

ZyXEL Prestige 310

V2.50(M.01) | 12/17/1999

(incl. PPPoE support for German “T-DSL”)

Release Note

Date: December 17, 1999

Supported Platforms:

ZyXEL Prestige 310

Versions:

ZyNOS F/W Version : V2.50(M.01) | 12/17/1999

Notes:

1. Telnet and FTP incoming from the WAN port is disabled in default configuration romfile. You can make it work by turning off the TELNET_FTP_WAN filter in WAN port (SMT Menu 11.5)
2. If you use NetMeeting application behind SUA to connect to an outside user the outside user will see two identical users in screen.
3. We need to register MIRC to make the DCC work at version 5.31. So far, we don't support MIRC DCC after version 5.31.
4. If you can not get an IP address from your ISP. Please do the following.
 - ** Your ISP will check your PC's hostname.
 - ➔ Please set your PC's computer name to Prestige in Menu 1. (Appendix 2)
 - ** Your ISP will check the MAC address.
 - ➔ Please inform your ISP that you have bought a new network device.
 - Or Use Menu 2 to clone the PC's MAC address to WAN. (Appendix 2)
 - ** Your ISP only allows one MAC to connect to Internet.
 - ➔ Please power down your cable modem and let Prestige 310's WAN port connects to cable modem directly.
 - ** Your ISP needs a special login program.
 - ➔ We support the Times Warner Road Runner login program. Please select the correct service type in Menu 4. We support two kinds of RoadRunner login method. The first one is the Toshiba authentication method and the other one is RoadRunner Manager authentication method. Please make sure which login method you are using.

Known Bugs:

1. Sometime the LAN will stop receiving about 10 seconds.

Features:

Modifications in V2.50 (M.01) | 12/17/1999

1. Cisco uses the wrong MRU problem. Fixed.
2. Real Player will cause memory leak when it has error condition. Fixed.

Modifications in V2.50 (M.00) | 12/10/1999

3. Added PPPoE (PPP over Ethernet) support. (see appendix 7)
4. Added FTP firmware uploading support. (see appendix 8)
5. Added SMT Menu 11.1, SMT Menu 11.3, SMT Menu 11.5. (see appendix 9)
6. Modified SMT Menu 4, SMT Menu 4.1, SMT Menu 24.3.2, SMT Menu 2. (see appendix 9)
7. Modified TELNET_WAN filter to TELNET_FTP_WAN filter. (see appendix 10)
8. Added: SMT Menu 24.9, SMT Menu 24.9.1, SMT Menu 24.9.2 to display call control information. (see appendix 11)
9. Modified SMT Menu 24.3.2 to enhance Unix syslog. (see appendix 12)
10. Modified default configuration file's "autoexec.net" settings.

Modifications in V2.30 (M.03) | 11/11/1999

1. Bug: DHCP client will only send nine characters of hostname in the DHCP hostname option. Fixed.
2. Bug: DHCP client can not receive unicast packets in discover and request state. Fixed
3. Added Domain Name assignment support in SMT 1.(see appendix 3)
4. Added "ip sua timeout <value>" to modify SUA idle timeout. (see appendix 4)
5. Modified default SUA UDP idle timeout to 180 seconds to solve ICQ problems. (see appendix 5).
6. Added WAN DHCP Client Renew and WAN DHCP Client Release in SMT Menu 24.4.
7. Modified SMT Menu 24.2.1 and SMT Menu 24.1's name field as <System Name>.<Domain Name>
8. Added the filter set deleting mechanism in SMT 21. (see appendix 6)

Modifications in V2.30 (M.02) | 09/14/1999

1. RoadRunner client/server session Manager protocol support included.
2. WAN MAC address attached by LAN IP address support included.
3. Bug: If the DHCP server and DHCP client are not in the same network then DHCP client renewal will fail. Fixed
4. Bug: If the IP address requested by the PC is the same as the LAN IP address then the PC can not always get an IP address. Fixed.
5. Bug: NMAP will crash the system. Fixed
6. Enhanced Routing performance.
7. Bug: If you remove the LAN cable then the LAN LED will flash every 10 seconds. Fixed
8. Bug: SNMP packets will cause system crash. Fixed
9. Bug: Unix syslog will send the wrong port number. Fixed
10. Bug: Data abort will enter debug mode. Fixed

Modifications in V2.30 (M.01) | 06/09/1999

1. Bug: Sometimes FTP will lose command. Fixed
2. Add Quick Time streaming support.
3. Bug: DNS proxy lookup fail problem. Fixed
4. Bug: DHCP Client will send the correct hostname. Fixed
5. Bug: If you enter Menu 24.2.1 then the P310 will crash. Fixed
6. Bug: Removing the console port in SMT 24.1 will not close the SMT session. Fixed
7. Bug: Trace route fail problem. Fixed

Modification in V2.30 (M.00) | 06/16/1999

1. First release.

Appendix:

1.SUA Support Table

The required settings of Menu 15 for some applications are listed in the following table.

