type="radio"/> Forbidden	<input checked="" type="checkbox"/> Tx Tagging
7	<input checked="" type="radio"/> Normal <input type="radio"/> Fixed <input type="radio"/> Forbidden	<input checked="" type="checkbox"/> Tx Tagging
8	<input checked="" type="radio"/> Normal <input type="radio"/> Fixed <input type="radio"/> Forbidden	<input checked="" type="checkbox"/> Tx Tagging
9	<input checked="" type="radio"/> Normal <input type="radio"/> Fixed <input type="radio"/> Forbidden	<input checked="" type="checkbox"/> Tx Tagging
10	<input checked="" type="radio"/> Normal <input type="radio"/> Fixed <input type="radio"/> Forbidden	<input checked="" type="checkbox"/> Tx Tagging
11	<input checked="" type="radio"/> Normal <input type="radio"/> Fixed <input type="radio"/> Forbidden	<input checked="" type="checkbox"/> Tx Tagging
12	<input checked="" type="radio"/> Normal <input type="radio"/> Fixed <input type="radio"/> Forbidden	<input checked="" type="checkbox"/> Tx Tagging
13	<input checked="" type="radio"/> Normal <input type="radio"/> Fixed <input type="radio"/> Forbidden	<input checked="" type="checkbox"/> Tx Tagging
14	<input checked="" type="radio"/> Normal <input type="radio"/> Fixed <input type="radio"/> Forbidden	<input checked="" type="checkbox"/> Tx Tagging
15	<input checked="" type="radio"/> Normal <input type="radio"/> Fixed <input type="radio"/> Forbidden	<input checked="" type="checkbox"/> Tx Tagging

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Also, add VLAN40 and make Port 2 to be “Fixed” and no “Tx Tagging”. Make Port 25 to be “Fixed” and keep “Tx Taggin”. Finally, your VLAN

setting will come up like below.

ZyXEL Status Logout Help

MENU
 Basic Setting
 Advanced Application
 Routing Protocol
 Management

VLAN Status
 The Number Of VLAN = 3

[VLAN Port Setting](#) [Static VLAN](#)

Index	VID	Port Number																Elapsed Time	Sta
		2	4	6	8	10	12	14	16	18	20	22	24	26	28				
1	1	1	3	5	7	9	11	13	15	17	19	21	23	25	27	0:00:35	Sta		
		U	U	U	U	U	U	U	U	U	U	U	U	U	U				
2	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0:00:34	Sta		
		U	-	-	-	-	-	-	-	-	-	-	-	T	-				
3	40	U	-	-	-	-	-	-	-	-	-	-	-	-	-	0:00:34	Sta		
		-	-	-	-	-	-	-	-	-	-	-	-	T	-				

Poll Interval(s):

Change Pages:

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- To enable VLAN Stacking, click “Advanced Application” on the left, and then click “VLAN Stacking” at the expanded menu.

ZyXEL Status Logout Help

MENU

- Basic Setting
- Advanced Application
- Routing Protocol
- Management

VLAN Stacking

Active ☒

SP TPID ☒ 0x8100 ☐ Others (Hex)

Port	Role	SPVID	Priority
1	Access Port	30	0
2	Access Port	40	0
3	Access Port	1	0
4	Access Port	1	0
5	Access Port	1	0
6	Access Port	1	0
7	Access Port	1	0
8	Access Port	1	0
9	Access Port	1	0
10	Access Port	1	0
11	Access Port	1	0
12	Access Port	1	0

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First, please check the checkbox to active VLAN Stacking. Then we make Port 1 and Port 2 as a “Access Port” and set its corresponding SPVID to it.

25 Tunnel Port 1 0

Set Port 25 as the “Tunnel Port” and it is not necessary to give it a special SPVID.

9. At this point Switch B is ready to user VLAN Stacking in this scenario.

Configuring Switch C via GUI

1. Connect the MGMT port with a PC or Notebook via the RJ45 Cable.
2. By default the IP on the MGMT port is 192.168.0.1/24
3. Set your NIC to 192.168.0.2/24
4. Open an Internet browser such as IE and give <http://192.168.0.1> on the URL.
5. By default you will need to put "admin" as the username and "1234" as the password.
6. After you login successfully, you will see a similar screen like below.

