BIPAC 5102 Series

(802.11g) ADSL Modem/Router

User's Manual

Chapter 1
Introduction the BIPAC 5102 Series

1.1 Introducing the BIPAC 5102 Series

Welcome to the Billion BIPAC 5102 Series ADSL Router. Your Billion router is an “all-in-one” unit, combining an ADSL modem, ADSL router and Ethernet network switch, providing everything you need to get the machines on your network connected to the Internet over your ADSL broadband connection.

The BIPAC 5102 Series complies with ADSL2+ standards for worldwide deployment and supports downstream rates of up to 24 Mbps and upstream rates of up to 1 Mbps. It is designed for small office, home office and residential users, enabling even faster speed Internet connections. User can enjoy ADSL services and broadband multimedia applications such as interactive gaming, video streaming and real-time audio much easier and faster than ever before.

The product supports PPPoA (RFC 2364 – PPP (Point-to-Point Protocol) over ATM Adaptation Layer 5), RFC 1483 encapsulation over ATM (bridged or routed), PPP over Ethernet (RFC 2516), and IPoA (RFC1577) to establish a connection with ISP. The product also supports VC-based and LLC-based multiplexing.

It is the perfect solution to connect a small group of PCs to a high-speed broadband Internet connection. Multi-users can have high-speed Internet access simultaneously.

This product also serves as an Internet firewall, protecting your network from being accessed by outside users. Not only provide the natural firewall function (Network Address Translation, NAT), it also provides rich firewall features to secure user’s network. All incoming data packets are monitored and filtered. Besides, it can also be configured to block internal users from accessing to the Internet.

The product provides two levels of security support. First, it masks LAN users’ IP addresses which are invisible to outside users on the Internet, making it much more difficult for a hacker

to target a machine on your network. Secondly, it can block and redirect certain ports to limit the services that outside users can access. For example, to ensure that games and other Internet applications will run properly, user can open some specific ports for outside users to access internal services in network.

Integrated DHCP (Dynamic Host Control Protocol) services, client and server, allow multiple users to get their IP addresses automatically on boot up from the product. Simply set local machines as a DHCP client to accept a dynamically assigned IP address from DHCP server and reboot. Each time local machine is powered up; the router will recognize it and assign an IP address to instantly connect it to the LAN.

For advanced users, Virtual Service function allows the product to provide limited visibility to local machines with specific services for outside users. An ISP (Internet Service Providers) provided IP address can be set to the product and then specific services can be rerouted to specific computers on the local network. For instance, a dedicated web server can be connected to the Internet via the product and then incoming requests for HTML that are received by the product can be rerouted to the dedicated local web server, even though the server now has a different IP address. In this example, the product is on the Internet and vulnerable to attacks, but the server is protected.

Virtual Server can also be used to re-task services to multiple servers. For instance, the product can be set to allow separated FTP, Web, and Multiplayer game servers to share the same Internet-visible IP address while still protecting the servers and LAN users from hackers.

1.2 Features of the BIPAC 5102 Series

- **ADSL Multi-Mode Standard**
  supports downstream rates of up to 24 Mbps and upstream rates of up to 1 Mbps. It also supports rate management that allows ADSL subscribers to select an Internet access speed suiting their needs and budgets. It is compliant with Multi-Mode standard (ANSI T1.413, Issue 2; G.dmt(G.992.1); G.lite(G992.2)), G.hs (G994.1), G.dmt.bis (G.992.3), G.dmt.bisplus (G.992.5)). The Annex A and B are supported in different H/W platforms.

- **Wireless Ethernet 802.11g**
  With built-in 802.11g access point for extending the communication media to WLAN while providing the WEP and WPA for securing your wireless networks.

- **Fast Ethernet Switch**
  A 10/100Mbps fast Ethernet switch is built in with automatic switching between MDI and MDI-X for 10Base-T and 100Base-TX ports. An Ethernet straight or cross-over cable can be used directly for auto detection.

- **Multi-Protocol to Establish A Connection**
  Supports PPPoA (RFC 2364 - PPP over ATM Adaptation Layer 5), RFC 1483 encapsulation over ATM (bridged or routed), PPP over Ethernet (RFC 2516) and IPoA (RFC1577) to establish a connection with the ISP. The product also supports VC-based and LLC-based multiplexing.

- **Quick Installation Wizard**
  Supports a WEB GUI page to install this device quickly. With this wizard, end users can enter the information easily which they get from their ISP, then surf the Internet immediately.

- **Universal Plug and Play (UPnP) and UPnP NAT Traversal**
  This protocol is used to enable simple and robust connectivity among stand-alone devices and PCs from many different vendors. It makes network simple and affordable for users. UPnP architecture leverages TCP/IP and the Web to enable seamless proximity networking in addition to control and data transfer among networked devices. With this feature enabled, users can now connect to Net meeting or MSN Messenger seamlessly.

- **Network Address Translation (NAT)**
  Allows multi-users to access outside resources such as the Internet simultaneously with one IP address/one Internet access account. Many application layer gateway

(ALG) are supported such as web browser, ICQ, FTP, Telnet, E-mail, News, Net2phone, Ping, NetMeeting, IP phone and others.

- **Firewall**
  Supports simple firewall with NAT technology and provides option for blocking access from Internet, like Telnet, FTP, TFTP, WEB, SNMP and IGMP.

- **Domain Name System (DNS) relay**
  Provides an easy way to map the domain name (a friendly name for users such as www.yahoo.com) and IP address. When a local machine sets its DNS server with this router's IP address, every DNS conversion request packet from the PC to this router will be forwarded to the real DNS in the outside network.

- **Dynamic Domain Name System (DDNS)**
  The Dynamic DNS service allows you to alias a dynamic IP address to a static hostname. This dynamic IP address is the WAN IP address. For example, to use the service, you must first apply for an account from a DDNS service like http://www.dyndns.org/.

- **PPP over Ethernet (PPPoE):** Provides embedded PPPoE client function to establish a connection. Users can get greater access speed without changing the operation concept, sharing the same ISP account and paying for one access account. No PPPoE client software is required for local computer. The Automatic Reconnect and Disconnect Timeout (Idle Timer) functions are provided, too.

- **Virtual Server:** User can specify some services to be visible from outside users. The router can detect incoming service request and forward it to the specific local computer to handle it. For example, user can assign a PC in LAN acting as WEB server inside and expose it to the outside network. Outside user can browse inside web server directly while it is protected by NAT. A DMZ host setting is also provided to a local computer exposed to the outside network, Internet.

  Users can specify some services to be visible from outside users. The router can detect incoming service requests and forward either a single port or a range of ports to the specific local computer to handle it. For example, a user can assign a PC in the LAN acting as a WEB server inside and expose it to the outside network. Outside users can browse inside web servers directly while it is protected by NAT. A DMZ host setting is also provided to a local computer exposed to the outside network, Internet.

- **Dynamic Host Configuration Protocol (DHCP) client and server**
  In the WAN site, the DHCP client can get an IP address from the Internet Service Provider (ISP) automatically. In the LAN site, the DHCP server can allocate a range of

client IP addresses and distribute them including IP address, subnet mask as well as DNS IP address to local computers. It provides an easy way to manage the local IP network.

- **RIP1/2 Routing**
  Supports RIP1/2 routing protocol for routing capability.

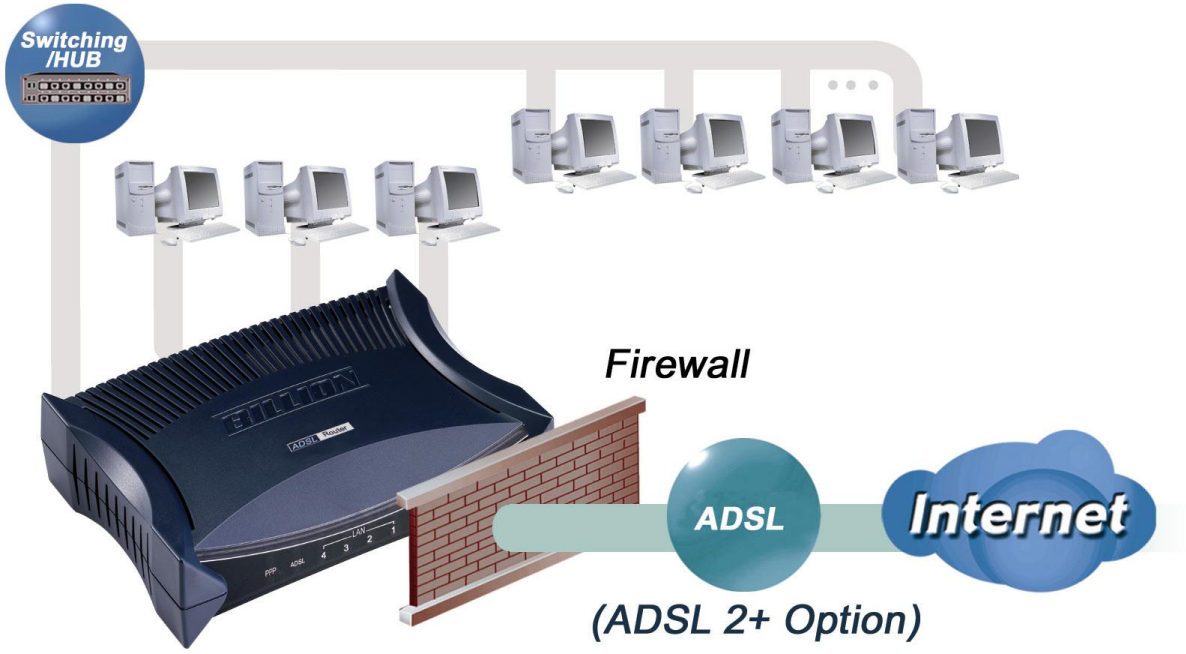
- **Simple Network Management Protocol (SNMP)**
  It is an easy way to remotely manage the router via SNMP.

