

# PPPoE IA

## Ethernet Switch

ZyNOS 4.0

## Support Notes

Version 4.00

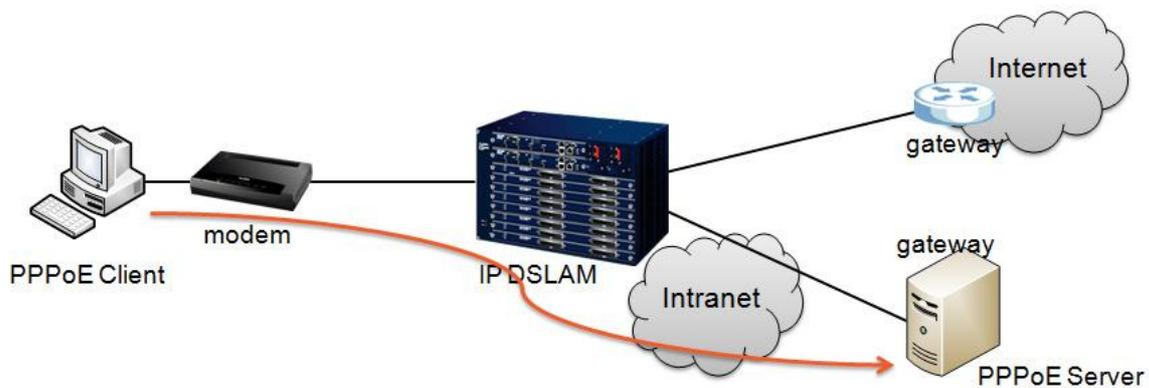
July 2011



## PPP over Ethernet Overview

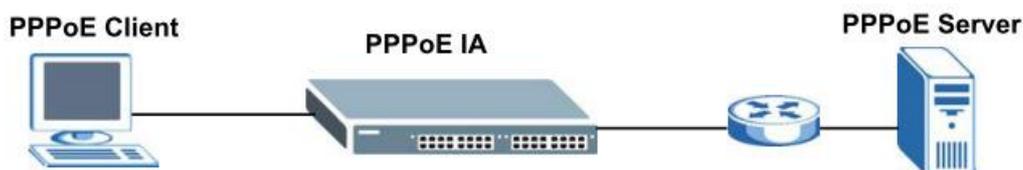
PPP over Ethernet (PPPoE) provides the ability to connect a network of hosts over a simple bridging access device to a remote Access Concentrator. With this model, each host utilizes its own PPP stack and the user is presented with a familiar user interface. Access control, billing and type of service can be done on a per-user, rather than a per-site, basis.

To provide a point-to-point connection over Ethernet, each PPP session must learn the Ethernet address of the remote peer, as well as establish a unique session identifier. PPPoE includes a discovery protocol that provides this.



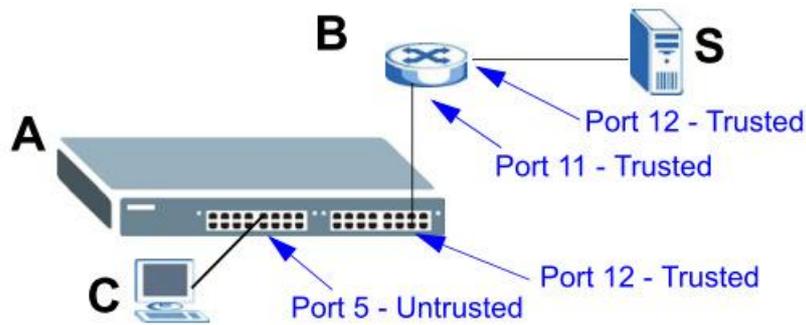
## PPPoE Intermediate Agent Overview

A PPPoE Intermediate Agent (PPPoE IA) is deployed between a PPPoE server and PPPoE clients. It helps the PPPoE server identify and authenticate clients by adding subscriber line specific information to PPPoE discovery packets from clients on a per-port or per-port-per-VLAN basis before forwarding them to the PPPoE server.



