KW5225 Wireless VDSL Router
User Manual

NOTICE

Content

1 Overview

Thank you for choosing our product. The KW5225 is a Wireless VDSL router combining an VDSL modem, an 802.11g wireless router, a 4-port switch, a printer server host port, bringing high-speed wireless Internet connection to a home or office.

Features

1.1.1 Data rate

- Downstream data rate up to 100 Mbps,
- Upstream data rate up to 50Mbps

1.1.2 VDSL Compliant

- ITU G.992.1 (G.DMT)
- ITU G.993.2 (G.vdsl2) (Profile 8a, 8b, 8c, 8d, 12a,12b and 17a)
- ITU G.992.2 (G.Lite)
- ITU G.994.1 (G.hs)
- ITU G.992.3 (G.DMT.BIS)
- ITU G.992.4 (G.lite.bis)
- ITU G.992.5
- Compatible with all T1.413 issue 2 (full rate DMT over analog POTS), and CO DSLAM equipment
- TR69 compliant with ACS

1.1.3 Wireless

- Fully IEEE 802.11b & IEEE 802.11g & IEEE 802.11n compatible.
- Wireless data rate up to 300Mbps
- Operating in the unlicensed 2.4 GHz ISM band
- Multi SSID
- Supports 64/128 bits WEP,WPA,WPA2,WPA/WPA2-PSK,802.1x

1.1.4 Network Protocol & Features

- Ethernet to ADSL Self-Learning Transparent Bridging
- Internet Control Message Protocol (ICMP)
- IP Static Routing
- Routing Information Protocol (RIP, RIPv2)
- Network Address Translation (NAT)
- Virtual Server, Port Forwarding
- Dynamic Host Configuration Protocol (DHCP)
- DNS Relay, DDNS
- IGMP Proxy
- Simple Network Time Protocol (SNTP)
- VPN pass-through (IPSec/PPTP/L2TP)
- Parent control

1.1.5 ATM Capabilities

- RFC 1483 Multi-protocol over ATM “Bridged Ethernet” compliant
- RFC 2364 PPP over ATM compliant
- RFC 2516 PPP over Ethernet compliant
- ATM Forum UNI3.1/4.0 PVC - Up to 8 PVCs
- VPI Range: 0-255 and VCI Range: 32-65535
- UNI 3.0 & 3.1 Signaling
- ATM AAL5 (Adaption Layer type 5)
- OAM F4/F5

1.1.6 FIREWALL

- Built-in NAT
- MAC Filtering

- Packet Filtering
- Stateful Packet Inspection (SPI)
- Denial of Service Prevention (DoS)
- DMZ

1.1.7 *Management Support*

- Web Based GUI
- Upgrade or update via FTP/HTTP
- Command Line Interface via Telnet
- Diagnostic Test
- Firmware upgrade-able for future feature enhancement

1.1.8 *Operating System Support*

- WINDOWS 98/SE/ME/2000/XP/VISTA/7
- Macintosh
- LINUX

1.1.9 *Environmental*

- Operating humidity: 10%-90% non-condensing
- Non-operating storage humidity: 5%-95% non-condensing

1.2 Packet Contents

The packet contents are as the following:

- DSL ROUTER x 1
- Power Adapter x 1
- External Splitter x 1
- Telephone Line x 1
- Ethernet Cable x 1
- Antenna x 2
- CD x 1

1.3 System Requirements

Before using this ROUTER, verify that you meet the following requirements:

- Subscription for ADSL service. Your ADSL service provider should provide you with at least one valid IP address (static assignment or dynamic assignment via dial-up connection).
- One or more computers, each contains an Ethernet 10/100M Base-T network interface card (NIC).
- A hub or switch, if you are connecting the device to more than one computer.
- For system configuration using the supplied web-based program: A web browser such as Internet Explorer v5.0 or later, or Netscape v4.7 or later.

1.4 Factory Defaults

The device is configured with the following factory defaults:

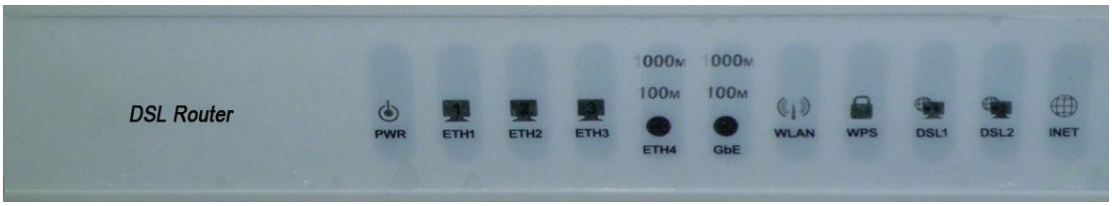
- IP Address: 192.168.1.1
- Subnet Mask: 255.255.255.0
- Encapsulation: LLC/SNAP-BRIDGING or VC/MUx
- VPI/VCI: According to local information

1.5 Warnings and Cautions

- Never install telephone wiring during storm. Avoid using a telephone during an electrical storm. There might be a risk of electric shock from lightening.
- Do not install telephone jacks in wet locations and never use the product near water.
- To prevent dangerous overloading of the power circuit, be careful about the designed maximum power load ratings. Not to follow the rating guideline could result in a dangerous situation.
- Please note that telephone line on modem must adopt the primary line that directly outputs from junction box. Do not connect Router to extension phone. In addition, if your house developer divides a telephone line to multi sockets inside the wall of house, please only use the telephone that has connected with the splitter of ADSL Router when you access the Internet. Under the above condition, if you also install telephone with anti-cheat-dial device, please pull out this kind of telephone, otherwise ADSL Router may occur frequently off-line.

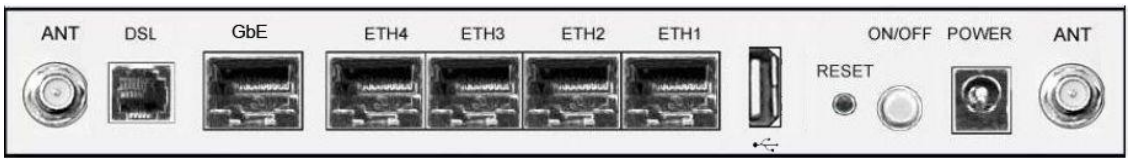
1 Hardware Description

Front Panel



LED	Color	Function
PWR	Green	On: Power on Off: No power
ETH1-4	Green	On: LAN link established and active via LAN port Blinking: ADSL data activity occurs Off: No LAN link via LAN port
GbE	Green	On: LAN link established and active via LAN port Blinking: ADSL data activity occurs Off: No LAN link via LAN port
WLAN	Green	On: The wireless module is ready and idle Blinking: Data transmitting or receiving over WLAN Off: The wireless function is off
DSL1-2	Green	On:ADSL link established and active Quick Blinking: ADSL is trying to establish a connection Slow Blinking: No ADSL link
WPS	Green	On: WPS connection is established Blinking: Trying to establish a WPS connection Off: WPS function is off or no WPS connection
INET	Green	On: IP connected Blinking: IP connected and IP traffic is passing thru the device Off: Modem power off or ADSL connection not present

Rear panel



Port	Function
DSL	Connect the device to an ADSL telephone jack or splitter using a RJ-11 telephone cable
GbE	Connect the device to user's PC's Ethernet port,or to the uplink port on user's hub/switch, using a RJ-45 cable
ETH1-4	Connect the device to your PC's Ethernet port, or to the uplink port on user's hub/switch, using a RJ-45 cable
RESET	System reset to factory default.
ON/OFF	Switch it on or off
POWER	Connect to the supplied power adapter
USB	Connect the device to a Printer

Side panel

WIFI button: Enable or disable wireless function.

WPS button: A convenient way for WPS set.

3 Hardware Installation

This chapter shows you how to connect Router. Meanwhile, it introduces the appropriate environment for the Router and installation instructions.

1. Using a telephone line to connect the **DSL** port of ROUTER to the **MODEM** port of the splitter, and using a other telephone line connect your telephone to the **PHONE** port of the splitter, then connect the wall phone jack to the **LINE** port of the splitter.

   The splitter comes with three connectors as below:

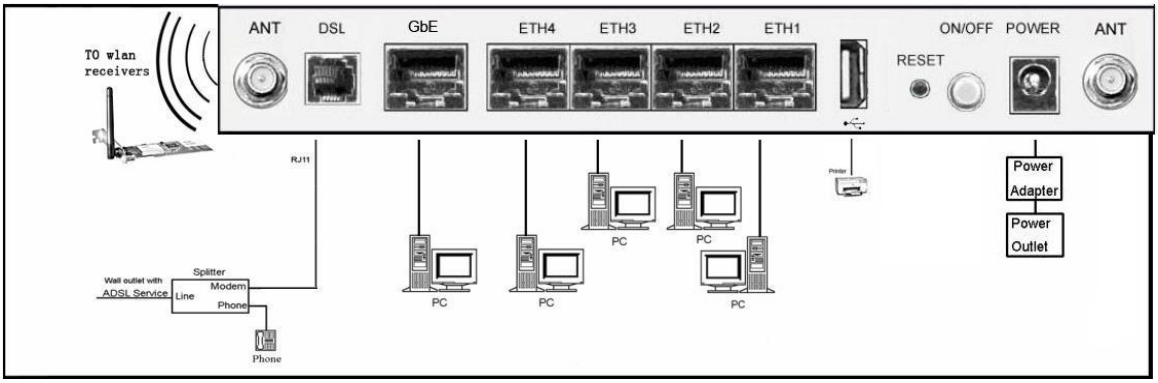
   LINE: Connects to a wall phone jack (RJ-11 jack)

   MODEM: Connects to the DSL jack of ROUTER

   PHONE: Connects to a telephone set

2. Using an Ethernet Cable to connect the LAN port of the ROUTER to your LAN or a PC with network card installed.

3. Connect the power cable to the PWR connector on ROUTER, then plug in the AC power adapter to the AC power outlet, and then press the on-off button.



Notes: Without the splitter and certain situation, transient noise from telephone can interfere with the operation of the Router, and the Router may introduce noise to the telephone line. To prevent this from happening, a small external splitter must be connected to each telephone.

4 PC Configuration Guide

4.1 Local PC Configuration in Windows 95, 98, ME, XP

1. In the Windows task bar, click the “Start” button, point to “Settings”, and then click “Control Panel”.
2. Double-click the “Network” icon.
3. On the “Configuration” tab, select the TCP/IP network associated with your network card and then click “Properties”.
4. In the “TCP/IP Properties” dialog box, click the “IP Address” tab. Set the IP address as 192.168.1.x (x can be a decimal number from 2 to 254.) like 192.168.1.2, and the subnet mask as 255.255.255.0.
5. On the “Gateway” tab, set a new gateway as 192.168.1.1, and then click “Add”.
6. Configure the “DNS” tab if necessary. For information on the IP address of the DNS server, please consult with your ISP.
7. Click “OK” twice to confirm and save your changes.
8. You will be prompted to restart Windows. Click “Yes”.