- **Web based GUI**
  Supports web based GUI for configuration and management. It is user-friendly and comes with on-line help. It also supports remote management capability for remote users to configure and manage this product.

- **Firmware Upgradeable**
  Device can be upgraded to the latest firmware through the WEB based GUI.

- **Rich management interfaces**
  Supports flexible management interfaces with local console port, LAN port, and WAN port. Users can use terminal applications through the console port to configure and manage the device, or Telnet, WEB GUI, and SNMP through LAN or WAN ports to configure and manage the device.

1.3 Applications for the BIPAC 5102 Series



Chapter 2
Installing the BIPAC 5102 Series

2.1 Important note for using the BIPAC 5102 Series ADSL Router

Warning

- ✓ Do not use the BIPAC 5102 Series in high humidity or high temperatures.
- ✓ Do not use the same power source for the BIPAC 5102 Series as other equipment.
- ✓ Do not open or repair the case yourself. If the BIPAC 5102 Series is too hot, turn off the power immediately and have it repaired at a qualified service center.
- ✓ Avoid using this product and all accessories outdoors.

Attention

- ✓ Place the BIPAC 5102 Series on a stable surface.
- ✓ Only use the power adapter that comes with the package. Using a different voltage rating power adaptor may damage the router.

2.2 Package Contents

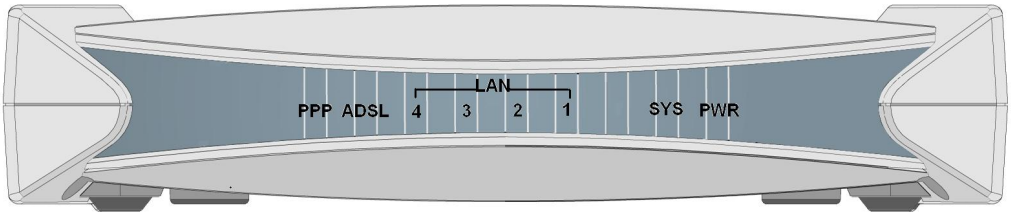
- BIPAC 5102 Series ADSL Router
- CD-ROM containing the online manual
- RJ-11 ADSL/telephone Cable (1.8M)
- Ethernet (CAT-5 LAN) Cable (2M Straight)
- AC-DC power adapter (12V DC, 1A) ：for BIPAC 5102/5102G

  AC-AC power adapter (9V AC, 1A)：for BIPAC5102S

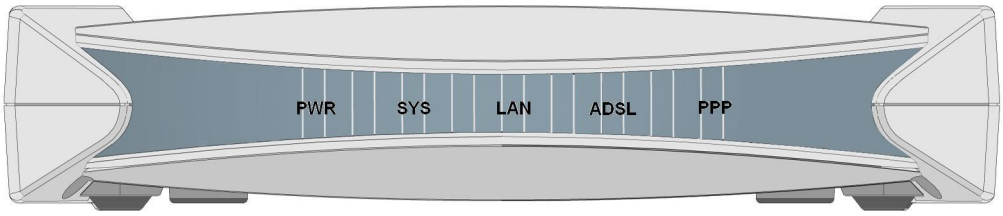
- Quick Start Guide (105*150*mm)

2.3 The Front LEDs

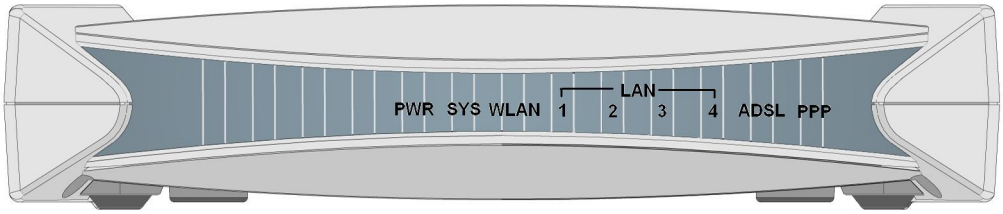
BIPAC 5102



BIPAC 5102S



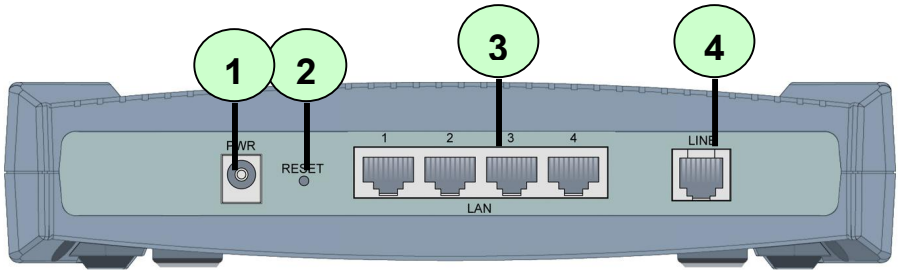
BIPAC 5102G



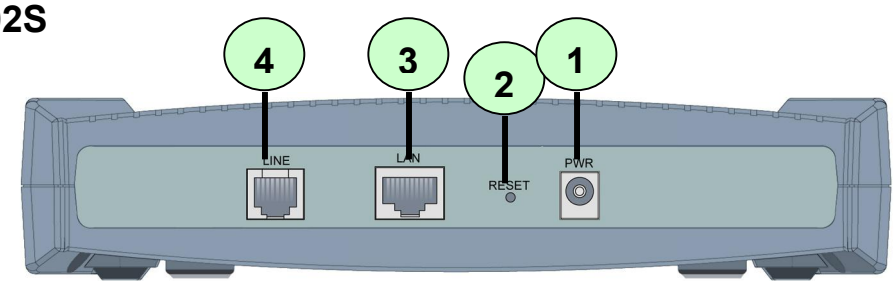
LED		Meaning
1	**PPP :**	Lit steady when there is a PPPoA / PPPoE connection.
2	**ADSL:**	Lit when successfully connected to an ADSL DSLAM (“linesync”).
3	**LAN Port 1-4:**	Lit when connected to an Ethernet device. Green for 100Mbps; Orange for 10Mbps. Blinking when data is Transmitted / Received.
4	**SYS :**	Lit when the system is ready.
5	**PWR :**	Lit when power is ON.

2.4 The Rear Ports

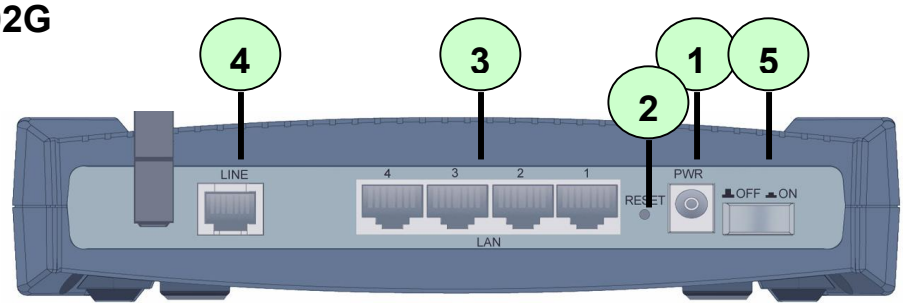
BIPAC 5102



BIPAC 5102S



BIPAC 5102G



Port		Meaning
1	**PWR**	Connect the supplied power adapter to this jack.
2	**RESET**	After the device is powered on, press it to reset the device or restore to factory default settings. **0-3 seconds**: reset the device **6 seconds above**: restore to factory default settings (this is used when you can not login to the router, e.g. forgot the password)
3	**LAN**	Connect a UTP Ethernet cable (Cat-5 or Cat-5e) to one of the four LAN ports when connecting to a PC or an office/home network of 10Mbps or 100Mbps.
4	**ADSL**	Connect the supplied RJ-11 (“telephone”) cable to this port when connecting to the ADSL/telephone network.
5	**Power Switch**	Power ON/OFF switch

2.5 Cabling

One of the most common causes of problems is bad cabling or ADSL line(s). Make sure that all connected devices are turned on. On the front of the product is a bank of LEDs. Verify that the LAN Link and ADSL line LEDs are lit. If they are not, verify that you are using the proper cables.

Ensure that all other devices connected to the same telephone line as your Billion router (e.g. telephones, fax machines, analogue modems) have a line filter connected between them and the wall socket (unless you are using a Central Splitter or Central Filter installed by a qualified and licensed electrician), and ensure that all line filters are correctly installed and the right way around. Missing line filters or line filters installed the wrong way around can cause problems with your ADSL connection, including causing frequent disconnections

Chapter 3
Basic Installation

The router can be configured with your web browser. A web browser is included as a standard application in the following operating systems: Windows 98/NT/2000/XP/Me, etc. The product provides a very easy and user-friendly interface for configuration.