ZyXEL SUA Support Table

Traffic Type	Application Version	Required Settings in Menu 15 Port/IP	
		Outgoing Connection	Incoming Connection
HTTP	Netscape, IE	None	80/client IP
FTP	Windows FTP, Cuteftp	None	21/client IP
TELNET	Windows Telnet, Neterm	None	23/client IP (and remove Telnet filter in WAN port)
POP3	Eudora	None	110/client IP
SMTP	Eudora	None	25/client IP
IRC	mIRC,Microsoft Chat	None for Chat. DCC support: MIRC < 5.31	None
PPTP	Windows PPTP	None	1723/client IP
ICQ	ICQ 99a	None for Chat. For file transfer, we must enable ICQ- preference-connections- firewall and set the firewall time out to 80 seconds in firewall setting.	Default/client IP
Cu-SeeMe	Cornell 1.1	None	7648/client IP
	White Pine 3.1.2	7648/client IP & 24032/client IP	Default/client IP
	White Pine 4.0 (CuSeeMe Pro)	7648/client IP & 24032/client IP	Default/client IP
NetMeeting	Microsoft NetMeeting 2.1 & 2.11	None	1720/client IP 1503/client IP
Cisco IP/TV	Cisco IP/TV 2.0.0	Default/client IP	
RealPlayer	RealPlayer G2	None	
VDOLive		None	
Quake	Quake1.06	None	Default/client IP
QuakeII	QuakeII2.30	None	Default/client IP
QuakeIII	QuakeIII1.05beta	None	
StartCraft		6112/client IP	
Quick Time	Quick Time 4.0	None	

2. DHCP Problems.

The Dynamic Host Configuration Protocol (DHCP) provides a framework for passing configuration information to hosts on a TCP/IP network. We implement the DHCP server in the LAN port to manager the local LAN IP address and the DHCP client in the WAN port to acquire the configuration from the ISP. There are many configuration information carried by DHCP option. We will process the following information coming for the ISP: IP address, Gateway, Network Mask, Domain Name, Domain Name Server and Lease Time of DHCP client.

The traditional dial up networking will provide the user name and password for the ISP to manage the client by using the PPP. The DHCP doesn't provide this kind of mechanism. However, the ISP still can authorize the client by using the following method.

a. The ISP can check client PC's MAC address.

When you install the Cable/xDSL service, the ISP will record the MAC address of your NIC card. Thus, any unrecorded MAC address will be silently discarded. We can solve this problem by one of the following methods.

- Tell you ISP that you have bought a new NIC card and you want to change the MAC address.
- Clone the PC's MAC address to the WAN site. You can connect your network like the following.

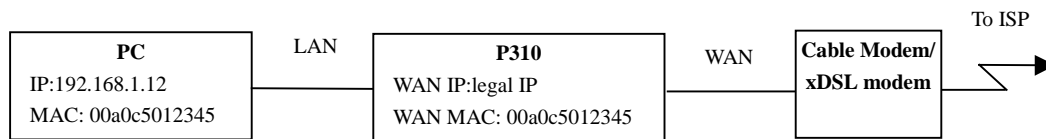
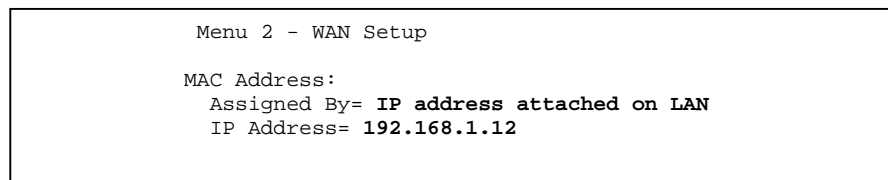


Figure 1 Clone MAC Address

Configure the SMT Menu 2 as following.