## Scenario

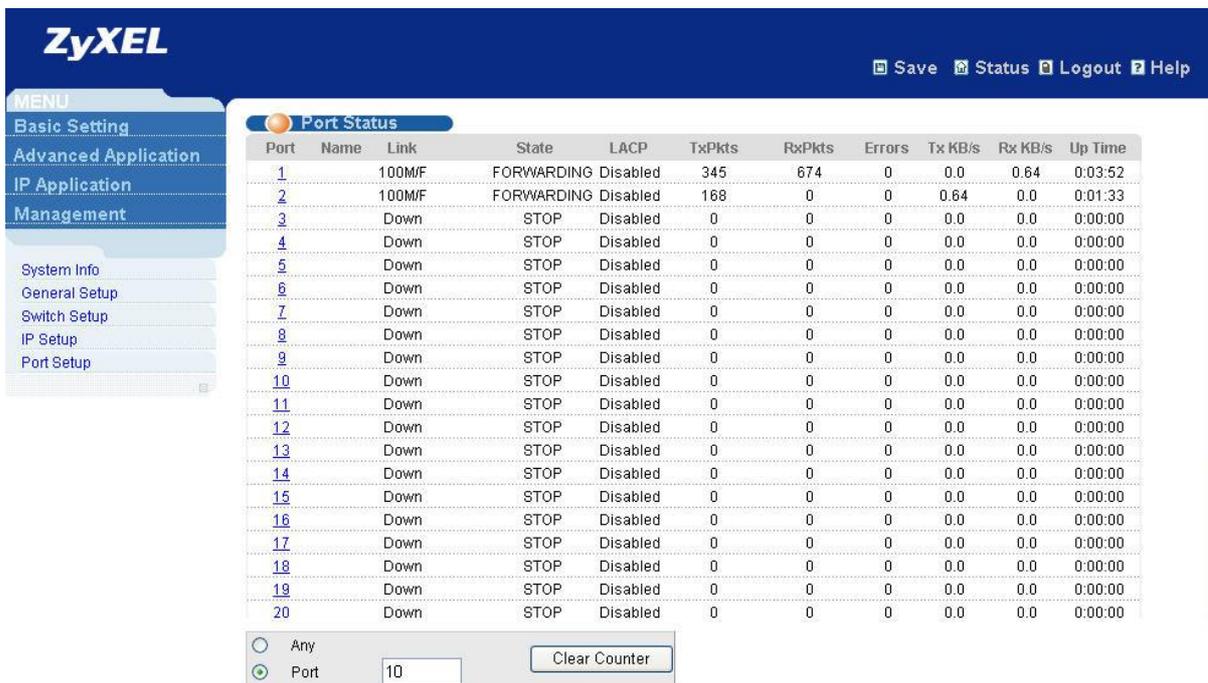
Below is a simple topology which could give us a common view about PPPOE . You want to configure PPPoE Intermediate Agent on the Switch (A) to pass a subscriber's information to a PPPoE server (S). There is another switch (B) between switch A and server S. Switch B is connected to switch A. In this way, PPPoE server S can identify subscriber C and may apply different settings to it.



SWITCH	PORT CONNECTED	VLAN	CIRCUIT-ID	REMOTE-ID	PPPOE IA PORT TRUSTED
<b>A</b>	Port 5 (to <b>C</b> )	1	userC	00134900000A	Untrusted
	Port 12 (to <b>B</b> )	1	N/A	N/A	Trusted
<b>B</b>	Port 11 (to <b>A</b> )	1	N/A	N/A	Trusted
	Port 12 (to <b>S</b> )	1	N/A	N/A	Trusted

## Configuration ZyXEL switch using the Web GUI

1. Connect the MGMT port to a PC or Notebook with the RJ45 Cable.
2. By default, the MGMT IP address of the out-band port is 192.168.0.1/24
3. Set your NIC to 192.168.0.100/24
4. Open an Internet browser (e.g. IE) and enter <http://192.168.0.1> into the URL field.
5. By default, the username for the administrator is “admin” and the password is “1234”.
6. After successfully logging in you will see a screen similar to the one below.



## Configuring Switch A

To enter the “Advanced Application” page, click “PPPoE” “PPPoE” “Intermediate Agent”



Setup 1.

Click Advanced Application > PPPoE > Intermediate Agent. Select Active then click Apply. Then,click Port on the top of the screen.

Setup 2.

Select Untrusted for port 5 and enter userC as Circuit-id and 00134900000A as Remote-id.

Select Trusted for port 12 and then leave the other fields empty. Click Apply.

Port	Server Trusted State	Circuit-id	Remote-id
*	Untrusted		
1	Untrusted		
2	Untrusted		
3	Untrusted		
4	Untrusted		
5	Untrusted	userC	00134900000A
6	Untrusted		
7	Untrusted		
8	Untrusted		
9	Untrusted		
10	Untrusted		
11	Untrusted		
12	Trusted		
13	Untrusted		
14	Untrusted		

Setup3.

The Intermediate Agent screen appears. Click VLAN on the top of the screen.

Intermediate Agent Port **VLAN** PPPoE

Active

access-node-identifier XGS-4728F

**circuit-id**

Active

identifier-string

option spv

delimiter /

Apply Cancel

Setup 4.

Enter 1 for both Start VID and End VID since both the Switch and PPPoE server are in VLAN 1 in this example. Click Apply.

VLAN Intermediate Agent

Show VLAN  Start VID 1 End VID 1

Apply

VID	Enabled	Circuit-id	Remote-id
*	No	<input type="checkbox"/>	<input type="checkbox"/>

Apply Cancel

Setup 5.

