ZyXEL Prestige 314
V3.20(CA.1)
Release Note

Date: December 8, 2000

Supported Platforms:

ZyXEL Prestige 314

Versions:

RAS F/W Version : V3.20(CA.1) | 12/8/2000

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. (Append ix 2)
   ** Your ISP only allows one MAC to connect to Internet.
   ➔ Please power down your cable modem and let router'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.
5. Web-configuration support English, Chinese and German.
6. Embeded Web server
   Username : admin
   Password : <your router password> default "1234"

Features:

Modification in V3.20(CA.1) 12/8/2000

1. Bug: ViaVedio will cause system crash. Fixed.
2. Added: Reply any ARP request for some stupid gateway.

Modification in V3.20(CA.1)b2 10/13/2000

1. Modify: SMT21.x.3 Active default to YES.
2. Modify: The help of protocol in 21.x.1 add the IGMP = 2 .
3. Bug: Delete the filter set will show the filter set 0. Fixed.

4. Arp entry ➔ arp entries.
5. Added Microsoft Messenger Service SUA/NAT support.
6. Bug: SUA/NAT slot full will cause connection hang problem.
7. Set the remote to dis-active will cause the menu 4 inaccessible.

Modification in V3.20(CA.1)b1 9/5/2000
1. Bug: P314 will crash when the PPPoE server sends more 9 service names. Fixed.
2. Bug:Tracelog will cause system crash. Fixed.
3. Modify SMT1 "Configure Dynamic DNS" to "Edit Dynamic DNS"
4. Added SMT11.1 PPP Outgoing authentication selection.
5. Support new dynDNS update protocol.
6. Modify "ras" file attrib in FTP server.
7. Bug: Tracerout will lost packet problem. Fixed.
8. Bug: Dropcute will cause system crash problem. Fixed.

Modification in V3.20(CA.0)b4 6/20/2000
1. HTP fail problem. Fixed.

Modification in V3.20 (CA.0)b3 6/15/2000
1. After romfile update, baud rate should be 9600 not 115200. Fixed.
2. Web configuration-PPPoE. After save PPPoE setting user name will be changed to password setting. Fixed.
3. Web configuration, "Show statistics" will display some garbage. Fixed.
4. Chinese Web configuration., logout page should be Chinese not English. Fixed.

Modification in V3.20 (CA.0)b2 6/13/2000
1. Web PPPoE password, system uptime, DHCP status problem.
2. Web PPPoE password, system uptime, DHCP status problem.
3. SMT24.4 IP ping test will have problem when press 'y'.
4. Add P314 hardware support.
5. Web PPPoE Service name can save problem.
6. Web idletime out can save problem.
7. SMT24.3.4 packet trigger decode always show RAW data problem.
8. Web debug information problem.
9. Web show wrong statistic problem.
10 Enhance throughput.
11 Add WWW port 80 default block.
12 Modify SUA only/None to YES/NO.
13 Modify SMT24.3.2 to Unix Syslog.
14 Modify SMT 24.2.1 S/W to F/W.
15 Enlarge NAT session table to 256.
16 ICMP session out problem.

Modification in V3.20 (CA.0)b1 5/26/2000
1. Modify System name to Host name in Web page.
2. Add "sec" after IDLE Timeout in Web page.
3. Add DDNS Support (See Appendix 12).
4. Add IGMP Support (See Appendix 13).
7. Add IPSEC SUA support.
8. Add Commnad History support.
9. Modify default idle timeout to 300 seconds.
10. Modify SMT 4. Remove Service name in internet setup.
11. Add Internet Setup testing. in SMT 4 at PPPoE Encapsulation.

Modification in V3.00 (CA.0)b1 5/18/2000
1. First release.

Appendix:

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

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/clinet 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	
IPSEC (ESP)		None (only one client)	Default
MSNP	Microsoft messenger service 3.0	6901/client IP	6901/client IP

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.

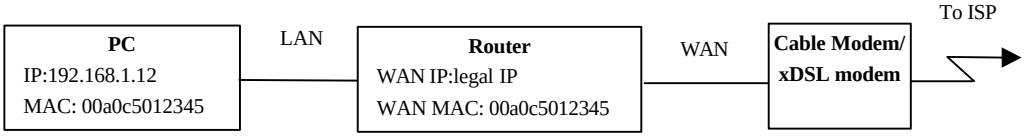

Figure 1 Clone MAC Address

Configure the SMT Menu 2 as following.

```
Menu 2 - WAN Setup

MAC Address:
  Assigned By= IP address attached on LAN
  IP Address= 192.168.1.12
```

If you configure correctly then it will clone the PC's MAC ad dress 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 router'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= P314      ← 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. ICQ problems.

What is ICQ?