4.2 Local PC Configuration in Windows 2000

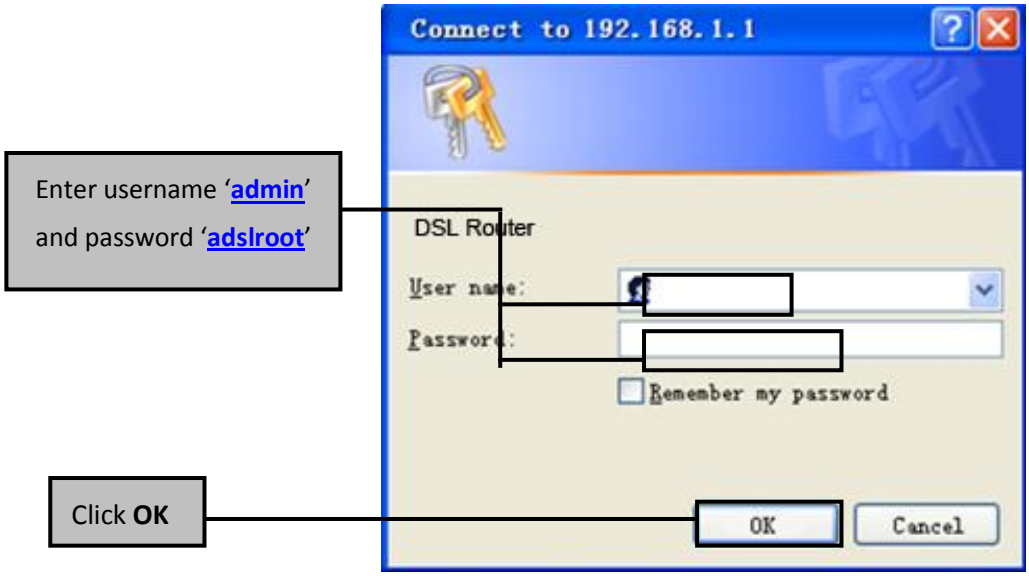
1. In the Windows task bar, click the “Start” button, point to “Settings”, and then click “Control Panel”.
2. Double-click the “Network and Dial-up Connections” icon.
3. In the “Network and Dial-up Connections” window, right-click the “Local Area Connection” icon, and then select “Properties”.
4. Highlight “Internet Protocol (TCP/IP)”, and then click “Properties”.
5. In the “Internet Protocol (TCP/IP) Properties” dialog box, set the IP address as 192.168.1.x (x can be a decimal number from 2 to 254.), and the subnet mask as 255.255.255.0 and the default gateway as 192.168.1.1. Then click “OK”.
6. Configure the “DNS” tab if necessary. For information on the IP address of the DNS server, please consult with your ISP.
7. Click “OK” twice to confirm and save your changes.

5 Web-based Management Guide

In order to use the web-based management software it will be necessary to use a computer that occupies the same subnet as the Router. The simplest way to do this for many users will be to use DHCP server that is enabled by default on the Router.

5.1 LAN setting page

Launch a web browser, such as Internet Explorer, and then use **http://192.168.1.1** to log on to setting page.



After log on ,you will see the following screen :

We can select wizard setup or advanced setup mode to setup KW5225.the wizard set up will guide us for a basic setting,and the advanced setup will guide us to home page for more detailed setup.

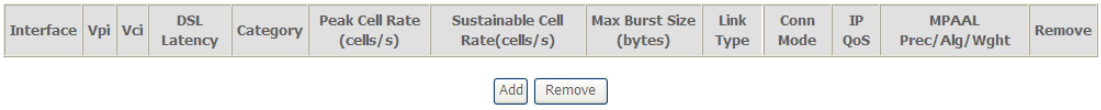
5.2 Internet Access Configuration

The Setup wizard will guide you to configure the DSL router to access Internet via PPPOE type

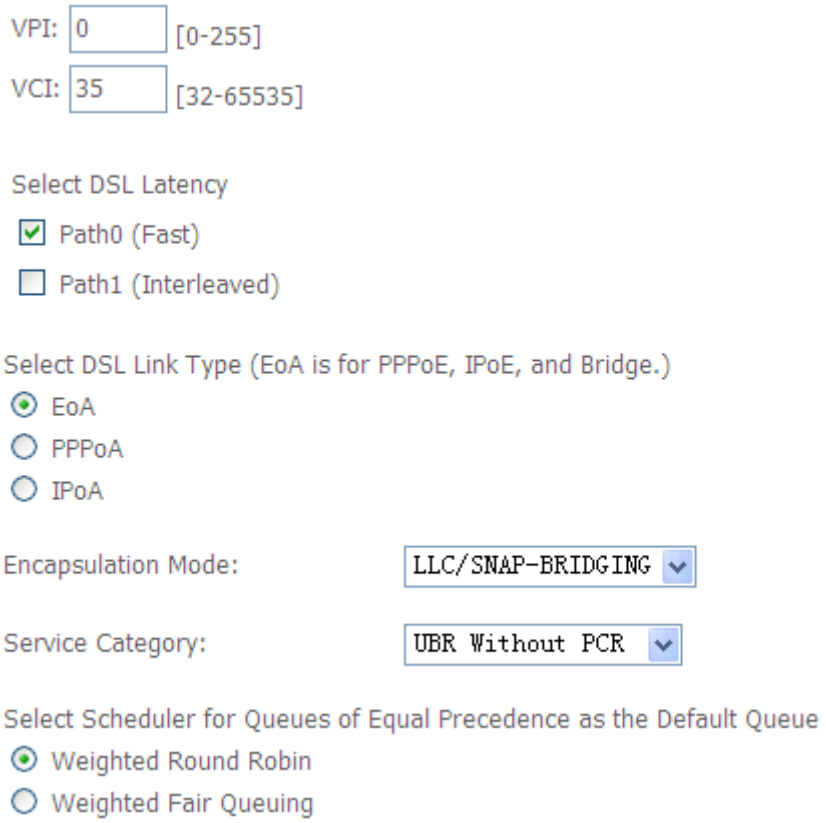
5.2.1 ADSL Setup

From home page, you can find **Advanced Setup** option on the left router configuration page.

1. From **Layer2 Interface**, click **ATM Interface**. you can set it up according to the following steps. You Choose **Add** or **Remove** to configure DSL ATM interfaces.

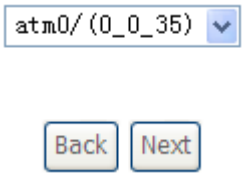


2. Click **Add** to configure PVC identifier, select DSL latency and select connection mode according to your local occasion. After the configuration, you need to click **Apply/Save**.

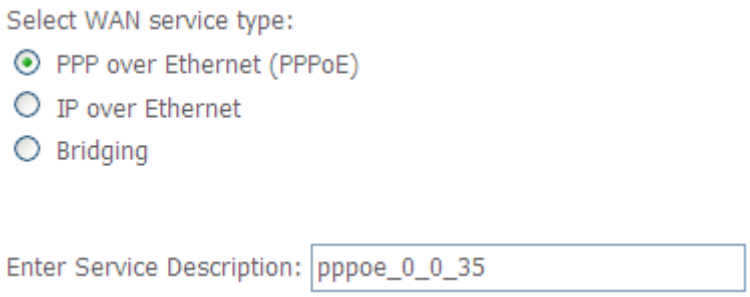


3. Click **WAN Service** from the left menu.

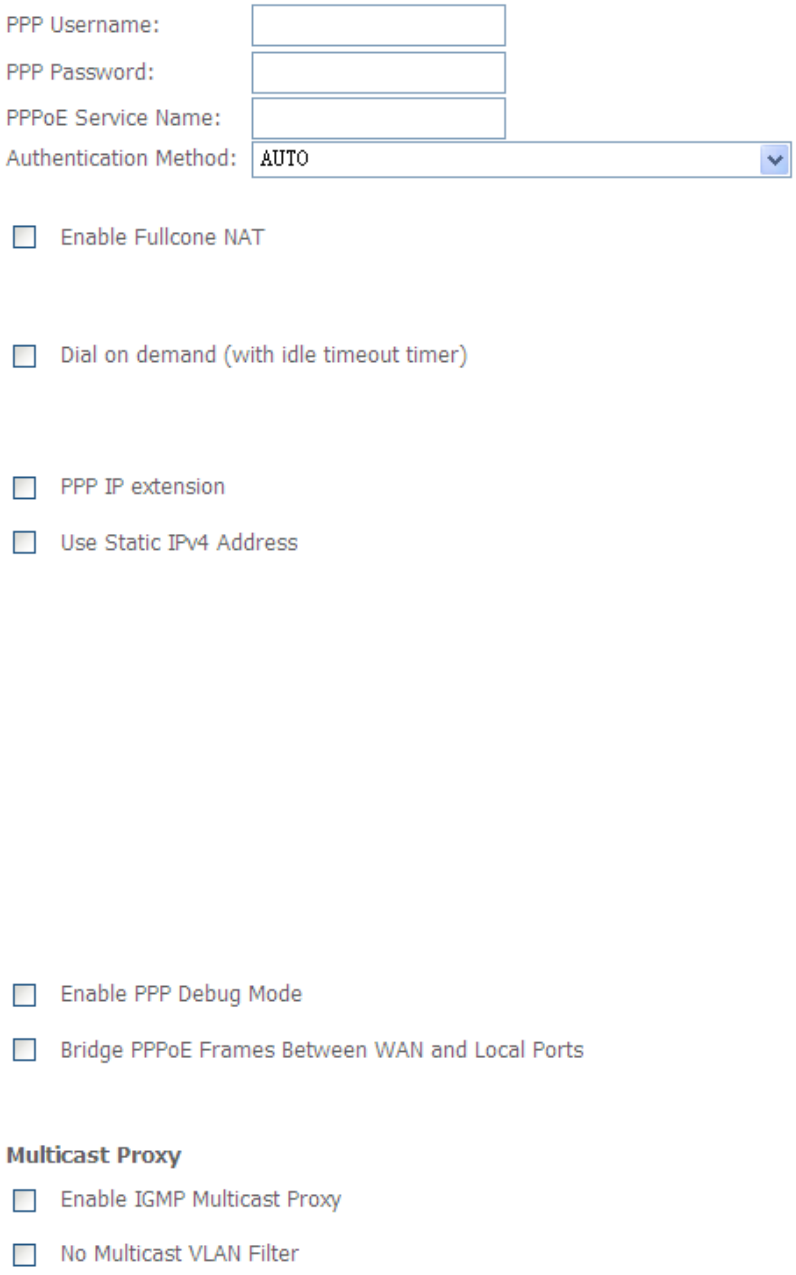
4. Click **Add** to select a layer 2 interface for this service and then click **Next**.



5. Choose WAN service type, just choose PPPoE for example here. You can enter your own service description here if you want and then click **Next**.



6. Input **PPP Username** & **PPP Password** and then click **Next**. The user interface allows a maximum of 256 characters in the user name and a maximum of 32 characters in the password.



PPPoE service name can be blank unless your Internet Service Provider gives you a value to enter.

Authentication method is default to **Auto**. It is recommended that you leave the **Authentication method** in **Auto**, however, you may select **PAP** or **CHAP** if necessary. The default value for MTU (Maximum Transmission Unit) is **1500** for PPPoA and **1492** for PPPoE. Do not change these values unless your ISP asks you to.