Then select Yes to enable PPPoE IA in VLAN 1 and also select Circuit-id and Remote-id to allow the Switch to add these two strings to frames tagged with VLAN 1 and pass to the PPPoE server. Click Apply.

VID	Enabled	Circuit-id	Remote-id
*	No	<input type="checkbox"/>	<input type="checkbox"/>
1	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

## Configuring Switch B

The example uses another XGS-4728F as switch B.

Setup 1. Click Advanced Application > PPPoE > Intermediate Agent. Select Active then click Apply. Click Port on the top of the screen.

Active

access-node-identifier XGS-4728F

**circuit-id**

Active

identifier-string

option spv

delimiter /

Setup 2.

Select Trusted for ports 11 and 12 and then click Apply. Then Click Intermediate Agent on the top of the screen.

Port	Server Trusted State	Circuit-id	Remote-id
*	Untrusted		
1	Untrusted		
2	Untrusted		
3	Untrusted		
4	Untrusted		
5	Untrusted		
6	Untrusted		
7	Untrusted		
8	Untrusted		
9	Untrusted		
10	Untrusted		
11	Trusted		
12	Trusted		
13	Untrusted		
14	Untrusted		

Setup 3.

The Intermediate Agent screen appears. Click VLAN on the top of the screen. Enter 1 for both Start VID and End VID. Click Apply.

Intermediate Agent

Port **VLAN** PPPoE

Active

access-node-identifier XGS-4728F

circuit-id

Active

identifier-string

option spv

delimiter /

Apply Cancel

Setup4.

Enter 1 for both Start VID and End VID. Click Apply.

The screenshot shows the ZyXEL VLAN configuration interface. At the top, there is a 'VLAN' header and a 'Show VLAN' button. Below this, there are two input fields: 'Start VID' and 'End VID', both containing the number '1'. A red oval highlights these two fields. Below the input fields is an 'Apply' button. At the bottom of the page, there is a table with columns for 'VID', 'Enabled', 'Circuit-id', and 'Remote-id'. The table has one row with a '\*' in the VID column, 'No' in the Enabled column, and checkboxes in the Circuit-id and Remote-id columns. At the very bottom, there are 'Apply' and 'Cancel' buttons.

Setup 5.

Then select Yes to enable PPPoE IA in VLAN 1 and also select Circuit-id and Remote-id to allow the Switch to add these two strings to frames tagged with VLAN 1 and pass to the PPPoE server. Click Apply.

The screenshot shows the ZyXEL VLAN configuration interface. At the top, there is a 'VLAN' header and a 'Show VLAN' button. Below this, there are two input fields: 'Start VID' and 'End VID', both empty. Below the input fields is an 'Apply' button. At the bottom of the page, there is a table with columns for 'VID', 'Enabled', 'Circuit-id', and 'Remote-id'. The table has two rows: the first row has a '\*' in the VID column, 'No' in the Enabled column, and checkboxes in the Circuit-id and Remote-id columns; the second row has '1' in the VID column, 'Yes' in the Enabled column, and checked checkboxes in the Circuit-id and Remote-id columns. A red oval highlights the second row. At the very bottom, there are 'Apply' and 'Cancel' buttons.

The settings are completed now. If you miss some settings above, subscriber C could not successfully receive an IP address assigned by the PPPoE Server. If this happens, make sure you follow the steps exactly in this tutorial.

## Configuration ZyXEL switch using the CLI

### Switch A

```
vlan 1
name 1
normal ""
fixed 1-28
forbidden ""
untagged 1-28
ip address 192.168.1.1 255.255.255.0
exit
interface route-domain 192.168.1.1/24
exit
interface port-channel 5
    pppoe intermediate-agent format-type circuit-id string userC
    pppoe intermediate-agent format-type remote-id string 00134900000A
exit
interface port-channel 12
    pppoe intermediate-agent trust
exit
ip address 192.168.0.1 255.255.255.0
pppoe intermediate-agent
pppoe intermediate-agent vlan 1
pppoe intermediate-agent vlan 1 circuit-id
pppoe intermediate-agent vlan 1 remote-id
```

**Switch B**

```
vlan 1 name 1
  normal ""
  fixed 1-28
  forbidden ""
  untagged 1-28
  ip address 192.168.1.1 255.255.255.0
exit
interface route-domain 192.168.1.1/24
exit
interface port-channel 5
  pppoe intermediate-agent format-type circuit-id string userC
  pppoe intermediate-agent format-type remote-id string 00134900000A
exit
interface port-channel 12
  pppoe intermediate-agent trust
exit
ip address 192.168.0.1 255.255.255.0
pppoe intermediate-agent
pppoe intermediate-agent vlan 1
pppoe intermediate-agent vlan 1 circuit-id
pppoe intermediate-agent vlan 1 remote-id
```