If you configure correctly then it will clone the PC's MAC address to the WAN port. This MAC address will be saved in the configuration file and will not be lost unless you reconfigure the Menu 2 or unload a configuration file.

b. The ISP can check hostname options in the DHCP option.

When you install the Cable/xDSL service, the ISP will record your PC computer name or assign a new computer name to your PC. The Windows DHCP client will send the PC's computer name to DHCP server. Any unrecorded hostname option will be silently discarded.

We can solve this problem by setting the PC's computer name to P310's system name in Menu 1.

3. Domain name support.

The Prestige is enhanced to provide the domain suffix to its DHCP clients. The domain suffix may be provided by the ISP via the DHCP or statically configured by the user. If it is provided by the ISP, the Prestige assigns it to the clients via the DHCP over LAN. Otherwise, we can enter the domain suffix in menu 1 directly if we know the domain suffix already. In case the domain suffix is set in menu 1 and the ISP also provides one using DHCP, the Prestige will take the settings in menu 1 to assign to the client. You can go to SMT Menu 24.8 by typing “sys domainname” to see the current domain name using by the router.

Menu 1 - General Setup	
System Name= P310	← Your PC's computer name.
Domain Name= zyxel.com.tw	← Your domain name

Before this feature is available, one has to enable DNS in the network settings of every client and list xx.yy.zz.com as a default domain suffix. Now, with this new feature, whenever you use mail or news or even www, your PC will add the default domain suffix after these and route you properly to the ISP intranet addresses.

4. SUA Idle Timeout Value.

We modify the default value of SUA UDP idle timeout value to 180 seconds. It will solve part of ICQ problems.(see Appendix 5).

New command “ip sua timeout <value>”

This command will modify three values.

SUA UDP idle timeout = <value> (seconds)

SUA TCP opened idle timeout = <value> * 100 (seconds)

SUA TCP other idle timeout = <value> * 3 (seconds)

Where

SUA UDP idle timeout: The time to drop the UDP entry in SUA table when there is no traffic on this connection.

SUA TCP opened idle timeout: The time to drop the TCP connection in SUA table at the open state when there is no traffic on this connection.

SUA TCP other idle timeout: The time to drop the TCP connection in SUA table at none open state, none wait state and none reset state when there is no traffic on this connection.

Notes: Improper configuration may make the system work impropriety. We strongly suggest to use the default values.

5. ICQ problems.

What is ICQ?

ICQ stands for 'I seek you'. It's originally developed by Mirabilis, an Israeli software company. Then it's bought by America On-Line. ICQ is an Internet messaging tool. You can use ICQ to send messages to your friends, and see if he/she is online. Every ICQ user has one ID called UIN in ICQ. It's an identifier for ICQ.

How ICQ works?

When you launch ICQ, it will try to logon a server which is operated by AOL by the UIN. After the logon is completed, ICQ will try to ask server if any selected UIN is logon too. This process is done periodically, so you will know your friend is online when he launch his ICQ client. To ensure the link, ICQ will send a keep-alive packet periodically to inform the server the user is still here, and send current status if there is anything changed. The default time of keep-alive packet is 120 seconds. And all client/server communication are through UDP port 4000. Whenever a user-to-user communication is requested, there is a TCP session established. The port is negotiated by the client/server session.

How to make ICQ work with ZyXEL's SUA?

As described above, ICQ will communicate with server with port 4000 and send keep-alive packets to inform server it's online. The keep-alive packet is sent every 120 seconds. The default SUA UDP session timeout in Prestige is 90 seconds. It will cause problem because the keep-alive will be sent to different port translation due to session timeout. To fix it, you need to specify your ICQ client to shorten its keep-alive timer. It's in the connection tab under firewall setting. Set the keep-alive timer to 80 seconds to ensure the session is not timeout in Prestige. Because the user-to-user communication is negotiated by the first connection, set the ICQ connection behind the firewall. It will inform ICQ to perform operation friendly with firewall such as SUA in Prestige.

I have done the above setting, but it doesn't work perfectly. Why?

As ICQ is a proprietary protocol, it's not published. As we know, there are many versions of ICQ protocols and some of them are encrypted during communication. With some experiment, we suspect the ICQ doesn't work reliably with different keep-alive timer other than default value. The new SUA will prolong the session timeout period to 180 seconds to cover the default time of ICQ. So the keep-alive timer is not necessary to be altered later. However, the connection is still set to behind firewall because we do not know how to alter the packet at this time. We will try our best to find out the protocol details in ICQ in the future. It's not easy job since the protocol is encrypted and may be changed in the future. We can not promise any firm date on that support.