ICQ stands for 'I seek you'. It's originally developed by Mirabils, 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 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.

5. Delete the Filter Set in the SMT Menu 21

Go the SMT Menu 21 and select the right filter set. Leave the Edit Comment field as a blank and you can delete the filter set.

6. 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.
  - Discovery State
  - PPP Session State
- Discovery stage
  - ETHER_TYPE field in Ethernet frame is set to 0x8863.
  - Stateless client-server protocol
  - Required whenever a client wishes to establish a PPP connection.
  - The host can discover all Access Concentrators and then select one.
  - Use peer MAC address and PPPoE session ID to identify the unique PPPoE session.
  - Four steps of Discovery stage.
    - The host broadcasting an Initiation packet.
    - One or more Access Concentrators sending Offer packets.
    - The host sending a unicast Session Request packet.
    - The selected Access Concentrator sending a Confirmation packet.
- PPP Session stage.
  - PPP data is sent as in any other PPP encapsulation.
  - Maximum-Receive-Uint (MRU) must be less than 1492.
  - All Ethernet packets are unicast.
  - ETHER_TYPE field in Ethernet frame is set to 0x8864.

How can I make PPPoE work on router.

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)

7. Added FTP firmware uploading support.

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

Requirement:

You must have FTP client and you must have the ability to connect to the ROUTER.
You must have the upgrade firmware - the RAS code or Configuration file.
You must rename the filename of RAS code to "ras" and configuration file to "rom-0".
Connect IP : The ROUTER's LAN IP from LAN or WAN IP from WAN.
Username : ROUTER
Password : <ROUTER Telenet Password>

Procedure:

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

notes:

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

8. 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 Type= N/A
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
Multicast= IGMP-v2
```

```
        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=
```

9. Modified TELNET_WAN to TELNET_FTP_WAN

We block the Telent 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
```

10. 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         Total
 1. poellc          OUT        1        0:00:48     0:00:48     0:00:48
 2.
 3.
 4.
 5.
 6.
 7.
 8.
 9.
10.

                Enter Entry to Delete(0 to exit):
```

11. 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
```

12. Dynamic DNS support

The Dynamic DNS service allows you to alias a dynamic IP address to a static hostname, allowing the host to be more easy accessed from various location on the internet.

We support two DDNS client in our router – WWW.DDNS.ORG, WWW.DYNDNS.ORG.

How to configure it?

1. First, you must go to the WWW.DDNS.ORG or WWW.DYNDNS.ORG to register a account. After success registered you will receive a password from email. You can key in the hostname, email address, username, password..
2. Put the corresponding information to Menu 1.1.

```
            Menu 1.1 - Configure Dynamic DNS

  Service Provider= WWW.DDNS.ORG
  Active= Yes
  Host= p310.ddns.org
  EMAIL= yourmail@yourmailserver
  User = p310
  Password= ********
```

```
Enable Wildcard = YES/NO
```

Notes:

1. We only support the basic feature and login in with inscure password in WWW.DDNS.ORG.
2. We will update the IP address when we configure Menu 1, DHCP client renew, or ipcp open.
3. It will have problems if your wan ip address are private.
4. Please read the FAQ provided by the DDNS service provider. It will have great help to trouble shooting your problem.

13. IP multicast.

Traditionally, IP packets are transmitted in two ways - unicast or broadcast. Multicast is a third way to deliver IP packets to a group of hosts. Host groups are identified by class D IP addresses, i.e., those with "1110" as their higher-order bits. In dotted decimal notation, host group addresses range from 224.0.0.0 to 239.255.255.255. Among them, 224.0.0.1 is assigned to the permanent IP hosts group, and 224.0.0.2 is assigned to the multicast routers group.

IGMP (Internet Group Management Protocol) is the protocol used to support multicast groups. The latest version is version 2 (see RFC2236). IP hosts use IGMP to report their multicast group membership to any immediate-neighbor multicast routers so the multicast routers can decide if a multicast packet needs to be forwarded. At start up, the Prestige queries all directly connected networks to gather group membership. After that, the Prestige updates the information by periodic queries. The Prestige implementation of IGMP is also compatible with version 1. The multicast setting can be turned on or off on Ethernet and remote nodes.

```
Menu 3.2 - TCP/IP and DHCP Ethernet Setup

DHCP= Server
Configuration:
  Client IP Pool Starting Address= 192.168.1.33
  Size of Client IP Pool= 32
  Primary DNS Server= 0.0.0.0
  Secondary DNS Server= 0.0.0.0

TCP/IP Setup:
  IP Address= 192.168.1.1
  IP Subnet Mask= 255.255.255.0
  RIP Direction= Both
    Version= RIP-1
  Multicast= None
```

```
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
Multicast= None
```