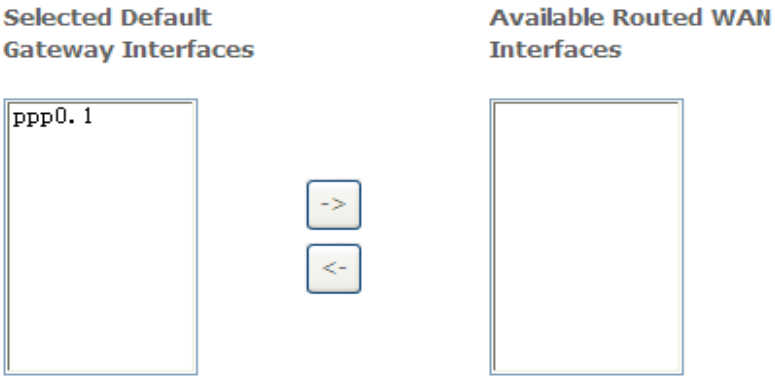
Enable FullCone NAT, all requests from the same private IP address and port are mapped to the same public source IP address and port. Someone on the Internet only needs to know the mapping scheme in order to send packets to a device behind the ADSL router.

The gateway can be configured to disconnect if there is no activity for a specific period of time by selecting the **Dial on demand** check box and entering the **Inactivity timeout**. The entered value must be between 1 minute and 4320 minutes.

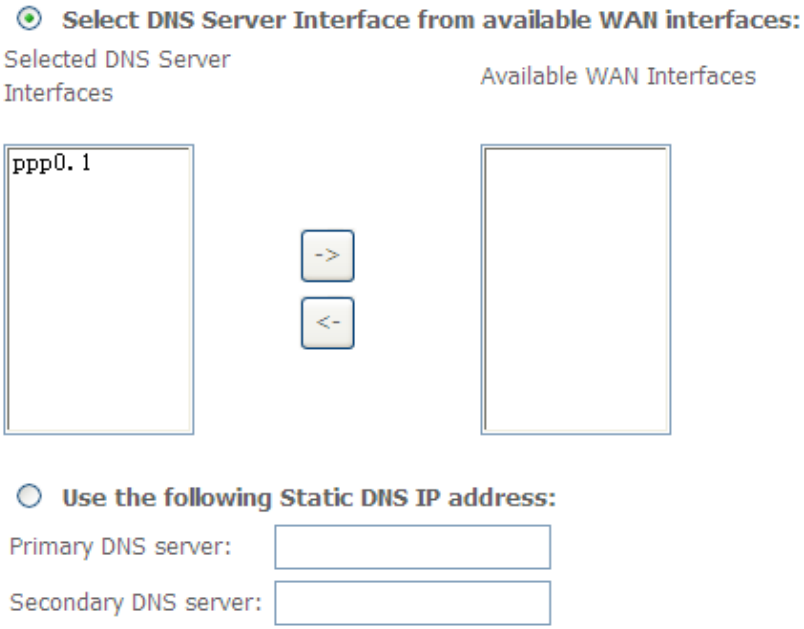
The **PPP IP Extension** is a special feature deployed by some service providers. Unless your service provider specifically requires this setup, do not select it. If you need to select it, the PPP IP Extension supports the following conditions:

- It allows only one computer on the LAN.
- The public IP address assigned by the remote using the PPP/IPCP protocol is actually not used on the WAN PPP interface. Instead, it is forwarded to the computer's LAN interface through DHCP. Only one system on the LAN can be connected to the remote, since the DHCP server within the ADSL gateway has only a single IP address to assign to a LAN device.
- NAPT and firewall are disabled when this option is selected.
- The gateway becomes the default gateway and DNS server to the computer through DHCP using the LAN interface IP address.
- The gateway extends the IP subnet at the remote service provider to the LAN computer. That is, the PC becomes a host belonging to the same IP subnet.
- The ADSL gateway bridges the IP packets between WAN and LAN ports, unless the packet is addressed to the gateway's LAN IP address.

7. Select a preferred wan interface as the system default gateway.



8. Get DNS server information from the selected WAN interface or enter static DNS server IP addresses. If only a single PVC with IPoA or static MER protocol is configured, you must enter static DNS server IP addresses.



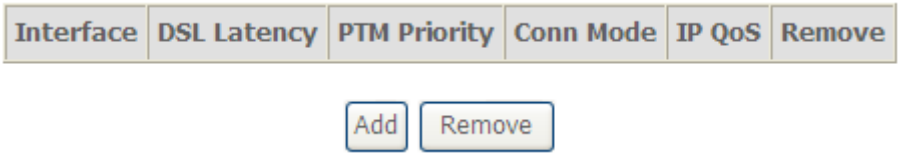
9. Make sure that the settings below match the settings provided by your ISP. Click on the **Apply/Save** button to save your configurations.

Connection Type:	PPPoE
NAT:	Enabled
Full Cone NAT:	Disabled
Firewall:	Enabled
IGMP Multicast:	Disabled
Quality Of Service:	Enabled

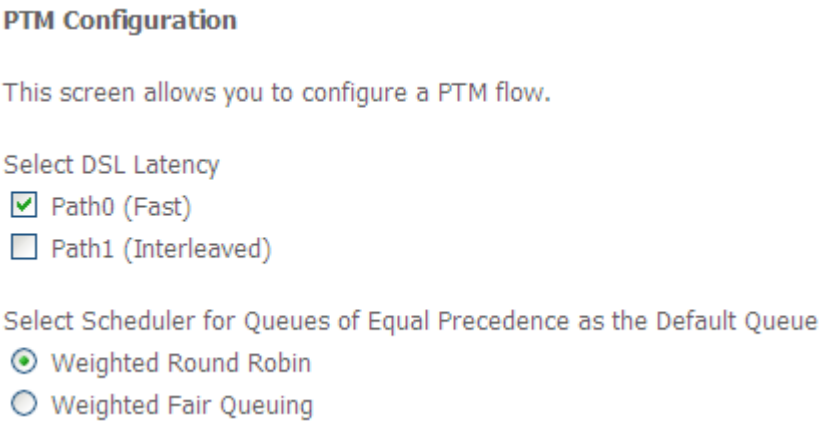
5.2.2 VDSL Setup

From home page, you can find **Advanced Setup** option on the left router configuration page.

1. From **Layer2 Interface**, click **PTM Interface**. you can set it up according to the following steps. You Choose **Add**, or **Remove** to configure DSL PTM interfaces.

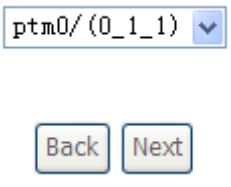


2.Click **Add** to configure **PTM Priority**, select DSL latency and select connection mode according to your local occasion. After the configuration, you need to click **Apply/Save**.

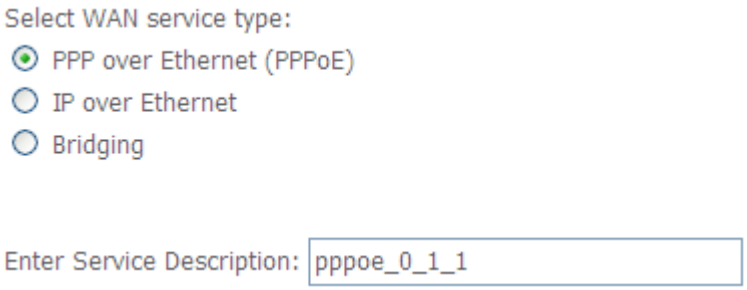


3. Click **WAN Service** from the left menu.

4.Click **Add** to select a layer 2 interface for this service and then click **Next**.



5. Choose WAN service type, just choose PPPoE for example here. You can enter your own service description here if you want and then click **Next**.



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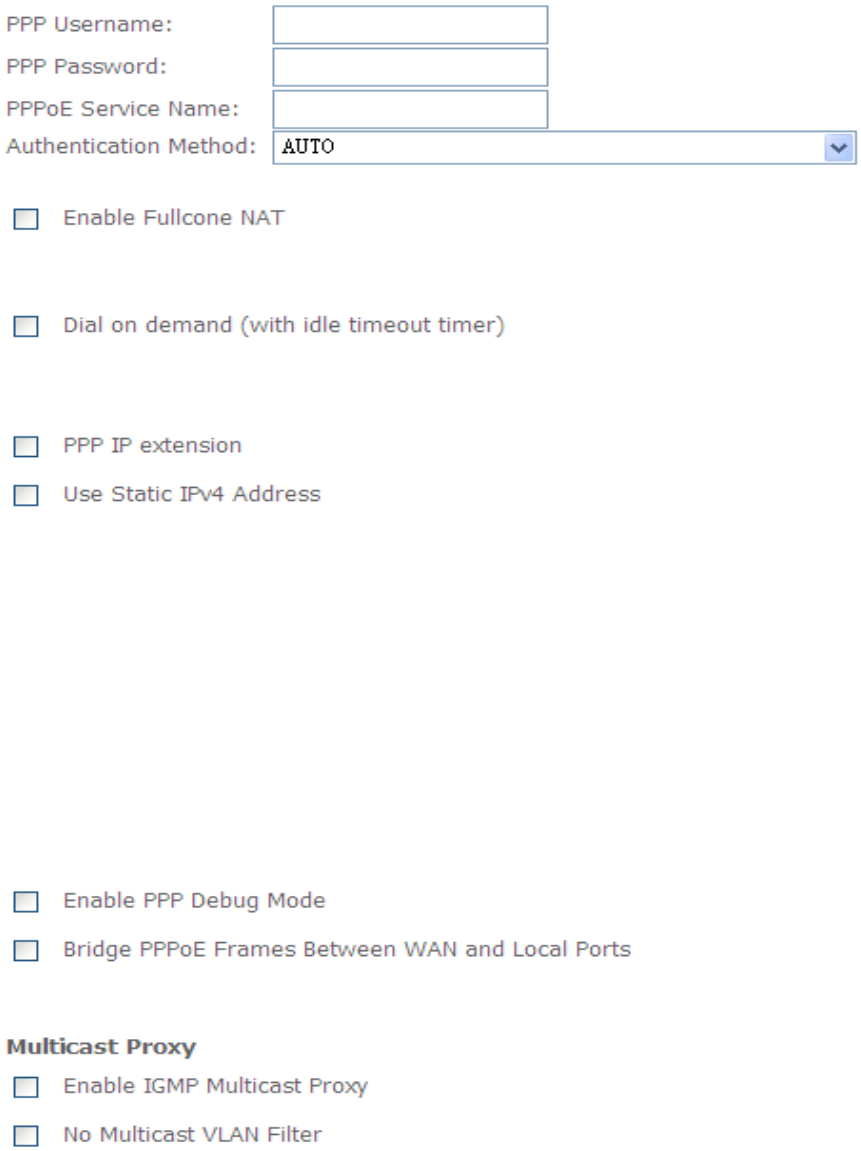

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Authentication method is default to **Auto**. It is recommended that you leave the **Authentication method** in **Auto**, however, you may select **PAP** or **CHAP** if necessary. The default value for MTU (Maximum Transmission Unit) is **1500** for PPPoA and **1492** for PPPoE. Do not change these values unless your ISP asks you to.