ZyXEL Status Logout Help

MENU
Basic Setting
Advanced Application
Routing Protocol
Management

Status
System Up Time : 29:10:27

Port	Link	State	LACP	TxPkts	RxPkts	Errors	Tx KB/s	Rx KB/s	Up Time
1	100M/F	FORWARDING	Disabled	6199	2356	0	0.0	0.0	2:13
2	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
3	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
4	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
5	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
6	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
7	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
8	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
9	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
10	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
11	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
12	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
13	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
14	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
15	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
16	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
17	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00

Poll Interval(s): 40 [Set Interval] [Stop]
 Port: ALL [Clear Counter]

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7. First, you will need to create those outer VLAN port groups. They include VLAN 30 (for company XX), and VLAN40 (for company YY). Go "Advanced Application", click VLAN and choose Static VLAN.

ZyXEL Status Logout Help

MENU
 Basic Setting
 Advanced Application
 Routing Protocol
 Management

VLAN Status
 The Number Of VLAN = 1

VLAN Port Setting Static VLAN

Index	VID	Port Number																Elapsed Time	Sta
		2	4	6	8	10	12	14	16	18	20	22	24	26	28				
1	1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0:00:20	Sta	

Poll Interval(s): 40 Set Interval Stop

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Add VLAN group 30 and 40 to Port 25,26,27 and all of them are tagged during egress. Finally the VLAN status will look like below:

ZyXEL Status Logout Help

MENU
 Basic Setting
 Advanced Application
 Routing Protocol
 Management

VLAN Status
 The Number Of VLAN = 3

VLAN Port Setting Static VLAN

Index	VID	Port Number																Elapsed Time	Sta
		2	4	6	8	10	12	14	16	18	20	22	24	26	28				
1	1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0:00:04	Sta	
2	30	-	-	-	-	-	-	-	-	-	-	-	T	-	-	-	0:00:04	Sta	
3	40	-	-	-	-	-	-	-	-	-	-	-	-	T	T	-	0:00:04	Sta	

Poll Interval(s): 40 Set Interval Stop

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- To enable VLAN Stacking, click “Advanced Application” on the left, and then click “VLAN Stacking” at the expanded menu.

ZyXEL Status Logout Help

MENU

- Basic Setting
- Advanced Application
- Routing Protocol
- Management

VLAN Stacking

Active ☒

SP TPID ☒ 0x8100 ☐ Others (Hex)

Port	Role	SPVID	Priority
1	Access Port	1	0
2	Access Port	1	0
3	Access Port	1	0
4	Access Port	1	0
5	Access Port	1	0
6	Access Port	1	0
7	Access Port	1	0
8	Access Port	1	0
9	Access Port	1	0
10	Access Port	1	0
11	Access Port	1	0
12	Access Port	1	0

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Please check the checkbox to active VLAN Stacking. Then we make Port 25,26,27 as “Tunnel Port”. It is not necessary to give Tunnel ports a special SPVID.

25	Tunnel Port	1	0
26	Tunnel Port	1	0
27	Tunnel Port	1	0

9. At this point Switch C is ready to user VLAN Stacking in this scenario.

Configuring Switch D via GUI

1. Connect the MGMT port with a PC or Notebook via the RJ45 Cable.
2. By default the IP on the MGMT port is 192.168.0.1/24
3. Set your NIC to 192.168.0.2/24
4. Open an Internet browser such as IE and give <http://192.168.0.1> on the URL.
5. By default you will need to put “admin” as the username and “1234” as the password.
6. After you login successfully, you will see a similar screen like below.

ZyXEL Status Logout Help

System Up Time : 29:10:27

Port	Link	State	LACP	TxPkts	RxPkts	Errors	Tx KB/s	Rx KB/s	Up Time
1	100M/F	FORWARDING	Disabled	6199	2356	0	0.0	0.0	2:13
2	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
3	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
4	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
5	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
6	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
7	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
8	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
9	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
10	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
11	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
12	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
13	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
14	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
15	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
16	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
17	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00

Poll Interval(s): 40 [Set Interval] [Stop]
 Port: ALL [Clear Counter]

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7. First, you will need to create outer VLAN port groups. They include only VLAN 30 (for company XX) on Switch D. Go “Advanced Application”, click VLAN and choose Static VLAN.