3.1 Before Configuration

PCs must have an Ethernet interface installed properly and be connected to the router either directly or through an external repeater hub, and have TCP/IP installed and configured to obtain an IP address through a DHCP server or a fixed IP address that must be in the same subnet as the router. The default IP address of the router is **192.168.1.254** and the subnet mask is **255.255.255.0** (i.e. any attached PC must be in the same subnet, and have an IP address in the range of 192.168.1.1 to 192.168.1.253). The best and easiest way is to configure the PC to get an IP address automatically from the router using DHCP. If you encounter any problems accessing the router's web interface it may also be advisable to **uninstall** any kind of software firewall on your PCs, as they can cause problems accessing the 192.168.1.254 IP address of the router. Users should make their own decisions on how to best protect their network.

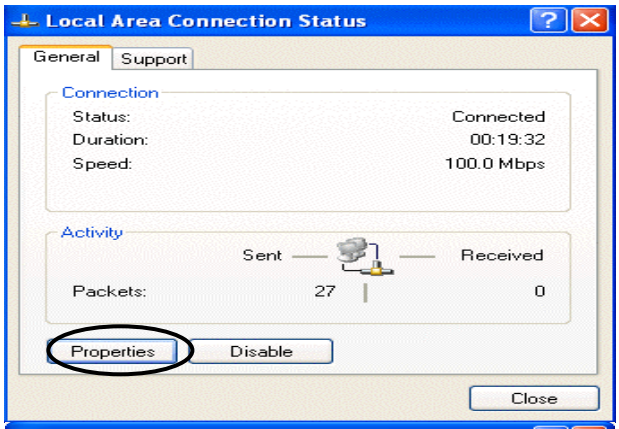
Please follow the steps below for your PC's network environment installation. First of all, please check your PC's network components. The TCP/IP protocol stack and Ethernet network adapter must be installed. If not, please refer to your Windows-related or other operating system manuals.

Any TCP/IP capable workstation can be used to communicate with or through the BIPAC 5102 Series. To configure other types of workstations, please consult the manufacturer's documentation.

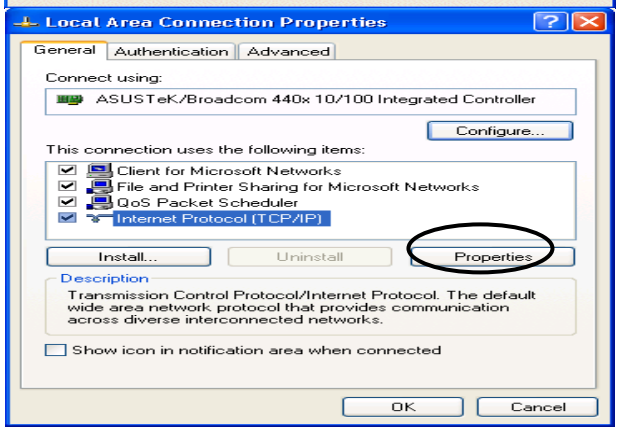
Configuring PC in Windows XP

1. Go to **Start / Control Panel (in Classic View)**. In the Control Panel, double-click on **Network Connections**
2. Double-click **Local Area Connection**.

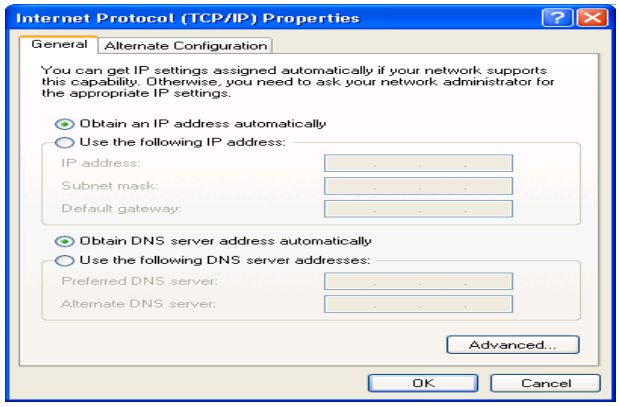
3. In the **Local Area Connection Status** window, click **Properties**.



4. Select **Internet Protocol (TCP/IP)** and click **Properties**.

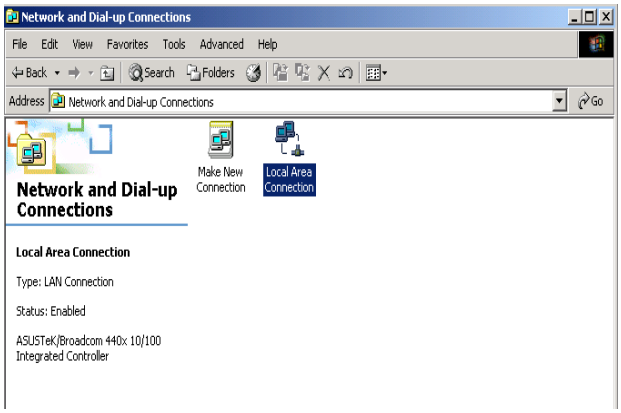


5. Select the **Obtain an IP address automatically** and the **Obtain DNS server address automatically** radio buttons.
6. Click **OK** to finish the configuration.

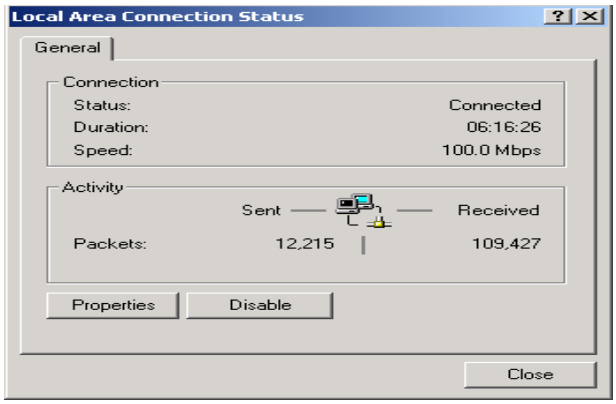


Configuring PC in Windows 2000

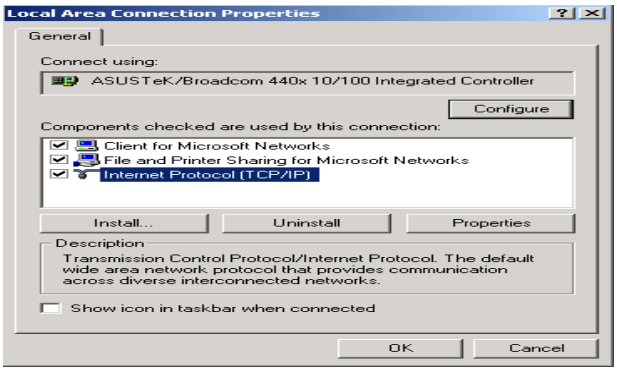
1. Go to **Start / Settings / Control Panel**. In the Control Panel, double-click on **Network and Dial-up Connections**.
2. Double-click **Local Area Connection**.



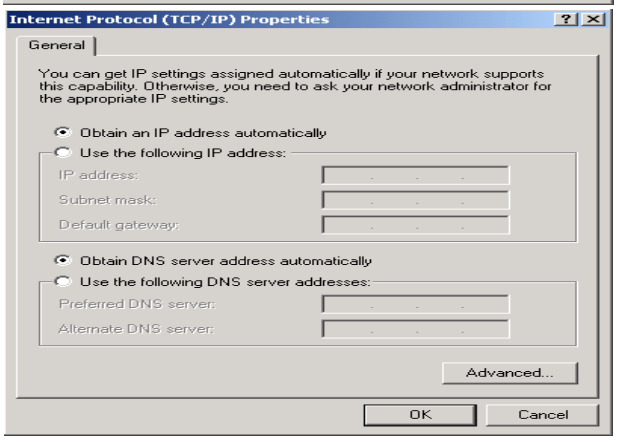
3. In the **Local Area Connection Status** window click **Properties**.



4. Select **Internet Protocol (TCP/IP)** and click **Properties**.



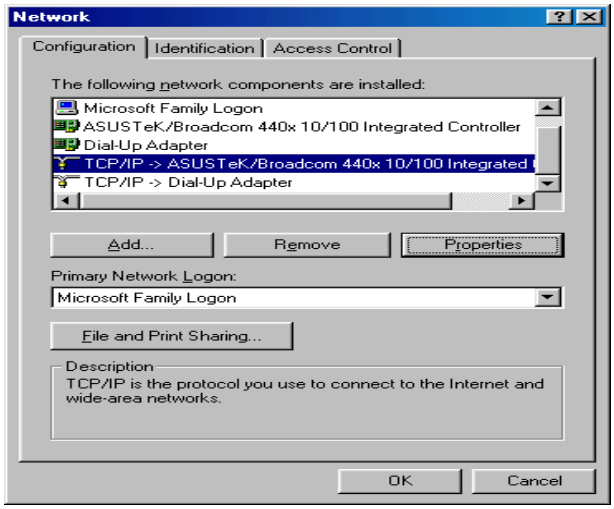
5. Select the **Obtain an IP address automatically** and the **Obtain DNS server address automatically** radio buttons.
6. Click **OK** to finish the configuration.