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- NAPT and firewall are disabled when this option is selected.
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- The gateway extends the IP subnet at the remote service provider to the LAN computer. That is, the PC becomes a host belonging to the same IP subnet.
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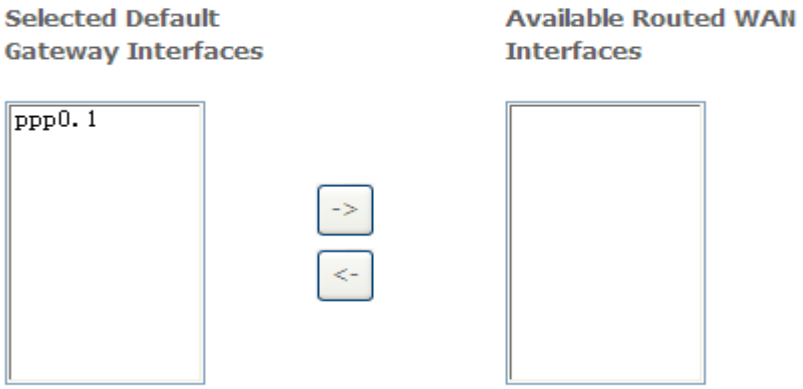
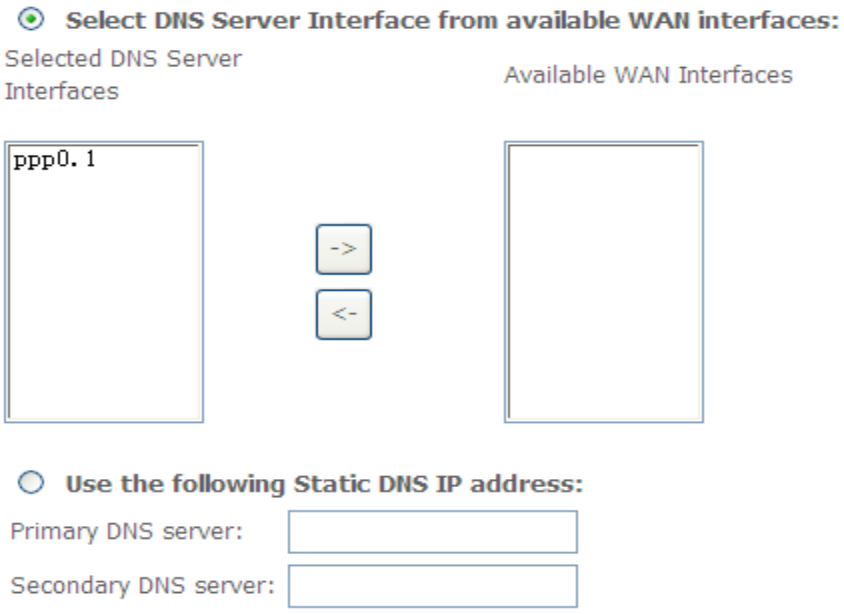
7. Select a preferred wan interface as the system default gateway.



8. Get DNS server information from the selected WAN interface or enter static DNS server IP addresses. If only a single PVC with IPoA or static MER protocol is configured, you must enter static DNS server IP addresses.

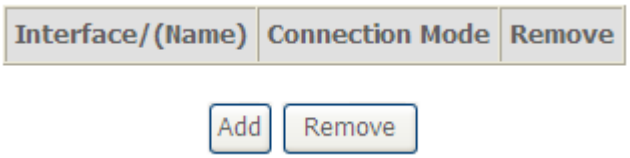


9.Make sure that the settings below match the settings provided by your ISP. Click on the **Apply/Save** button to save your configurations.

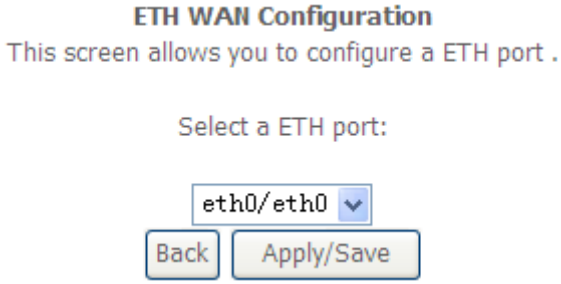
Connection Type:	PPPoE
NAT:	Enabled
Full Cone NAT:	Disabled
Firewall:	Enabled
IGMP Multicast:	Disabled
Quality Of Service:	Enabled

5.2.3 Router Mode Setup

1. From **Advanced Setup**, click **Layer2 Interface** and select **ETH Interface**. Before you configure ETH WAN interface, you'd better remove all PVC settings from **ATM interface**.

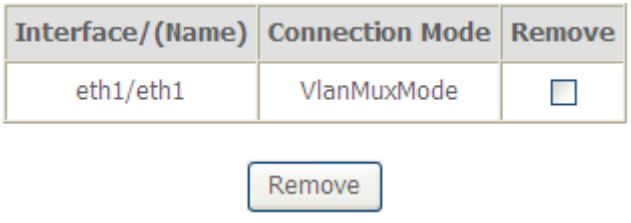


2. Click **Add** and you'll see the following screen.



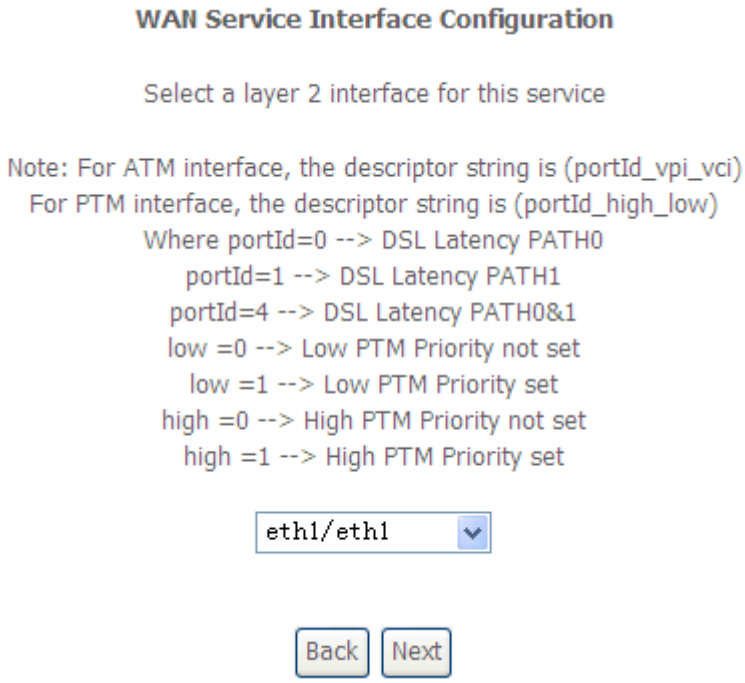
3. Select a ETH port as you will. You can select ENET1, ENET2, ENET3 or ENET4 port as the WAN interface and Default Mode as connection mode.

4. Click **Apply/Save** and you'll see the following screen.

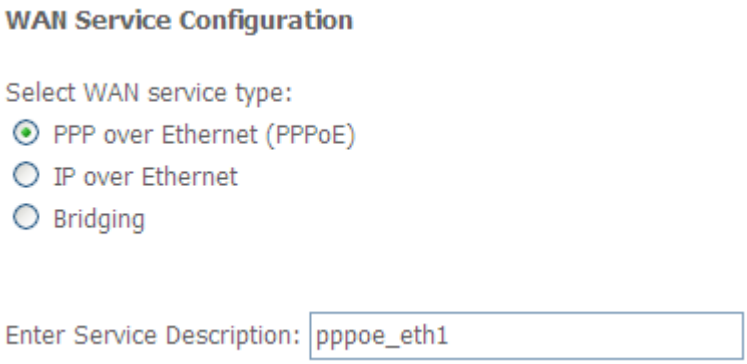


5. From **Advanced Setup**, click **WAN Service** to configure a WAN service over the interface you selected.

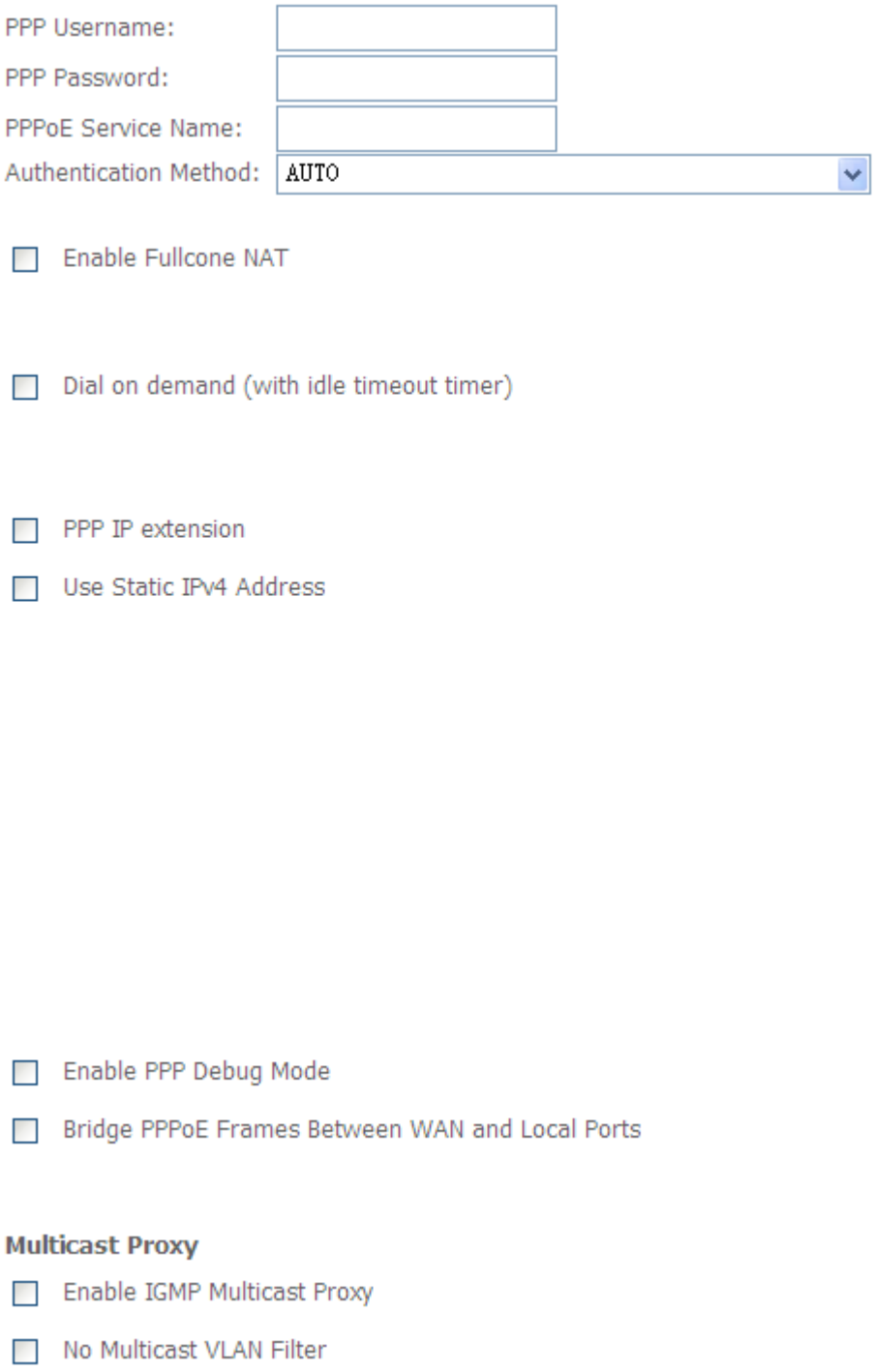
6. Click **Add** and you'll see the following screen.