ZyXEL Status Logout Help

MENU
 Basic Setting
 Advanced Application
 Routing Protocol
 Management

VLAN Status
 The Number Of VLAN = 1

VLAN Port Setting Static VLAN

Index	VID	Port Number																Elapsed Time	Sta
		2	4	6	8	10	12	14	16	18	20	22	24	26	28				
1	1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0:00:20	Sta	

Poll Interval(s): 40 Set Interval Stop

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Add VLAN group 30 to Port 1 and 25. Make port 25 remain tagged since it is the Tunnel Port. And make port 1 untagged during Egress since it is an Access Port. Finally the VLAN status will look similar to below:

ZyXEL Status Logout Help

MENU
 Basic Setting
 Advanced Application
 Routing Protocol
 Management

VLAN Status
 The Number Of VLAN = 2

VLAN Port Setting Static VLAN

Index	VID	Port Number																Elapsed Time	Sta
		2	4	6	8	10	12	14	16	18	20	22	24	26	28				
1	1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0:00:06	Sta	
2	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0:00:06	Sta	

Poll Interval(s): 40 Set Interval Stop

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- To enable VLAN Stacking, click “Advanced Application” on the left, and then click “VLAN Stacking” at the expanded menu.

ZyXEL Status Logout Help

MENU

- Basic Setting
- Advanced Application
- Routing Protocol
- Management

VLAN Stacking

Active ☒

SP TPID (Hex)

Port	Role	SPVID	Priority
1	Access Port	30	0
2	Access Port	1	0
3	Access Port	1	0
4	Access Port	1	0
5	Access Port	1	0
6	Access Port	1	0
7	Access Port	1	0
8	Access Port	1	0
9	Access Port	1	0
10	Access Port	1	0
11	Access Port	1	0
12	Access Port	1	0

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Please check the checkbox to active VLAN Stacking. Then we make Port 25 as a “Tunnel Port”. It is not necessary to give Tunnel ports a special SPVID.

25

- At this point Switch D is ready to user VLAN Stacking in this scenario.

Configuring Switch G via GUI

1. Connect the MGMT port with a PC or Notebook via the RJ45 Cable.
2. By default the IP on the MGMT port is 192.168.0.1/24
3. Set your NIC to 192.168.0.2/24
4. Open an Internet browser such as IE and give <http://192.168.0.1> on the URL.
5. By default you will need to put “admin” as the username and “1234” as the password.
6. After you login successfully, you will see a similar screen like below.

ZyXEL Status Logout Help

System Up Time : 29:10:27

Port	Link	State	LACP	TxPkts	RxPkts	Errors	Tx KB/s	Rx KB/s	Up T
1	100M/F	FORWARDING	Disabled	6199	2356	0	0.0	0.0	2:13
2	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
3	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
4	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
5	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
6	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
7	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
8	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
9	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
10	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
11	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
12	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
13	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
14	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
15	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
16	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00
17	Down	STOP	Disabled	0	0	0	0.0	0.0	0:00

Poll Interval(s): 40 [Set Interval] [Stop]
 Port: ALL [Clear Counter]

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7. First, you will need to create outer VLAN port groups. They include only VLAN 40 (for company YY) on Switch G. Go “Advanced Application”, click VLAN and choose Static VLAN.

ZyXEL Status Logout Help

MENU
 Basic Setting
 Advanced Application
 Routing Protocol
 Management

VLAN Status
 The Number Of VLAN = 1

VLAN Port Setting Static VLAN

Index	VID	Port Number																Elapsed Time	Sta
		2	4	6	8	10	12	14	16	18	20	22	24	26	28				
1	1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0:00:20	Sta	

Poll Interval(s): 40 Set Interval Stop

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Add VLAN group 40 to Port 1 and 25. Make port 25 remain tagged since it is the Tunnel Port. And make port 1 untagged during Egress since it is an Access Port. Finally the VLAN status will look similar to below:

ZyXEL Status Logout Help

MENU
 Basic Setting
 Advanced Application
 Routing Protocol
 Management

VLAN Status
 The Number Of VLAN = 2

VLAN Port Setting Static VLAN

Index	VID	Port Number																Elapsed Time	Sta
		2	4	6	8	10	12	14	16	18	20	22	24	26	28				
1	1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0:00:10	Sta	
2	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0:00:09	Sta	

Poll Interval(s): 40 Set Interval Stop

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- To enable VLAN Stacking, click “Advanced Application” on the left, and then click “VLAN Stacking” at the expanded menu.