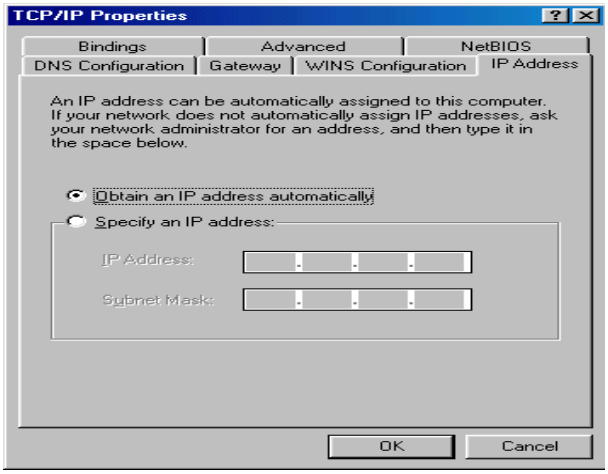
Configuring PC in Windows 98/Me

1.Go to **Start / Settings / Control Panel**. In the Control Panel, double-click on **Network** and choose the **Configuration** tab.

2.Select **TCP/IP ->NE2000 Compatible**, or the name of your Network Interface Card (NIC) in your PC.

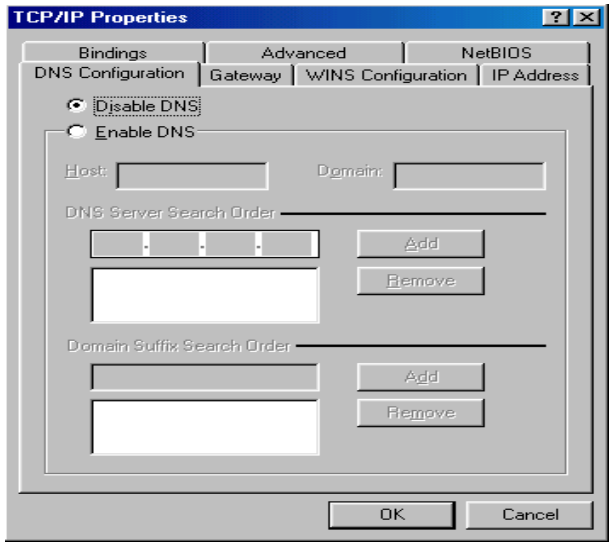


3.Select the **Obtain an IP address automatically** radio button.



4.Then select the **DNS Configuration** tab.

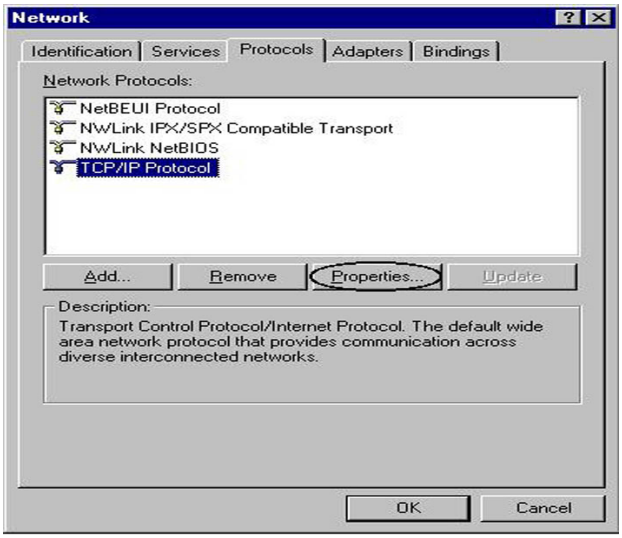
5.Select the **Disable DNS** radio button and click **OK** to finish the configuration.



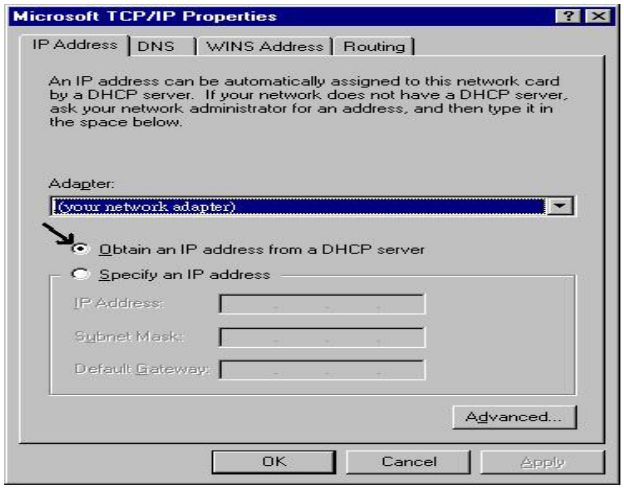
Configuring PC in Windows NT4.0

1. Go to **Start / Settings / Control Panel**. In the Control Panel, double-click on **Network** and choose the **Protocols** tab.

2.Select **TCP/IP Protocol** and click **Properties**.



3.Select the **Obtain an IP address from a DHCP server** radio button and click **OK**.



3.2 Factory Default Settings

Before configuring your, you need to know the following default settings.

- **Web Interface:**
  - Username: admin
  - Password: admin
- **LAN Device IP Settings:**
  - IP Address: 192.168.1.254
  - Subnet Mask: 255.255.255.0
- **ISP setting in WAN site:**
  - PPPoE
- **DHCP server:**
  - DHCP server is enabled.
  - Start IP Address: 192.168.1.100
  - IP pool counts: 100

3.2.1 Username and Password

The default username and password are “**admin**” and “**admin**” respectively.

Attention

If you ever forget the password to log in, you may press the RESET button up to 6 seconds to restore the factory default settings.

3.3 LAN and WAN Port Addresses

The parameters of LAN and WAN ports are pre-set in the factory. The default values are shown below.

LAN Port		WAN Port
IP address	192.168.1.254	The PPPoE function is *enabled* to automatically get the WAN port configuration from the ISP, but you have to set the username and password first.
Subnet Mask	255.255.255.0	
DHCP server function	Enabled	
IP addresses for distribution to PCs	100 IP addresses continuing from 192.168.1.100 through 192.168.1.199	

3.4 Information from your ISP

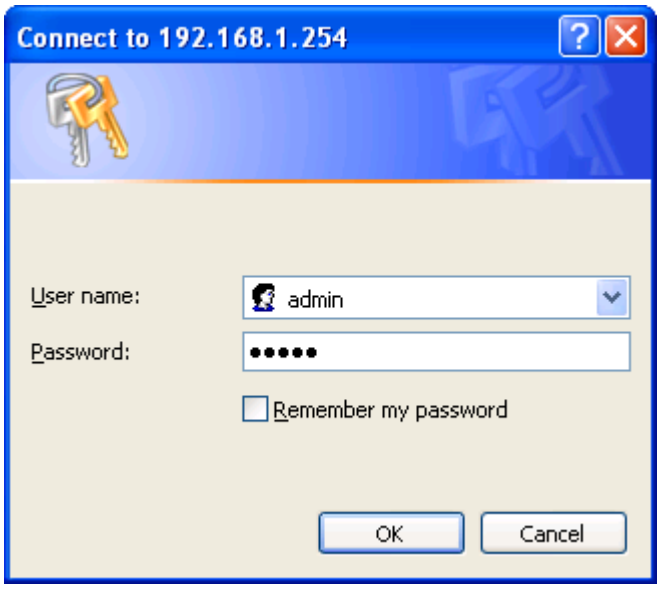
Before configuring this device, you have to check with your ISP (Internet Service Provider) what kind of service is provided such as PPPoE, PPPoA, RFC1483, or IPoA.

Gather the information as illustrated in the following table and keep it for reference.

PPPoE	VPI/VCI, VC-based/LLC-based multiplexing, Username, Password, Service Name, and Domain Name System (DNS) IP address (it can be automatically assigned by your ISP when you connect or be set manually).
PPPoA	VPI/VCI, VC-based/LLC-based multiplexing, Username, Password, and Domain Name System (DNS) IP address (it can be automatically assigned by your ISP when you connect or be set manually).
RFC1483 Bridged	VPI/VCI, VC-based/LLC-based multiplexing to use Bridged Mode.
RFC1483 Routed	VPI/VCI, VC-based/LLC-based multiplexing, IP address, Subnet mask, Gateway address, and Domain Name System (DNS) IP address (it is fixed IP address).

3.5 Configuring with your Web Browser

Open your web browser, enter the IP address of your router, which by default is **192.168.1.254**, and click "**Go**", a user name and password window prompt will appear. **The default username and password are "admin" and "admin".**



Congratulation! You are now successfully logon to the BIPAC 5102 Series ADSL Router!

Chapter 4
Configuration

At the configuration homepage, the left navigation pane where bookmarks are provided links you directly to the desired setup page, including:

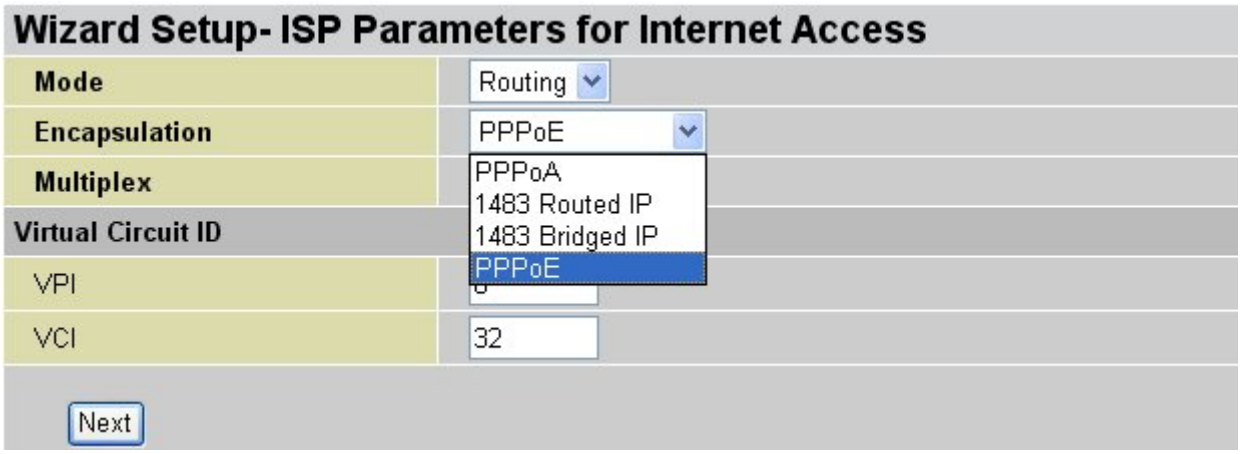
- **Wizard Setup** (wizard setup)
- **Advanced Setup** (Password, LAN, WAN, Wireless, NAT, Security, Dynamic DNS, Time Zone, Remote Management Control, UPnP)
- **Static Route**（Current Route）
- **Maintenance** (System Status, DHCP Table, Diagnostic, Firmware)
- **Logout**.