7. Click **Next** and you'll see the following screen. Select PPPoE as WAN service type for example. Click **Next**.



8. Enter the user name and password that your ISP has provided to you. Click **Next**.



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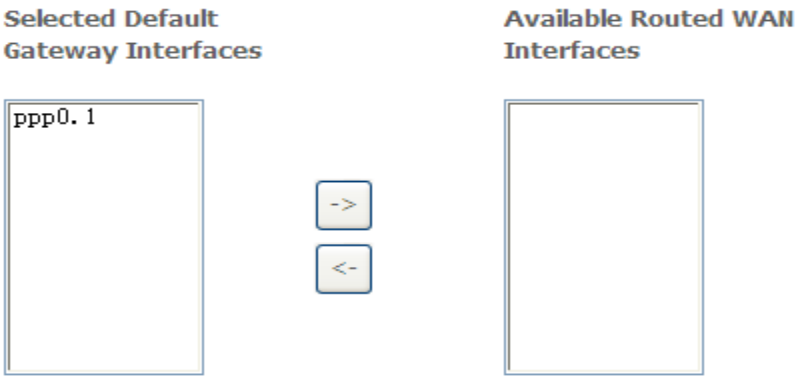
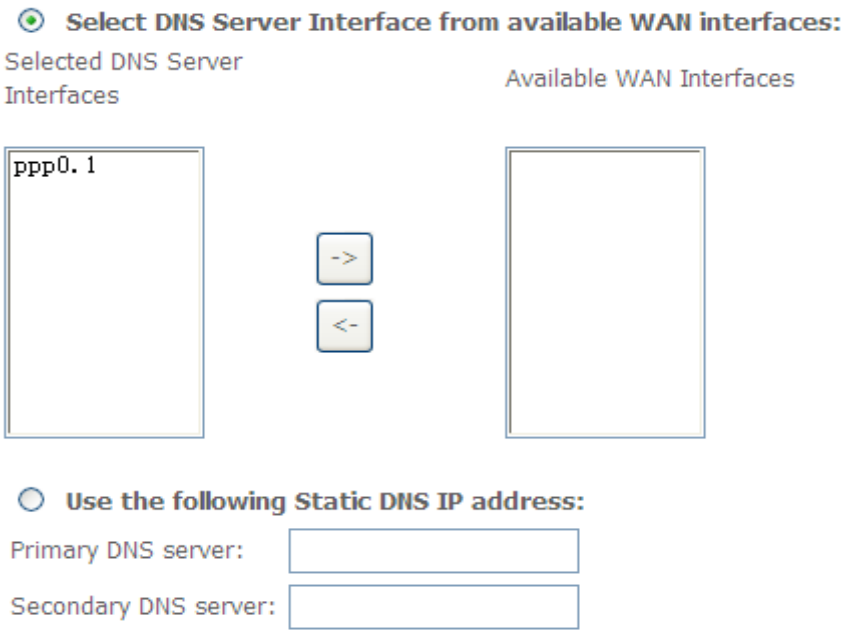
The **PPP IP Extension** is a special feature deployed by some service providers. Unless your service provider specifically requires this setup, do not select it. If you need to select it, the PPP IP Extension supports the following conditions:

- It allows only one computer on the LAN.
- The public IP address assigned by the remote using the PPP/IPCP protocol is actually not used on the WAN PPP interface. Instead, it is forwarded to the computer's LAN interface through DHCP. Only one system on the LAN can be connected to the remote, since the DHCP server within the ADSL gateway has only a single IP address to assign to a LAN device.
- NAPT and firewall are disabled when this option is selected.
- The gateway becomes the default gateway and DNS server to the computer through DHCP using the LAN interface IP address.
- The gateway extends the IP subnet at the remote service provider to the LAN computer. That is, the PC becomes a host belonging to the same IP subnet.
- The ADSL gateway bridges the IP packets between WAN and LAN ports, unless the packet is addressed to the gateway's LAN IP address.

9. Select WAN interface as the system default gateway. Click **Next**.



10. Get DNS server information from the selected WAN interface or enter static DNS server IP addresses. Click **Next**.

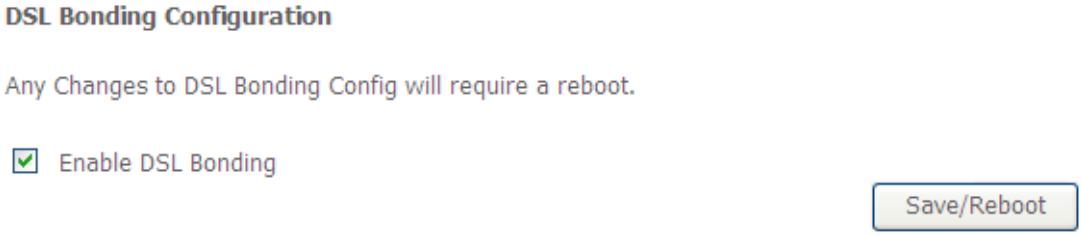


11. Make sure that the settings below match the settings provided by your ISP. Click on the **Apply/Save** button to save your configurations and reboot the ADSL router.

Connection Type:	PPPoE
NAT:	Enabled
Full Cone NAT:	Disabled
Firewall:	Enabled
IGMP Multicast:	Disabled
Quality Of Service:	Enabled

5.2.4 DSL Bonding

Click **Advanced Setup > DSL Bonding** to display the following screen.

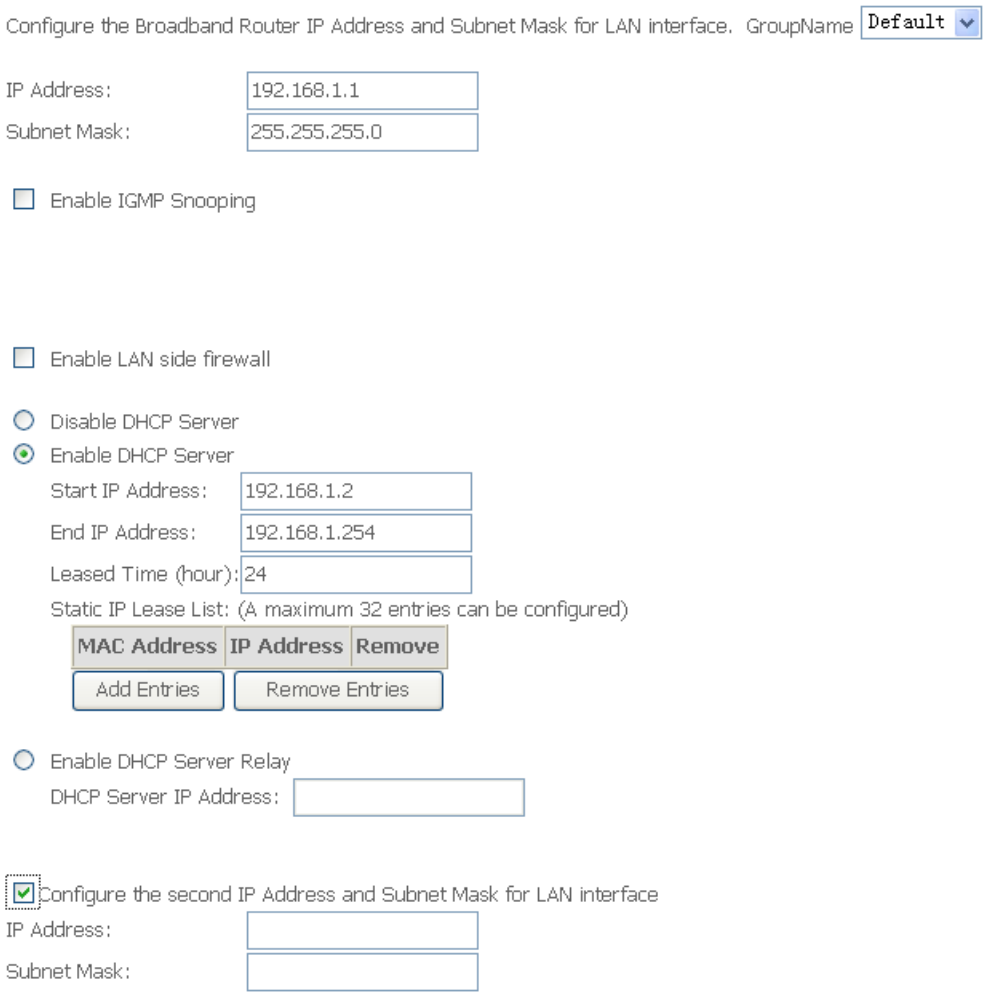


Select **Enable DSL Bonding** to use the DSL bonding and ADSL fallback features. Make sure your ISP supports these functions.

5.2.4 LAN Settings

From **LAN**, Configure the DSL Router's IP Address and Subnet Mask for LAN interface. In this page, you can use DHCP (Dynamic Host Configuration Protocol) to control the assignment of IP addresses on your local network (LAN only).KW5225 support IPv4 /IPv6 dual stack.

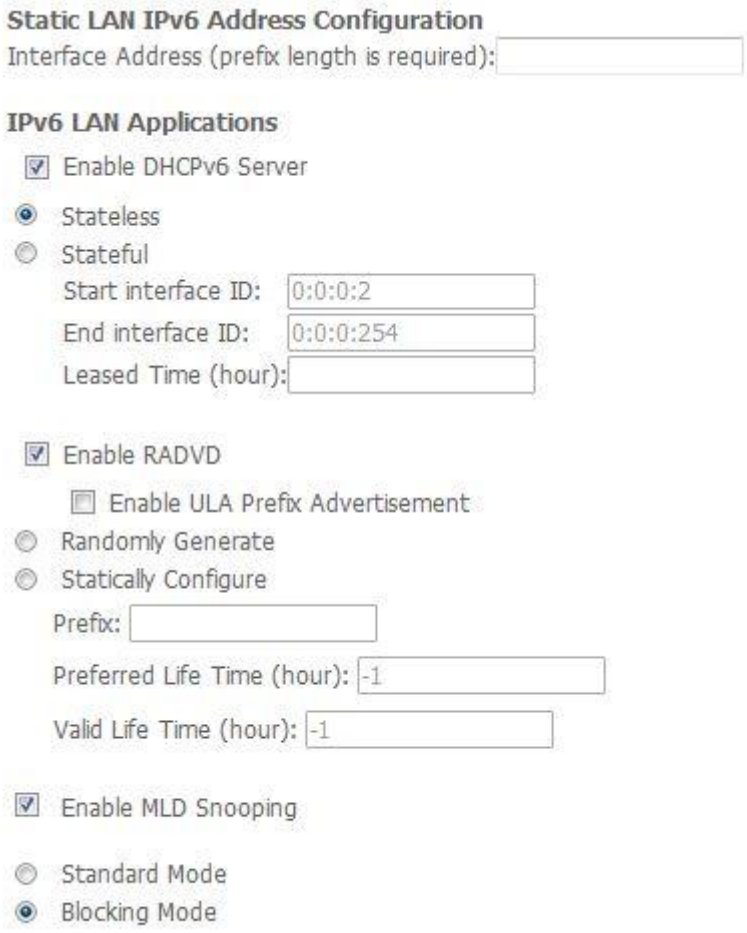
5.2.4.1 IPv4 LAN Settings



Item	Description
IP address	This is the IP address that other devices on your local network will use to connect to the modem.
Subnet mask	This defines the size of your network. The default is

	255.255.255.0.
Enable IGMP snooping	IGMP Snooping is a method that actually “snoops” or inspects IGMP traffic on a switch. When enabled, the switch will watch for IGMP messages passed between a host and a router, and will add the necessary ports to its multicast table, ensuring that only the ports that require a given multicast stream actually receive it. Use standard mode to flood unknown multicast traffic. Use blocking mode to discard unknown multicast traffic.
Disable / Enable DHCP server	The DHCP server assigns an IP addresses from a pre-set pool of addresses upon request from DHCP client (e.g. your computer). Do not disable the DHCP server unless you wish to let another device handle IP address issuance on the local network.
Start / end IP address	This is the beginning and ending range for the DHCP server addresses.
Leased time	The amount of time before the IP address is refreshed by the DHCP server.
Configure the second IP address and...	Select this option to let the device use a second IP address on the LAN interface. You can also use this second IP address to access the device for management. Enter the LAN IP address of your device in dotted decimal notation, for example, 10.0.0.1. Type the subnet mask.