6. Delete the Filter Set in the SMT Menu 23

Go the SMT Menu 23 and select the right filter set. Leave the Edit Comment field as a blank and you can delete the filter set.

7. PPP over Ethernet (PPPoE)

What is PPPoE?

Point-to-Point Protocol over Ethernet is an IETF Draft standard that specifies how to connect multiple hosts at a remote site through common customer premises equipment (CPE). It facilitates the interaction of a host with a broadband modem (xDSL, cable, wireless, etc.), to achieve access to the growing number of high-speed data networks, via a familiar "dial-up networking" user interface. PPPoE provides a major advantage for service providers by maximizing integration with - and minimizing disruption of - service providers' existing dial network infrastructures. PPPoE supports a broad range of existing applications and service including authentication, accounting, secure access and configuration management.

PPPoE Protocol Overview:

PPPoE has two distinct stages:

1. Discovery stage
 - 1.1. ETHER_TYPE field in Ethernet frame is set to 0x8863.
 - 1.2. Stateless client-server protocol
 - 1.3. Required whenever a client wishes to establish a PPP connection.
 - 1.4. The host can discover all Access Concentrators and then select one.
 - 1.5. Use peer MAC address and PPPoE session ID to identify the unique PPPoE session.
 - 1.6. Four steps of Discovery stage.
 - 1.7. The host broadcasting an Initiation packet.
 - 1.8. One or more Access Concentrators sending Offer packets.
 - 1.9. The host sending a unicast Session Request packet.
 - 1.10. The selected Access Concentrator sending a Confirmation packet.
2. PPP Session stage.
 - 2.1. PPP data is sent as in any other PPP encapsulation.
 - 2.2. Maximum-Receive-Unit (MRU) must be less than 1492.
 - 2.3. All Ethernet packets are unicast.
 - 2.4. ETHER_TYPE field in Ethernet frame is set to 0x8864.

How can I make PPPoE work on P310.

- a. You must enter Service Name for PPPoE discover stage.(SMT Menu 4 or SMT Menu 11.1)
- b. You must configure User Name and Password for PPP session stage.(SMT Menu 4 or SMT Menu 11.1)

8. Added FTP firmware uploading support.

We build in an FTP server in P310. You can use FTP client to upload the ZyNOS code or configuration file.

Requirement:

You must have FTP client and you must have the ability to connect to the P310.

You must have the upgrade firmware - the ZyNOS code or Configuration file.

You must rename the filename of ZyNOS code to "ras" and configuration file to "rom-0".

Connect IP : The P310's LAN IP from LAN or WAN IP from WAN.

Username : P310

Password : <P310 Telenet Password>

Procedure:

Open your FTP client to connect to P310. After you login to P310, you will see two list files - the "rom-0" and "ras". You can upload and download the ZyNOS code or configuration file.

notes:

The upload file should be the same filename in the P310 listing according to ZyNOS code or configuration file. **The upload file is binary file.**

9. SMT modify

SMT Menu 2:

Remove Half/Full duplex setting in WAN port. It will always be in the half duplex mode.

```
Menu 2 - WAN Setup

MAC Address:
Assigned By= Factory default/IP address attached on LAN
IP Address= N/A /a.b.c.d
```

SMT Menu 4:

We add Encapsulation field to distinguish from Ethernet connection to PPPoE connection. The Edit Filter, RIP direction and RIP version are moved to SMT Menu 11.1 and SMT Menu 11.3. We will have different screen layout according to different Encapsulation.

```
Menu 4 - Internet Access Setup

ISP's Name= ChangeMe
Encapsulation= Ethernet
Service Type= Standard
My Login= N/A
My Password= N/A
Login Server IP= N/A

IP Address Assignment= Dynamic
IP Address= N/A
IP Subnet Mask= N/A
Gateway IP Address= N/A
Single User Account= Yes
```

```
Menu 4 - Internet Access Setup

ISP's Name= ChangeMe
Encapsulation= PPPoE
Service Name=poellc      ← PPPoE Service Name.
My Login=ras@poellc
My Password= *****
Idle Timeout= 100        ← Connection idle timeout fordialup service.

IP Address Assignment= Dynamic
IP Address= N/A
IP Subnet Mask= N/A
Gateway IP Address= N/A
Single User Account= Yes
```


SMT Menu 11.1, SMT Menu 11.3, SMT Menu 11.5.:

The IP address setting is moved to SMT Menu 11.3. If you change the Encapsulation then we will request you to check the IP address setting in SMT Menu 11.3. It will also have different SMT menu layout according to different Encapsulation.