Please see the relevant sections of this manual for detailed instructions on how to configure your Billion router.

4.1 Wizard Setup

4.1.1 Wizard Setup

Use the Wizard Setup screens to configure your system for Internet access settings and fill in the fields with the information in the Internet Account Information table of the Compact Guide or Read Me First. Your ISP may have already configured some of the fields in the wizard screens for you.



- **Mode:** Select Routing (default) if your ISP allows multiple computers to share an Internet account. Otherwise select Bridge.
- **Encapsulation:** Select the encapsulation type your ISP uses from the **Encapsulation** drop-down list box. Choices vary depending on what you select in the **Mode** field.

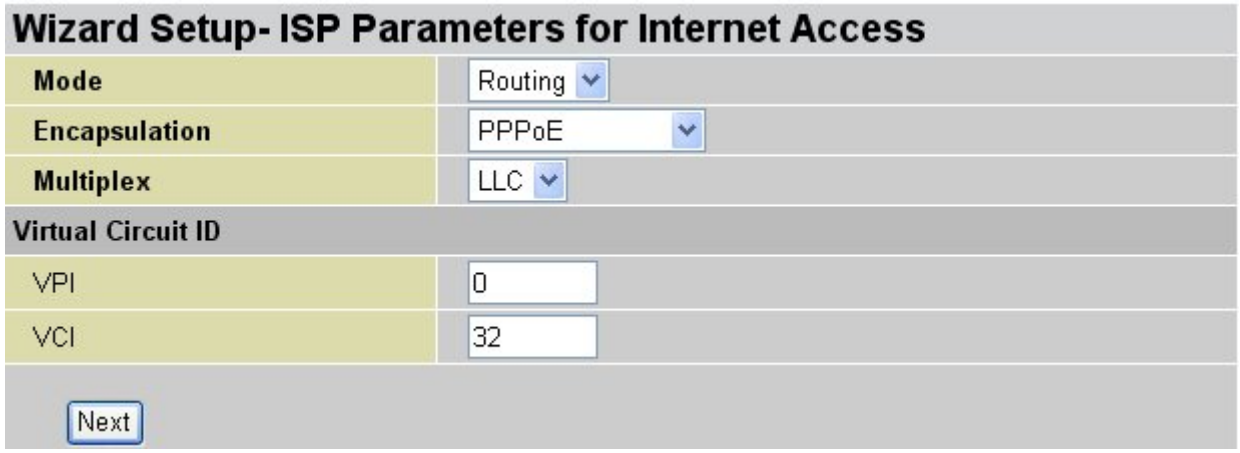
If you select **Bridge** in the **Mode** field, select **1483 Bridged IP**.

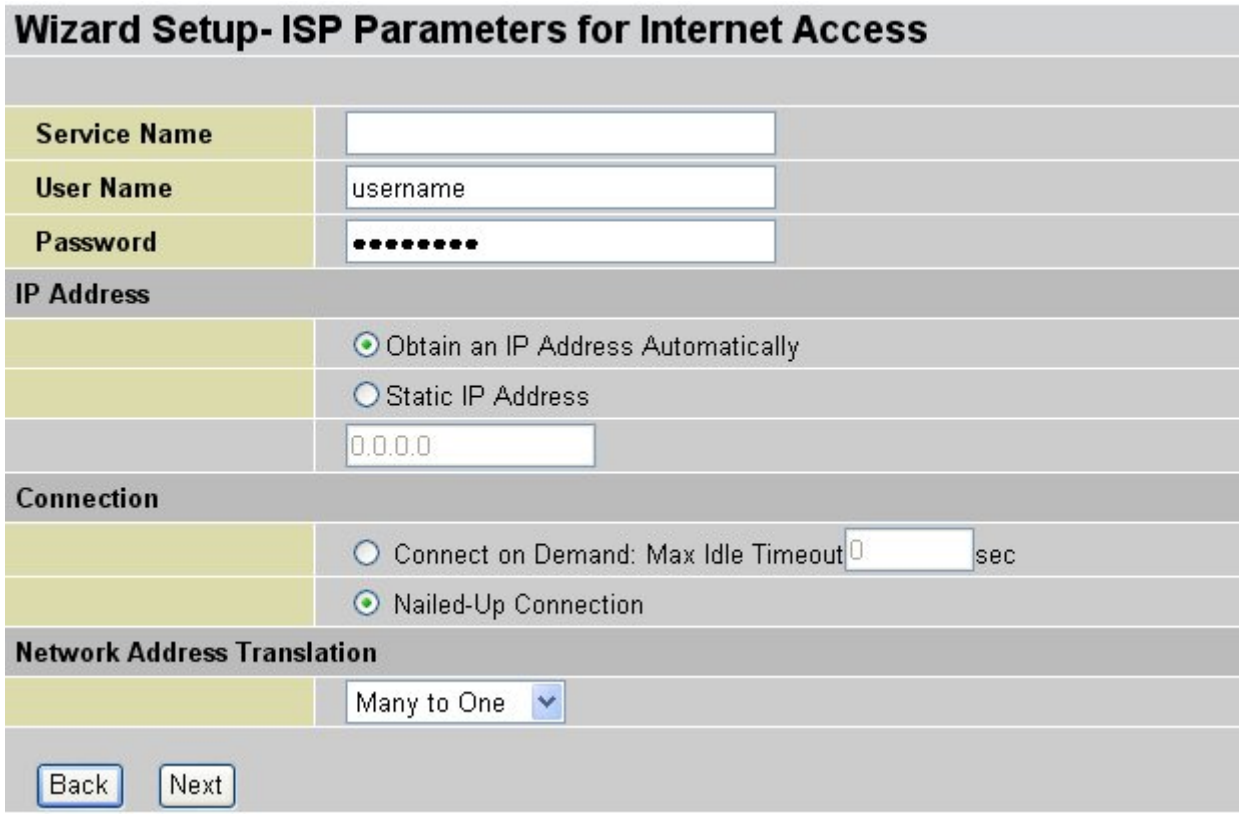
If you select Routing in the Mode field, select PPPoA, 1483 Bridged IP, 1483 Router IP or PPPoE.

- **Multiplex:** Select the multiplexing method used by your ISP from the Multiplex drop-down list box either VC-based or LLC-based.
- **Virtual Circuit** ID: VPI (Virtual Path Identifier) and VCI (Virtual Channel Identifier) define a virtual circuit.
- **VPI**: Enter the VPI assigned to you. This field may already be configured.
- **VCI:** Enter the VCI assigned to you. This field may already be configured.

4.1.2 PPPoE

PPPoE （PPP over Ethernet）provides access control and billing functionality in a manner similar to dial-up services using PPP. Select PPPoE from the Encapsulation in the first wizard screen to display the screen as shown.





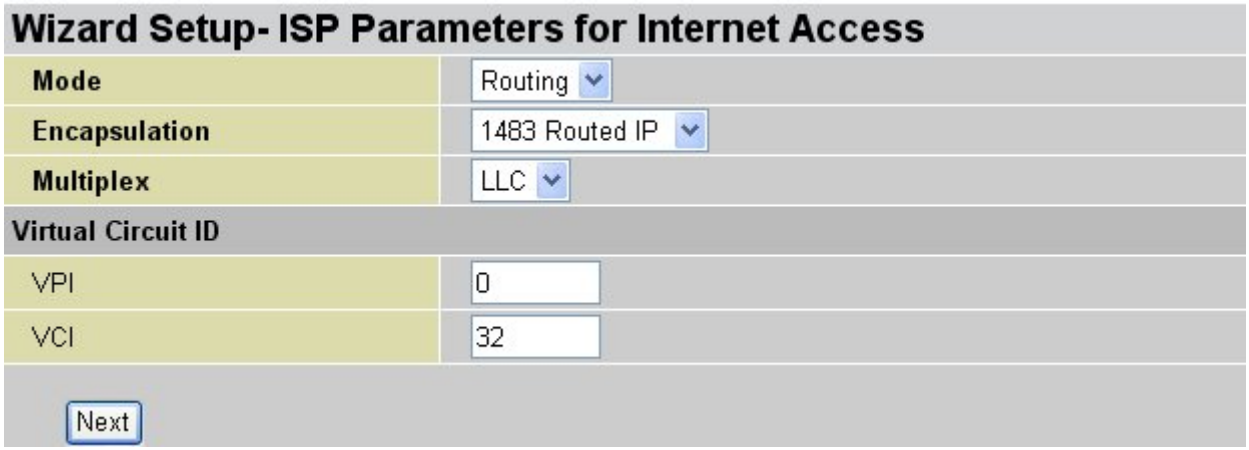
- **Service Name:** Type the name of your PPPoE service here
- **User Name:** Enter the user name exactly as your ISP assigned.
- **Password:** Enter the password associated with the user name above.
- **IP Address:** Type your ISP assigned IP address in the IP Address text box below.
- **Connection:** Select **Connect on Demand** when you don't want the connection up all the