ZyXEL Status Logout Help

MENU

- Basic Setting
- Advanced Application
- Routing Protocol
- Management

VLAN Stacking

Active ☒

SP VID: (Hex)

Others (Hex)

Port	Role	SPVID	Priority
1	Access Port	40	0
2	Access Port	1	0
3	Access Port	1	0
4	Access Port	1	0
5	Access Port	1	0
6	Access Port	1	0
7	Access Port	1	0
8	Access Port	1	0
9	Access Port	1	0
10	Access Port	1	0
11	Access Port	1	0
12	Access Port	1	0

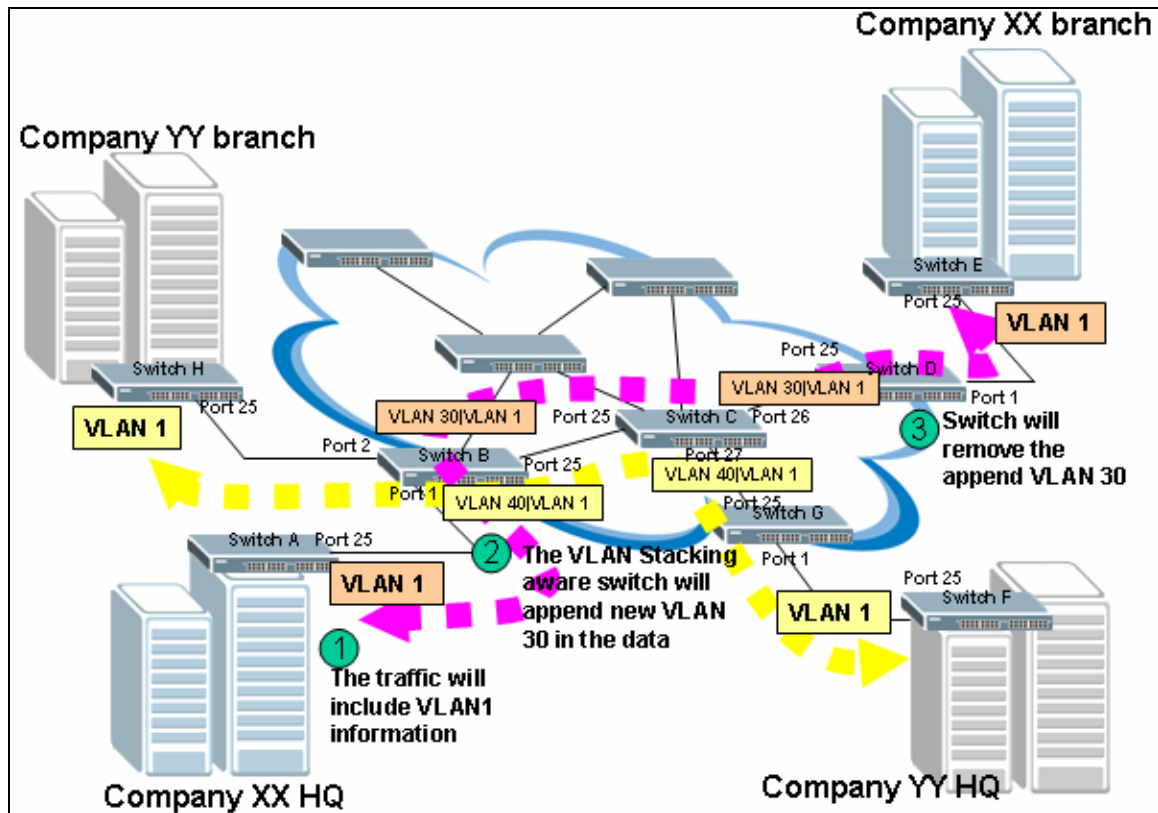
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Please check the checkbox to active VLAN Stacking. Then we make Port 25 as a “Tunnel Port”. It is not necessary to give Tunnel ports a special SPVID.

25

- At this point Switch G is ready to user VLAN Stacking in this scenario.

Scenario illustration



Configuring Switch A, E, F, H via CLI

1. What we need in Switches A, E, F, H is just to create a VLAN 1 which contains all the port members. And by default VLAN1 is already created for you. The only thing you need to take care is to make sure that Port 25 is part of VLAN Group 1 and remain tagged during Egress.

*By default all the ports in VLAN 1 are untagged during Egress.

2. Connect the Switch Console port with your PC or Notebook.
3. Open your Terminal program.(Ex, Hyper Terminal in Windows System)
4. Make sure that your port settings are
 - bps:9600
 - Data bits:8
 - Parity: None
 - Stop bits:1
 - Flow control: None:
5. After you connected successfully, you will see the follow screen on your terminal window.