5.2.4.2 IPv6 LAN Settings



Item	Description
IPv6 address	This is the IP address that other devices on your local network will use to connect to the modem.
Subnet mask	This defines the size of your network. The default is **255.255.255.0**.
Enable IGMP snooping	IGMP Snooping is a method that actually “snoops” or inspects IGMP traffic on a switch. When enabled, the switch will watch for IGMP messages passed between a host and a router, and will add the necessary ports to its multicast table, ensuring that only the ports that require a given multicast stream actually receive it. Use standard mode to flood unknown multicast traffic.

	Use blocking mode to discard unknown multicast traffic.
Disable / Enable DHCP server	The DHCP server assigns an IP addresses from a pre-set pool of addresses upon request from DHCP client (e.g. your computer). Do not disable the DHCP server unless you wish to let another device handle IP address issuance on the local network.
Start / end IP address	This is the beginning and ending range for the DHCP server addresses.
Leased time	The amount of time before the IP address is refreshed by the DHCP server.
Configure the second IP address and...	Select this option to let the device use a second IP address on the LAN interface. You can also use this second IP address to access the device for management. Enter the LAN IP address of your device in dotted decimal notation, for example, 10.0.0.1. Type the subnet mask.

Note: If you want to cancel all modification that you do on the Router, please select from "Management⇨Setting⇨Restore Default Settings" to restore factory default settings.

5.3 Wireless setting

5.3.1 Basic

Wireless - Guest/Virtual Access Points:

Enabled	SSID	Hidden	Isolate Clients	Disable WMM Advertise	Enable WMF	Max Clients	BSSID
☐	wl0_Guest1	☐	☐	☐	☐	16	N/A
☐	wl0_Guest2	☐	☐	☐	☐	16	N/A
☐	wl0_Guest3	☐	☐	☐	☐	16	N/A

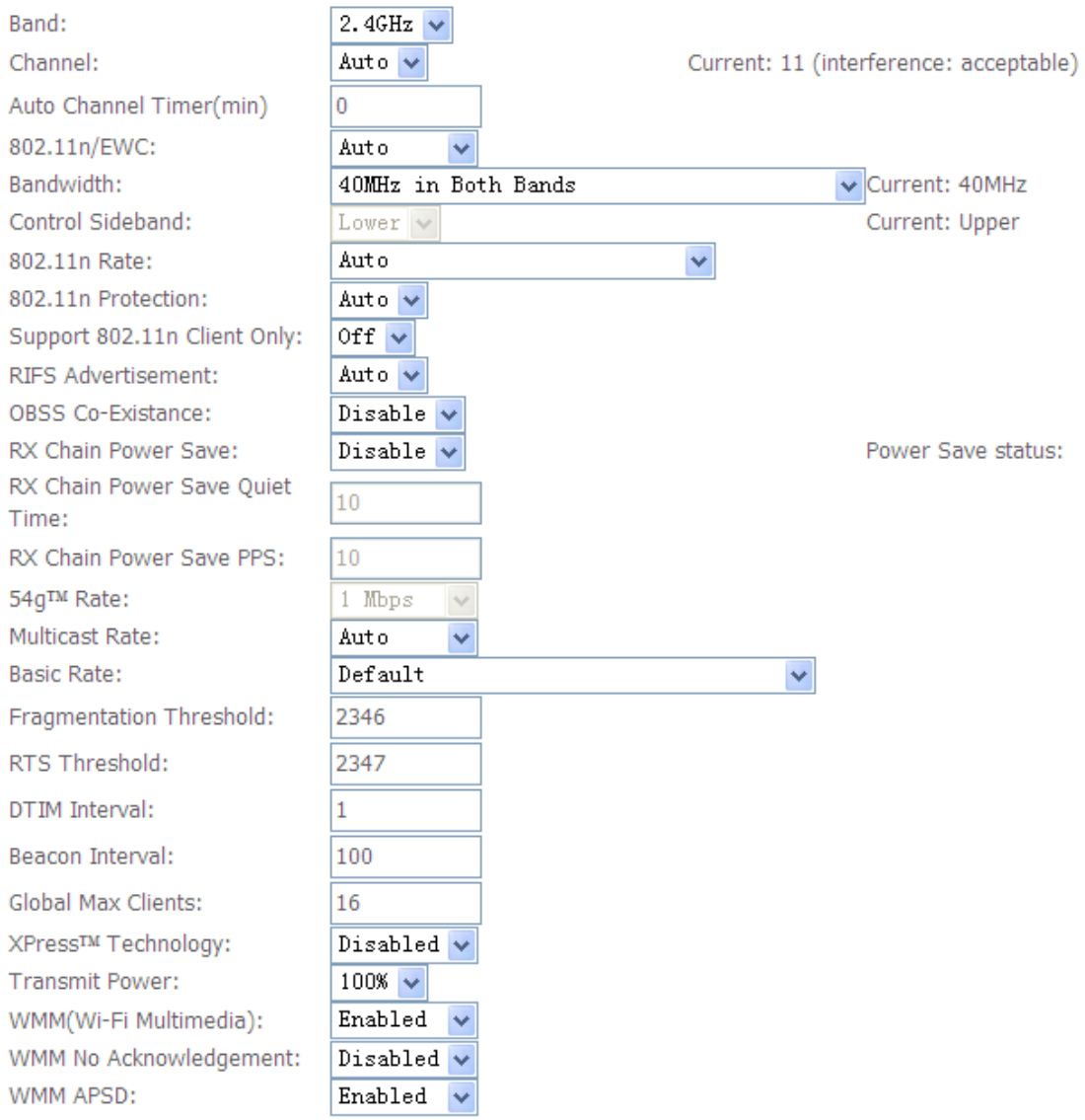
Apply/Save

Option	Description
Enable wireless	A checkbox that enables or disables the wireless LAN interfaces. The default is to enable wireless communications.
Network name (SSID)	Enter a name for user's wireless network here. SSID stands for Service Set Identifier. This name must be between 1 and 32 characters long. The default name is WLANxxxx (xxxx means the mac address of KW5225 with uppercase and without colon) . All wireless clients must either detect the gateway or be configured with the correct SSID to access the Internet.
BSSID	Displays the gateway's wireless MAC address. (User may need this address if user is using WDS or multiple gateways.) Click **Apply** to save changes.

Country	Drop-down menu that allows selection of specific channel.

5.3.2 Advanced Settings

This page is where user specifies a number of advanced settings for wireless communications.



Note: After making any changes, click **Apply** to save.

Warning: The settings shown above are default settings. Changes made to these items can cause wireless communication problems.

Field	Description
Band	This is the range of frequencies the gateway will use to communicate with

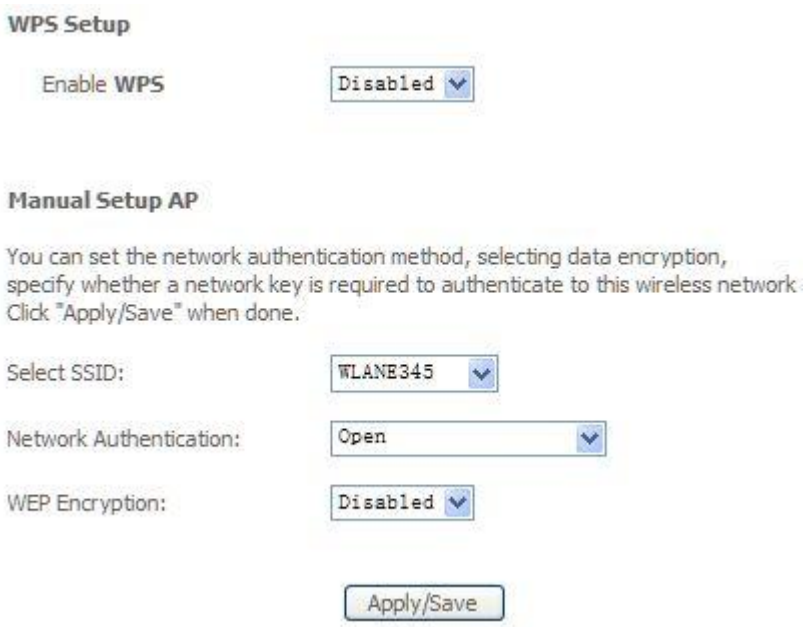
	user's wireless devices.
Channel	Drop-down menu that allows selection of specific channel.
54g™ Rate	This drop-down list lets user specify the wireless communication rate, which can be **Auto** (uses the highest rate when possible, or else a lower rate) or a fixed rate between 1 and 54 Mbps.
Multicast rate	This drop-down list lets user specify the wireless communication rate for multicast packets, which are sent to more than one destination at a time. The value can be **Auto** (uses the highest rate when possible, or else a lower rate) or a fixed rate between 1 and 54 Mbps.
Basic rate	User has the option of supporting all rates listed in **Rate** above or using the 1-, 2-Mbps rates, which support only older 802.11b implementations.
Fragmentation threshold	A threshold, specified in bytes, that determines whether packets will be fragmented and at what size. On an 802.11 connection, packets that are larger the fragmentation threshold are split into smaller units suitable for the circuit size. Packets smaller than the specified fragmentation threshold value are not fragmented. Enter a value between **256** and **2346**. If user experience a high packet error rate, try to increase this value slightly. Setting the fragmentation threshold too low may result in poor performance.
RTS threshold	This is number of bytes in the packet size beyond which the gateway invokes its RTS/CTS (request to send, clear to send) mechanism. Packets larger than this threshold trigger the RTS/CTS mechanism, while the gateway transmits smaller packets without using RTS/CTS. The default setting of **2347**, which is the maximum, disables the RTS threshold mechanism.
DTIM interval	A delivery traffic indication message (DTIM), also known as a beacon, is a countdown informing wireless clients of the next window for listening to broadcast and multicast messages. When the gateway has broadcast or multicast messages for its clients, it sends its next DTIM message with this DTIM interval value. The clients hear the beacons and awaken as needed to receive the broadcast and multicast messages.
Beacon interval	The amount of time (in milliseconds) between beacon transmissions, each of which identifies the presence of an access point. By default, wireless clients passively scan all radio channels, listening for beacons coming from access points. Before a client enters power-save mode, it needs the beacon interval to determine when to wake up for the next beacon (and learn whether the access point has any messages for it). User can enter any

	value between **1** and **65535**, but the recommended range is **1 - 1000**.