Menu 11.1 - Remote Node Profile

Rem Node Name= ChangeMe	Route= IP
Active= Yes	
Encapsulation= Ethernet	Edit IP= No
Service Type= Standard	Session Options:
Service Name= N/A	Edit Filter Sets= No
Outgoing=	
My Login=N/A	
My Password= N/A	
Server IP= N/A	

Menu 11.3 - Remote Node Network Layer Options

IP Address Assignment= Dynamic
IP Address= N/A
IP Subnet Mask= N/A
Gateway IP Addr= N/A

Single User Account= Yes
Metric= N/A
Private= N/A
RIP Direction= None
Version= N/A

Menu 11.5 - Remote Node Filter

Input Filter Sets:
protocol filters= 3
device filters=
Output Filter Sets:
protocol filters= 1
device filters=

If the Encapsulation is set to PPPoE then we add the budget management.

Menu 11.1 - Remote Node Profile

Rem Node Name= ChangeMe	Route= IP
Active= Yes	
Encapsulation= PPPoE	Edit IP= No
Service Type= Standard	Telco Option:
Service Name= poellc	Allocated Budget(min)= 0
Outgoing=	Period(hr)= 0

My Login= ras@poellc
My Password= *****

Session Options:
Edit Filter Sets= No
Idle Timeout(sec)= 100

Menu 11.3 - Remote Node Network Layer Options

IP Address Assignment= Dynamic
Rem IP Addr: N/A
Rem Subnet Mask= N/A
My WAN Addr= 0.0.0.0

Single User Account= Yes
Metric= 1
Private= No
RIP Direction= None
Version= N/A

Menu 11.5 - Remote Node Filter

Input Filter Sets:
protocol filters= 3
device filters=
Output Filter Sets:
protocol filters= 1
device filters=
Call Filter Sets:
protocol filters=
device filters=

10. Modified TELNET_WAN to TELNET_FTP_WAN

We block the Telnet and FTP connection request from the WAN side.

Menu 21.3 - Filter Rules Summary

#	A	Type	Filter Rules	M	m	n
1	Y	IP	Pr=6, SA=0.0.0.0, DA=0.0.0.0, DP=23	N	D	N
2	Y	IP	Pr=6, SA=0.0.0.0, DA=0.0.0.0, DP=21	N	D	F
3	N					
4	N					
5	N					
6	N					

11. SMT Menu 24.9, SMT Menu 24.9.3, SMT Menu 24.9.4

We add SMT Menu 24.9.3 to monitor the budget and you can reset the budget in this menu. The call history are shown in the SMT Menu 24.9.4. The PPPoE service name are shown in the phone number field. In SMT Menu 24.9.3 you can press "1" to clear budget and press "0" to update screen.

Menu 24.9 - System Maintenance - Call Control

1. Budget Management
2. Call History

Menu 24.9.3 - Budget Management		
Remote Node	Connection Time/Total Budget	Elapsed Time/Total Period
1.ChangeMe	0:06/1:00	0:06/24:00

Menu 24.9.4 - Call History						
	Phone Number	Dir	Rate	#call	Max	Min
1.	poellc	OUT		1	0:00:48	0:00:48
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
Enter Entry to Delete(0 to exit):						

12. Enhance Unix Syslog feature.

We add the function to select the syslog type in SMT Menu 24.3.2.

Notes: You must do the following to enable filter log.

1. Enable Filter log in SMT 24.3.2.
2. Setting correct filter rule and enable log in SMT Menu 21.x.x.
3. Apply the filter log to correct interface.(SMT Menu 3.1 or SMT Menu 11.5).
4. You must have syslog server and the packets must match the log condition .

Menu 24.3.2 - System Maintenance - UNIX Syslog	
Syslog:	
Active= No	
Syslog IP Address= 192.168.1.3	
Log Facility= Local 1	
Types:	
CDR= No	
Packet triggered= No	
Filter log= YES	
PPP log= No	

13. Reference Home Page

http://www.zyxel.com/html/product/soho_html/p310.html