6. Put “en” or “enable” to go into the privileged mode. Then put “config” to go into the configuration mode.
7. Put the following commands to setup VLAN 1 on Switch A,E,F,H in this scenario. (Port 25 will be tagged during Egress)

```
vlan 1
name 1
normal ""
fixed 1-28
forbidden ""
untagged 1-24,26-28
exit
```

8. When all of the above are done, do not forget to give the “write memory” command under the enable mode to save your configuration.

Configuring Switch B via CLI

1. Connect the Switch Console port with your PC or Notebook.
2. Open your Terminal program.(Ex, Hyper Terminal in Windows System)
3. Make sure that your port settings are
bps:9600
Data bits:8
Parity: None
Stop bits:1
Flow control: None:
4. After you connected successfully, you will see the follow screen on your terminal window.
5. Put “en” or “enable” to go into the privileged mode. Then put “config” to go into the configuration mode.

6. Put the following commands to setup VLAN Stacking on Switch B in this scenario.

```
vlan 30
name VLAN30
normal 2-24,26-28
fixed 1,25
forbidden ""
untagged 1
exit

vlan 40
name VLAN40
normal 1,3-24,26-28
fixed 2,25
forbidden ""
untagged 2
exit

interface port-channel 1
vlan-stacking SPVID 30
exit

interface port-channel 2
vlan-stacking SPVID 40
exit

interface port-channel 25
vlan-stacking role tunnel
exit

vlan-stacking
```

7. When all of the above are done, do not forget to give the “write memory” command under the enable mode to save your configuration.

Configuring Switch C via CLI

1. Connect the Switch Console port with your PC or Notebook.
2. Open your Terminal program.(Ex, Hyper Terminal in Windows System)
3. Make sure that your port settings are
bps:9600
Data bits:8
Parity: None
Stop bits:1
Flow control: None:
4. After you connected successfully, you will see the follow screen on your terminal window.
5. Put “en” or “enable” to go into the privileged mode. Then put “config” to go into the configuration mode.

6. Put the following commands to setup VLAN Stacking on Switch C in this scenario.

```
vlan 30
name VLAN30
normal 1-24,28
fixed 25-27
forbidden ""
untagged ""
exit

vlan 40
name VLAN40
normal 1-24,28
fixed 25-27
forbidden ""
untagged ""
exit

interface port-channel 25
vlan-stacking role tunnel
exit

interface port-channel 26
vlan-stacking role tunnel
exit

interface port-channel 27
vlan-stacking role tunnel
exit

vlan-stacking
```

7. When all of the above are done, do not forget to give the “write memory” command under the enable mode to save your configuration.

Configuring Switch D via CLI

1. Connect the Switch Console port with your PC or Notebook.
2. Open your Terminal program.(Ex, Hyper Terminal in Windows System)
3. Make sure that your port settings are
bps:9600
Data bits:8
Parity: None
Stop bits:1
Flow control: None:
4. After you connected successfully, you will see the follow screen on your terminal window.

5. Put “en” or “enable” to go into the privileged mode. Then put “config” to go into the configuration mode.
6. Put the following commands to setup VLAN Stacking on Switch D in this scenario.

```
vlan 30
name VLAN30
normal 2-24,26-28
fixed 1,25
forbidden ""
untagged 1
exit

interface port-channel 1
vlan-stacking SPVID 30
exit

interface port-channel 25
vlan-stacking role tunnel
exit

vlan-stacking
```

7. When all of the above are done, do not forget to give the “write memory” command under the enable mode to save your configuration.

Configuring Switch G via CLI

8. Connect the Switch Console port with your PC or Notebook.
9. Open your Terminal program.(Ex, Hyper Terminal in Windows System)
10. Make sure that your port settings are
 - bps:9600
 - Data bits:8
 - Parity: None
 - Stop bits:1
 - Flow control: None:
11. After you connected successfully, you will see the follow screen on your terminal window.
12. Put “en” or “enable” to go into the privileged mode. Then put “config” to go into the configuration mode.

13. Put the following commands to setup VLAN Stacking on Switch G in this scenario.

```
vlan 40
name VLAN40
normal 2-24,26-28
fixed 1,25
forbidden ""
untagged 1
exit

interface port-channel 1
vlan-stacking SPVID 40
exit

interface port-channel 25
vlan-stacking role tunnel
exit

vlan-stacking
```

14. When all of the above are done, do not forget to give the “write memory” command under the enable mode to save your configuration.