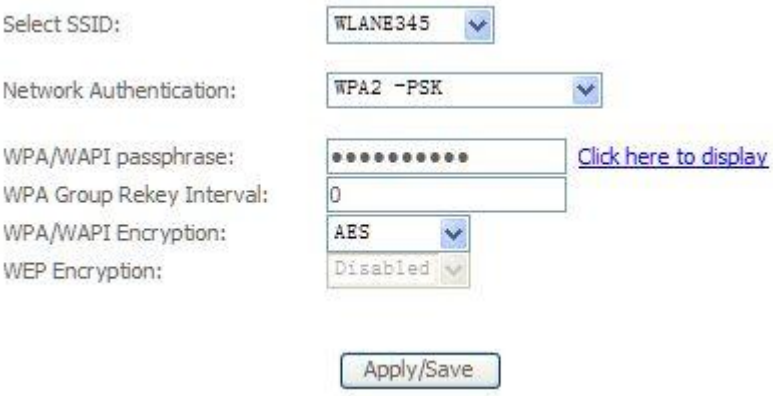
5.3.3 Security

This page allows you to configure security features of the wireless LAN interface.
You may set up configuration manually or through WiFi Protected Setup(WPS)

1.Click **Security** of **Wireless** item and you'll see the following page.

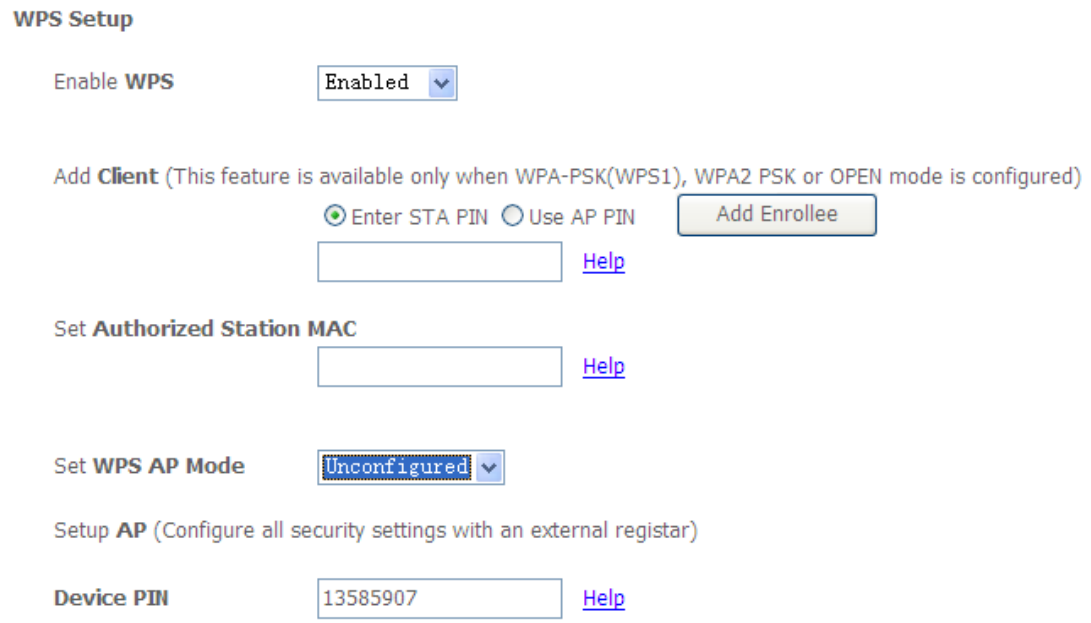


2.Configure WPA2 Pre-shared key as below and click **Apply/Save**.



3.Enable WPS as below.

4.Set WPS AP mode as **unconfigured** and click **Config AP**.



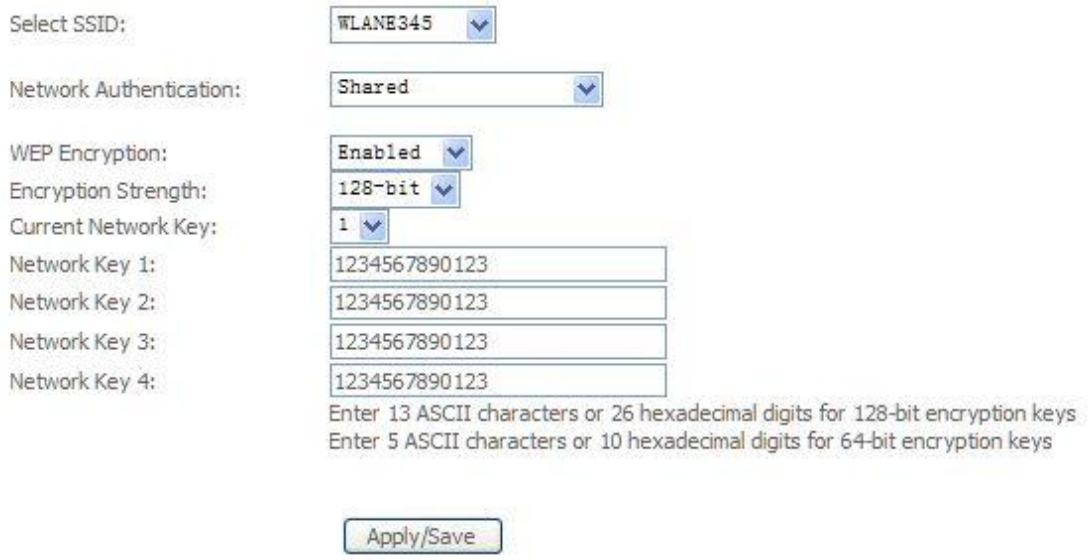
5. Set WPS AP mode as **configured** and click **Save/Apply.**

6.Now you can use a wireless adaptor with WPS function and the WPS button to connect to access the Internet.

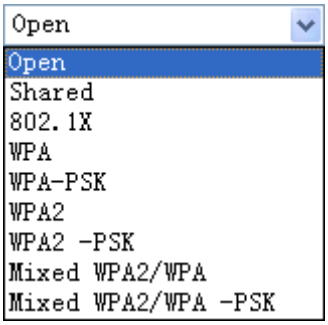
7. To configure security features for the Wireless interface, please open Security item from Wireless menu. This web page offers nine authentication protocols for user to secure user's data while connecting to networks. There are four selections including Open, Shared, 802.1X,WPA, WPA-PSK, WPA2, WPA2-PSK, Mixed WPA-WPA2, Mixed WPA-WPA2-PSK. Different item leads different web page settings. Please read the following information carefully.

The wireless security page allows user to configure the security features of user's

wireless network.



There are several security methods to choose from, depending on user's needs and the capabilities of user's wireless machines.



- **WEP open** and **WEP shared** —WEP is an encryption scheme that is used to protect user's wireless data communications. WEP uses a combination of 64-bit keys or 128-bit keys to provide access control to user's network and encryption security for every data transmission. To decode a data transmission, each wireless client on the network must use an identical 64-bit or 128-bit key. WEP is an older wireless encryption method that is not as hard to break as the more-recent WPA.

- **802.1x** — In 802.1x (also known as RADIUS), a separate machine called an authentication server receives a user ID and password. It grants or denies access based on whether the ID and password match any entries in its account list. User can optionally enable WEP encryption with this option. Because it requires a separate machine acting as the authentication server, 802.1x is most often used in business environments.

- **WPA —** WPA is a more recent encryption method that addresses many of the weaknesses in WEP. Any client capable of WPA encryption should use it instead of WEP.

- **WPA (PSK) —** This is WPA encryption combined with a *pre-shared key (PSK)*, which is a text string known only to the gateway and authorized wireless clients. The gateway rejects the login if the client's PSK does not match.

- **WPA2 —** WPA2 is a more advanced encryption method than WPA. Because it is a more recent standard, some of user's wireless devices might not be able to use it.

- **WPA2 (PSK) —** This option uses WPA2 with a pre-shared key.

- **WPA2 and WPA —** This option supports WPA2/WPA encryption for devices capable of one or the other standard. The gateway automatically detects whether a particular device can use WPA2 or WPA.

- **WPA2 AND WPA (PSK) —** This has WPA2 or WPA encryption based on client abilities, as well as a pre-shared key.

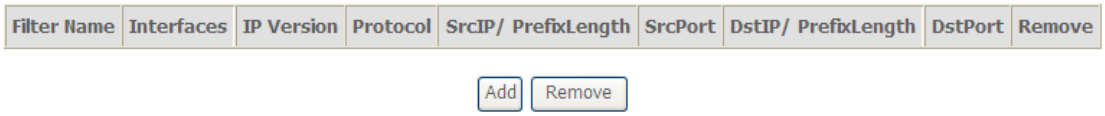
After making changes, click **Apply** to save.

5.4 Management

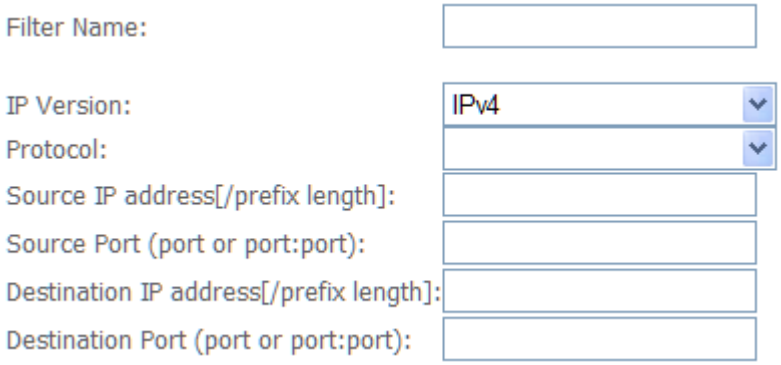
5.4.1 Remote Access

When the firewall is enabled on a WAN or LAN interface, all incoming IP traffic is BLOCKED. However, some IP traffic can be **ACCEPTED** by setting up filters.

1. Select Advanced Setup=>Security=>IP Filtering=>Incoming and Choose Add or Remove to configure incoming IP filters.



2.Click Add to add rules. If you want to do remote ping test, please select protocol as ICMP; If you want to do Http or Telnet test, please select protocol as TCP/UDP. If you want only Http remote access, you can set destination port as 80; If you want only Telnet remote access, you can set destination port as 23; If you want both, you can set destination port as blank.