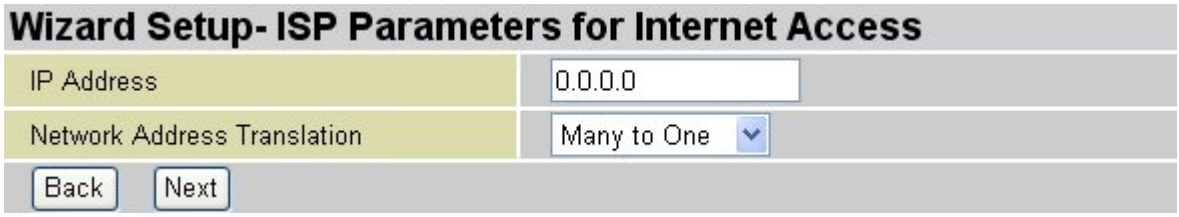
time and specify an idle time-out (in seconds) in the **Max. Idle Timeout** field

- **Network Address Translation:** Select **None**, **Many to One** or **Many to Many** from the drop-sown list box. Refer to the NAT chapter for more details.

4.1.3 1483 Routed IP

Select 1483 Router IP from the Encapsulation drop-down list box in the first wizard screen to display the screen as shown.

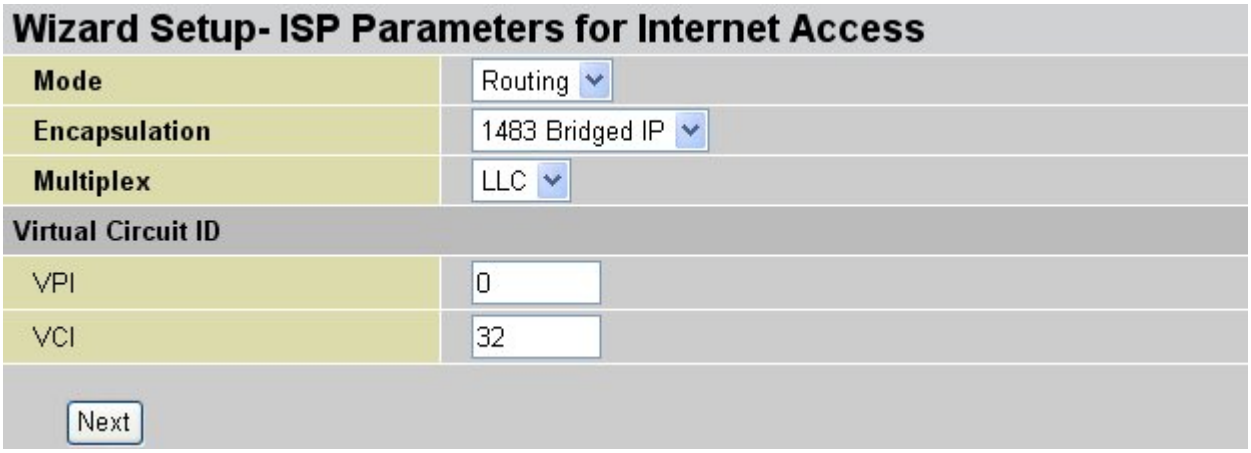


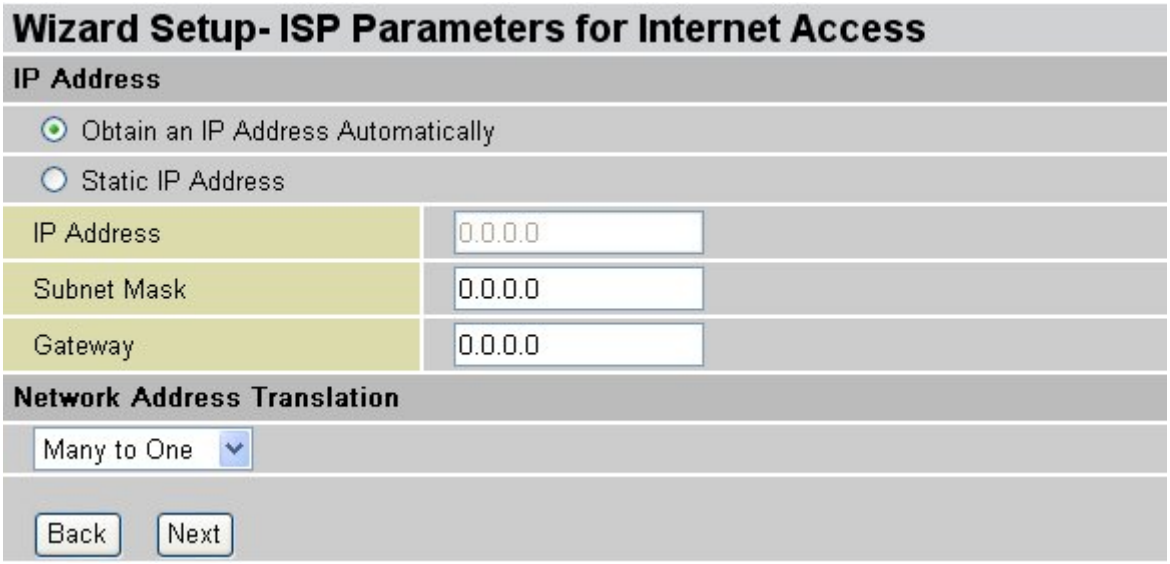


- **IP Address:** Type your ISP assigned IP address in the IP Address text box below.
- **Network Address Translation:** Select **None**, **Many to One** or **Many to Many** from the drop-sown list box. Refer to the NAT chapter for more details.

4.1.4 1483 Bridged IP

Select 1483 Bridged IP from the Encapsulation in the wizard screen to display the screen as shown.