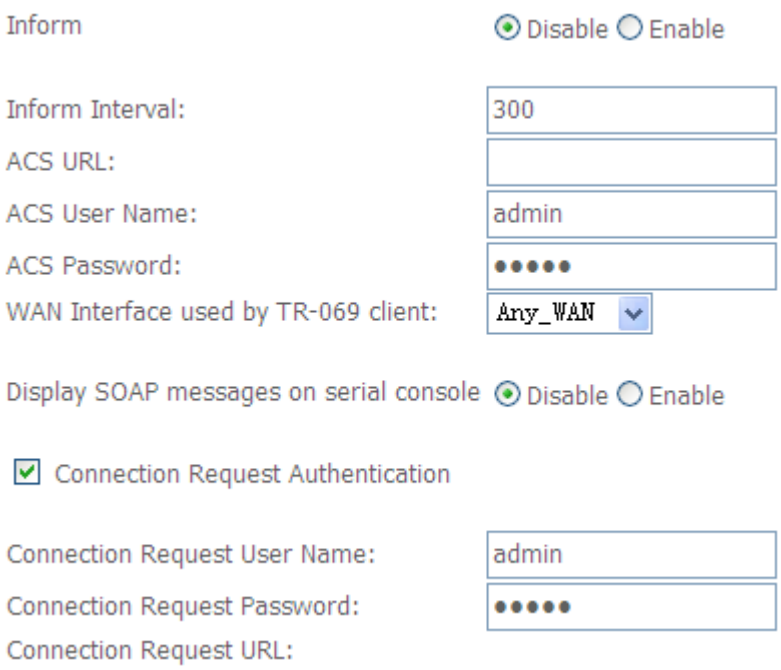
3.Click Apply/Save and select Device Info=>WAN. You can see the IP address of WAN interface

Interface	Description	Type	VlanMuxId	Igmp	NAT	Firewall	Status	IPv4 Address
atm0	ipoe_0_1_35	IPoE	Disabled	Disabled	Disabled	Disabled	Connecting	0.0.0.0

4. Now you can access the ADSL router remotely using username **support** and password **support**. You can input http://x.x.x.x/ for Http and input telnet x.x.x.x for Telnet.

5.4.2 TR-069 Client

WAN Management Protocol (TR-069) allows a Auto-Configuration Server (ACS) to perform auto-configuration, provision, collection, and diagnostics to this device.



Inform: Whether or not the CPE must periodically send CPE information to Server using the Inform method call.

Inform Interval: The duration in seconds of the interval for which the CPE MUST attempt to connect with the ACS and call the Inform method if Inform is enabled.

ACS URL: URL for the CPE to connect to the ACS using the CPE WAN Management Protocol.

ACS User Name: Username used to authenticate an ACS making a Connection Request to the CPE.

ACS Password: Password used to authenticate an ACS making a Connection Request to the CPE. When read, this parameter returns an empty string, regardless of the actual value.

WAN Interface used by TR-069 client: Remember to choose the interface of PVC used for TR069

Connection Request User Name: Username used to authenticate the CPE when making a connection to the ACS using the CPE WAN Management Protocol. This

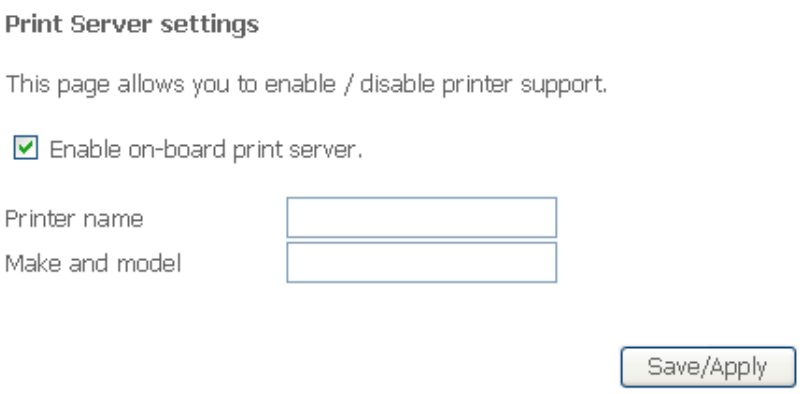
username is used only for authentication of the CPE.

Connection Request Password: Password used to authenticate the CPE when making a connection to the ACS using the CPE WAN Management Protocol. This password is used only for authentication of the CPE.

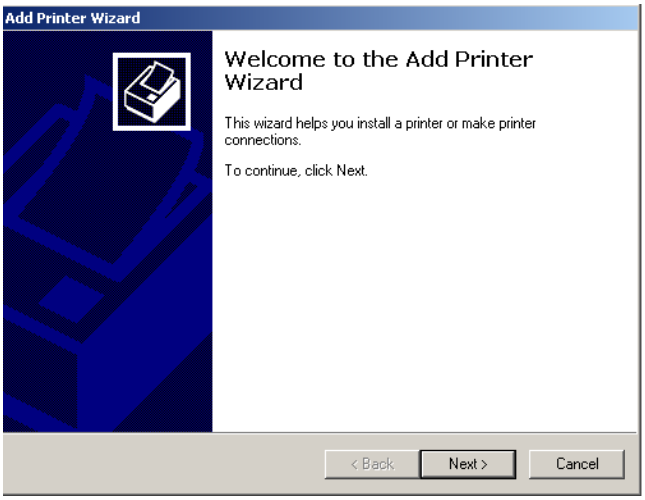
GetRPCMethods: Used by a CPE or ACS to discover the set of methods supported by the ACS or CPE it is in communicate with.

5.4.3Printer Server Installations

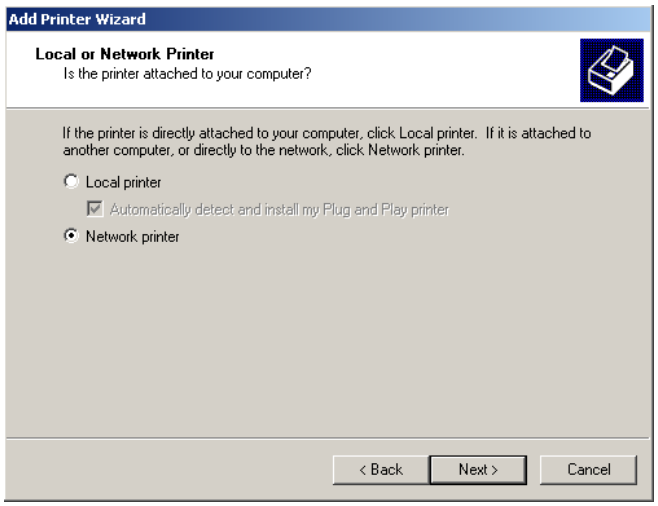
1. Click “Advanced setup⇨Print Server” and then Check “**Enable on-board printer server**” and key in “**Printer name**”, “**Make and model**”



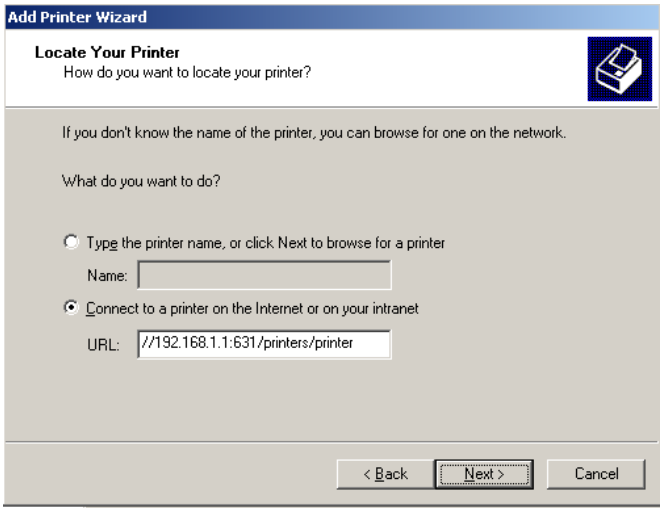
2. Click on Add a printer from **Control Panel** of the Windows computer and click “Next”.



3. Select “Network Printer” and click “Next”.

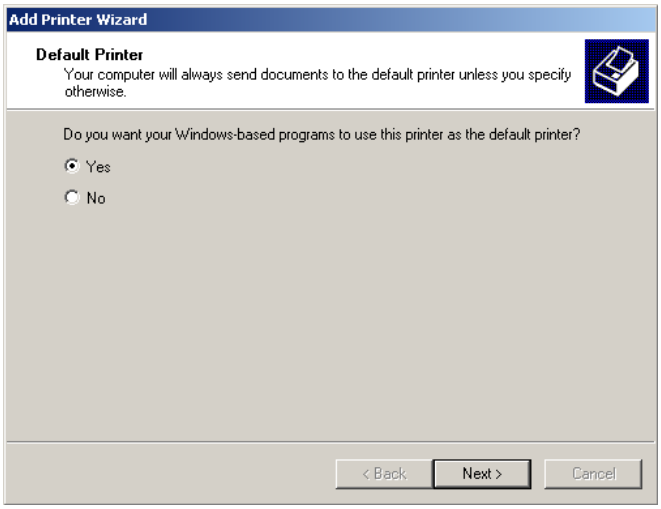


4. Select Connect to a printer on the Internet, type "**http://192.168.1.1:631/printers/printer**" and click "Next". **The printer name "Printer" must be the same name entered in the ADSL router "print server setting" as in step 1**.



5. Select driver file directory on CD-ROM or in your hard disk and click "OK".

6. Choose "Yes" or "No" for default printer setting and click "Next".



7. Click “Finish”.

Appendix: Frequent Asked Questions

Q: None of the LEDs are on when you power on the ADSL router?
A: Please make sure what you use is the power adaptor attached with the ADSL router package and checks the connection between the AC power and ADSL router.

Q: DSL LED does not turn on after connect telephone line?
A: Please make sure what you use is the standard telephone line (as attached with the package), make sure the line is connected correctly and check whether there is poor contact at each interface. Wait for 30 seconds to allow the ADSL router establishes connection with you ADSL operator.

Q: DSL LED is in the circulation of slow-flashing and fast-flashing after connecting telephone line?
A: This situation means the ADSL router is in the status of failing to establish connection with Central Office. Please check carefully and confirm whether the ADSL router has been installed correctly.

Q: LAN LED does not turn on after connect Ethernet cable?
A: Please make sure Ethernet cable is connected hub/PC and ADSL router correctly. Then please make sure the PC/hub have been power on.

Please make sure that you use parallel network cable to connect UpLink port of hub, or use parallel network cable to connect PC. If connect normal port of hub (not UpLink port), you must use cross-cable. Please make sure that your network cables meet the networking requirements above.

Q: PC cannot access the Router?
A: Please make sure that all devices communicating with the device must use the same channel (and use the same SSID). Otherwise your PC will not find the wireless Router.

Q: PC cannot access the Internet?
A: First check whether PC can ping the interface Ethernet IP address of this product successfully (default value is 192.168.1.1) by using ping application. If ping application fails, please check the connection of Ethernet cable and check whether the states of LEDs are in gear.

If the PC uses private IP address that is set manually (non-registered legal IP address), please check:

1. Whether IP address of the PC gateway is legal IP address. Otherwise please use the right gateway, or set the PC to Obtain an IP address automatically.
2. Please confirm the validity of DNS server appointed to the PC with ADSL operator. Otherwise please use the right DNS, or set the PC to Obtain an IP address automatically.
3. Please make sure you have set the NAT rules and convert private IP address to legal IP address. IP address range of the PC that you specify should meet the setting range in NAT rules.
4. Central Office equipment may have problem.
5. The country or the wireless network type you selected is wrong.

Q: PC cannot browse Internet web page?

A: Please make sure DNS server appointed to the PC is correct. You can use ping application program to test whether the PC can connect to the DNS server of the ADSL operator.

Q: Initialization of the PVC connection failed?

A: Be sure that cable is connected properly from the DSL port to the wall jack. The DSL LED on the front panel of the ADSL router should be on. Check that your VPI, VCI, type of encapsulation and type of multiplexing setting are the same as what you collected from your service provider, Re-configure ADSL router and reboot it. If you still cannot work it out, you may need to verify these variables with the service provider.

If the cause is not given above, please contact your local service provider!