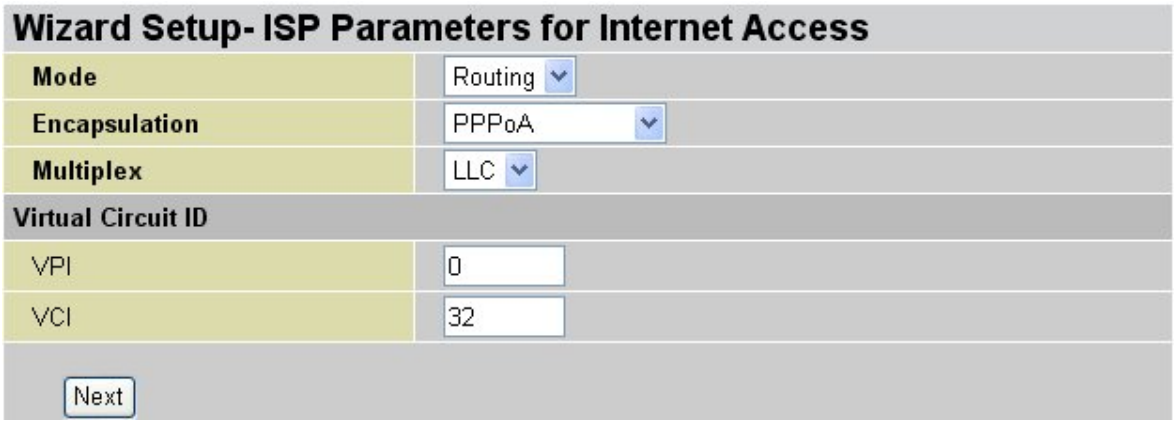


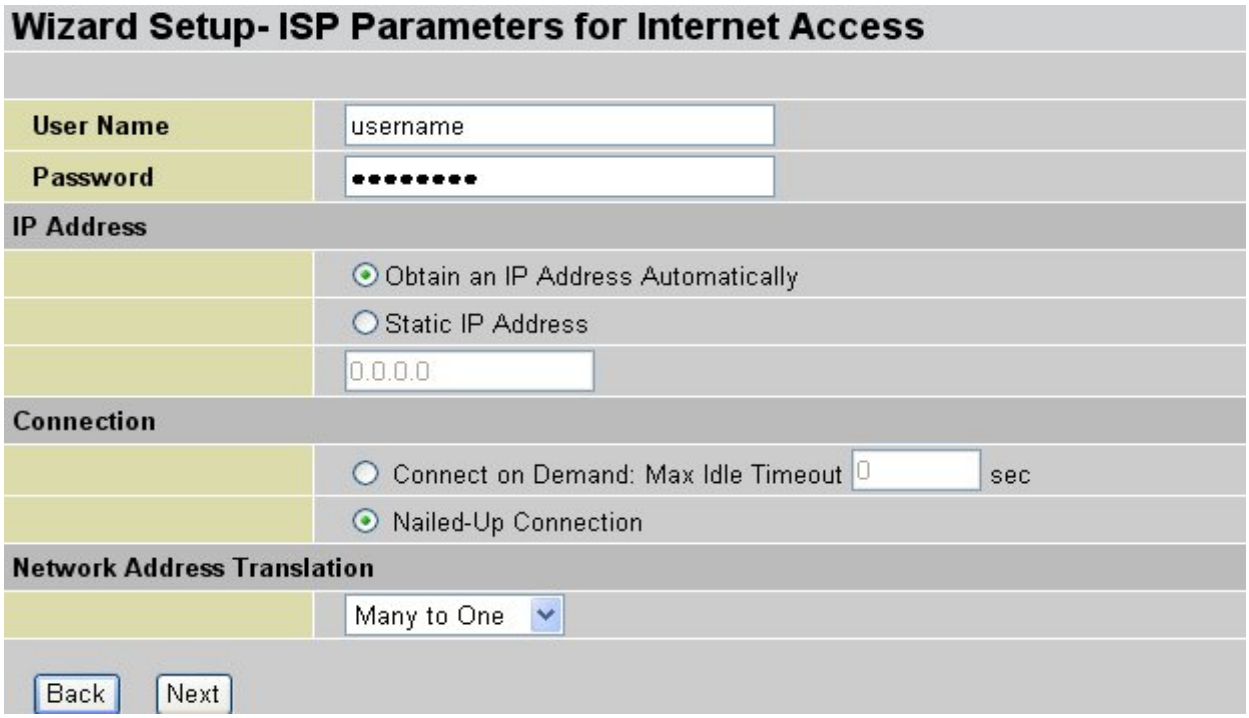


- **IP Address:** Type your ISP assigned IP address in the IP Address text box below.
- **Subnet Mask:** Enter a subnet mask in dotted decimal notation.
- **Gateway:** You must specify a gateway IP address (supplied by your ISP) when you use **1483 Bridged IP** in the **Encapsulation** field in the previous screen.
- **Network Address Translation:** Select **None**, **Many to One** or **Many to Many** from the drop-sown list box. Refer to the NAT chapter for more details.

4.1.5 PPPoA

PPPoA stands for Point to Point Protocol over ATM Adaptation Layer 5 (AAL5). It provides access control and billing functionality in a manner similar to dial-up services using PPP. Select PPPoA from the Encapsulation in the first wizard screen to display the screen as shown.

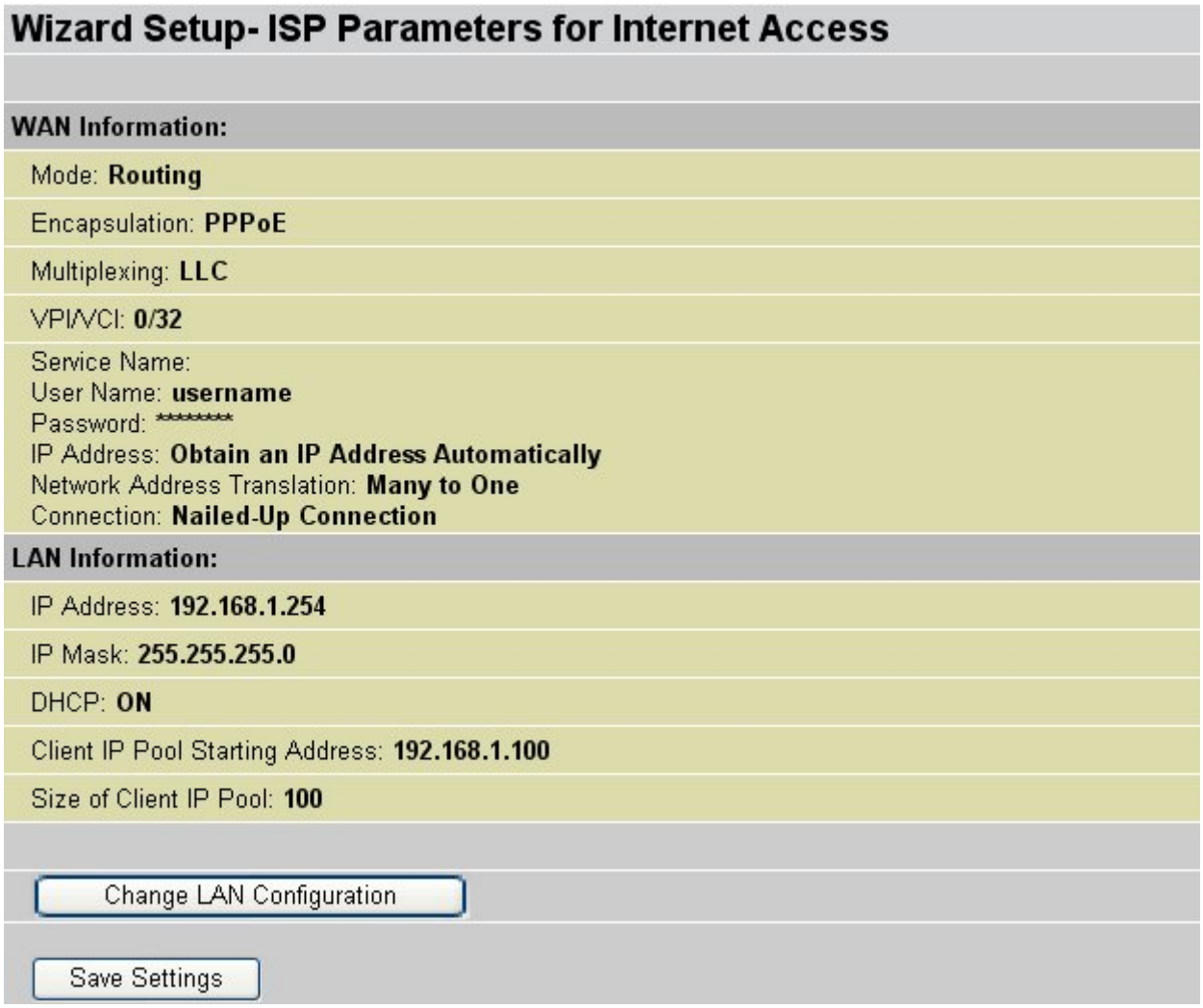




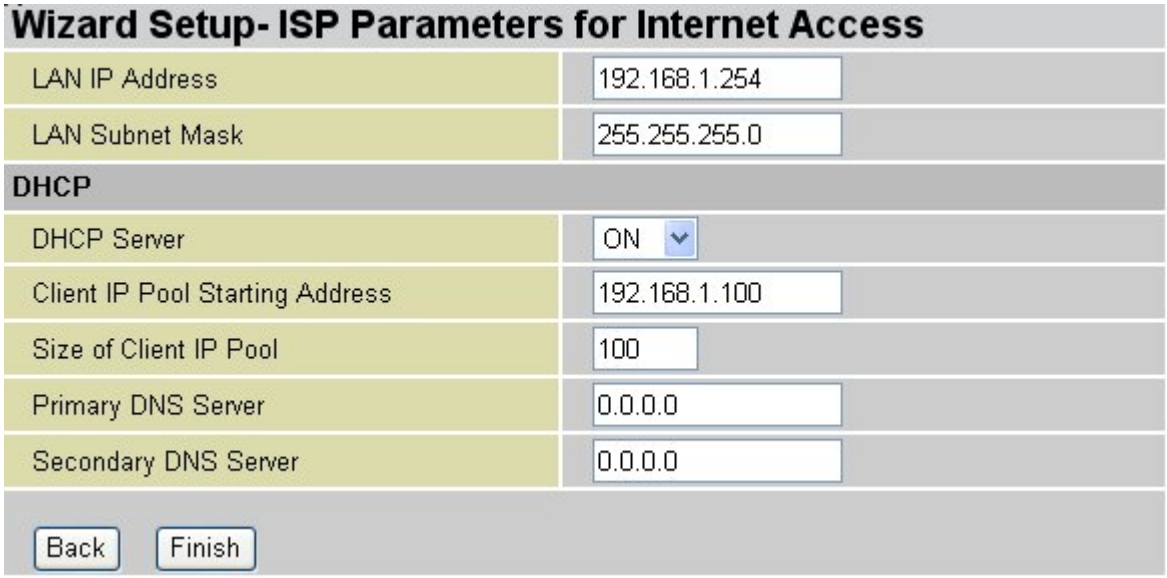
- **User Name:** Enter the user name exactly as your ISP assigned.
- **Password:** Enter the password associated with the user name above.
- **IP Address:** Type your ISP assigned IP address in the IP Address text box below.
- **Connection:** Select **Connect on Demand** when you don't want the connection up all the time and specify an idle time-out (in seconds) in the **Max. Idle Timeout** field
- **Network Address Translation:** Select **None**, **Many to One** or **Many to Many** from the drop-sown list box. Refer to the NAT chapter for more details.

4.1.6 **Wizard Setup Configuration**

Verify the settings in the screen shown next. To change the LAN information on the BIPAC 5102 Series, click Change LAN Configurations.



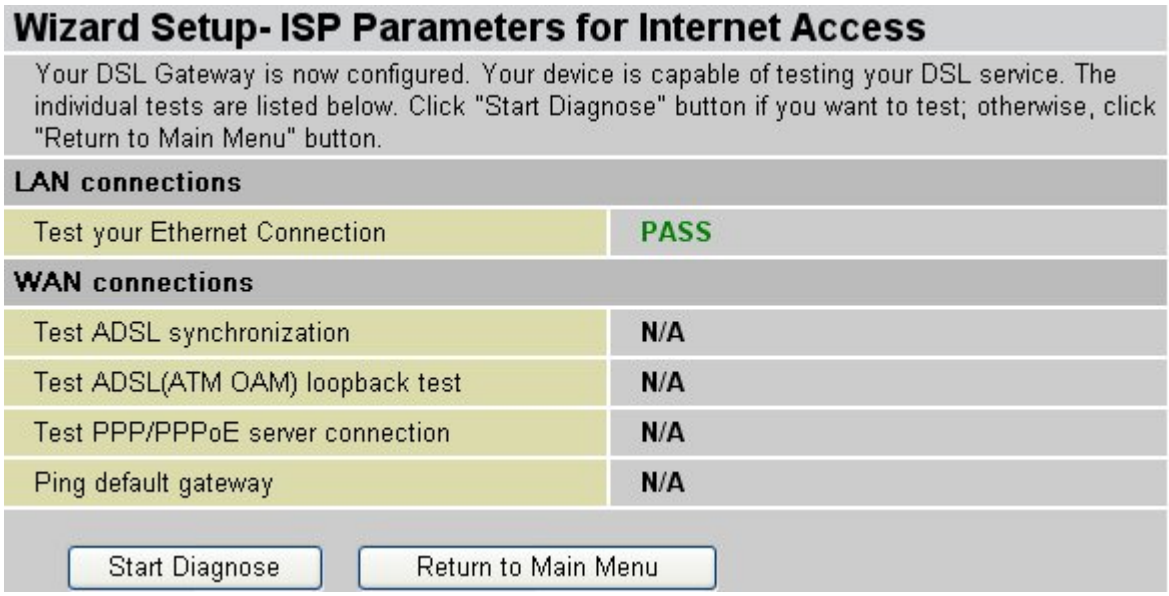
If you want to change your BIPAC 5102 Series LAN settings, click Change LAN Configuration to display the screen as shown next.



- **LAN IP Address:** Enter the IP address of BIPAC 5102 in dotted decimal notation, for example, 192.168.1.254 (factory default).
- **LAN Subnet Mask**: Enter a subnet mask in dotted decimal notation.
- **DHCP Server:** From the **DHCP Server** drop-down list box, select **On** to allow ADSL Router to assign IP addresses, an IP default gateway and DNS servers to computer systems that support the DHCP client. Select **Off** to disable DHCP server. When DHCP server is used, set the following items:
- **Client IP Pool Starting Address:** This field specifies the first of the contiguous addresses in the IP address pool.
- **Size of Client IP Pool**: This field specifies the size or count of the IP address pool.
- **Primary DNS Server:** Enter the IP addresses of the DNS servers. The DNS servers are passed to the DHCP clients along with the IP address and the subnet mask.
- **Secondary DNS Server:** Enter the IP addresses of the DNS servers. The DNS servers are passed to the DHCP clients along with the IP address and the subnet mask.

4.1.7 Wizard Setup Configuration

The BIPAC 5102 Series automatically tests the connection to the computer(s) connected to the LAN ports. To test the connection from the ADSL Router to the ISP, click Start Diagnose. Otherwise click Return to Main Menu to go back to the Site Map screen.



Wizard Setup- ISP Parameters for Internet Access

Your DSL Gateway is now configured. Your device is capable of testing your DSL service. The individual tests are listed below. Click "Start Diagnose" button if you want to test; otherwise, click "Return to Main Menu" button.

LAN connections	
Test your Ethernet Connection	**PASS**
WAN connections	
Test ADSL synchronization	**N/A**
Test ADSL(ATM OAM) loopback test	**N/A**
Test PPP/PPPoE server connection	**N/A**
Ping default gateway	**N/A**

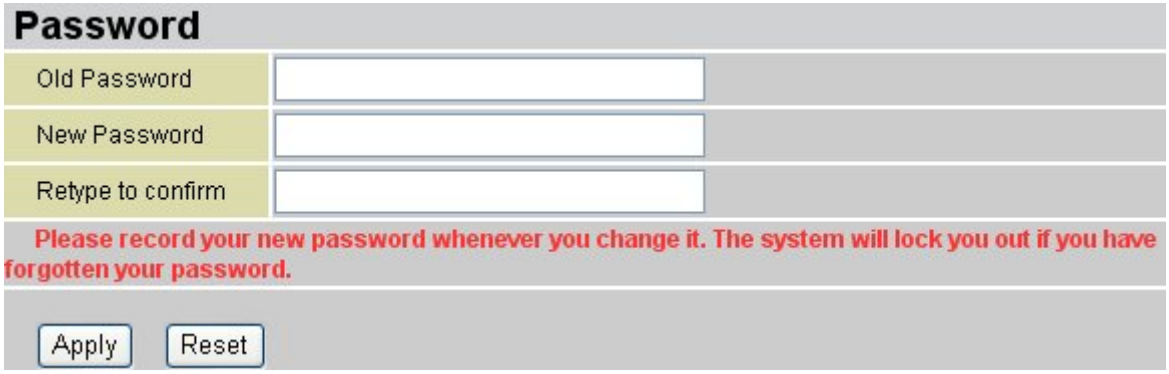
Start Diagnose | Return to Main Menu

If you cannot access the Internet, open the web configurator again to confirm that the Internet settings you configured in the Wizard Setup are correct.

4.2 Advanced setup

4.2.1 Password

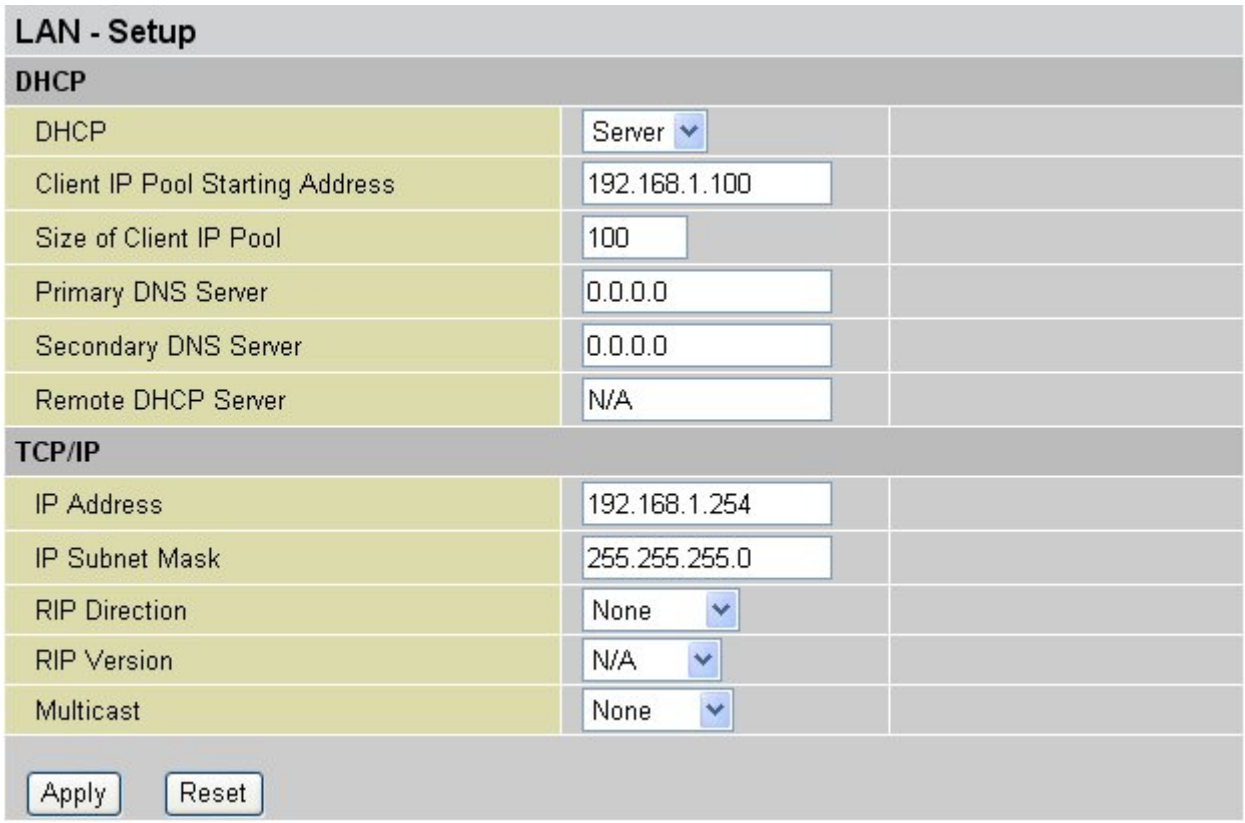
In factory setting, the default password is **admin**, and that for user is also password. You can change the default password to ensure that someone cannot adjust your settings without your permission. Every time you change your password, please record the password and keep it at a safe place.



- **Old Password:** Type the default password or the existing password you use to access the system in this field.
- **New Password:** Type the new password in this field
- **Retype to confirm:** Type the new password again in this field.

4.2.2 LAN

Click LAN to open the following screen.



DHCP:

If set to **Server**, your BIPAC 5102 Series can assign IP addresses, an IP default gateway and DNS servers to Windows 95, Windows NT and other systems that support the DHCP client.

If set to **None**, the DHCP server will be disabled.

If set to **Relay**, the BIPAC 5102 Series acts as a surrogate DHCP server and relays DHCP requests and responses between the remote server and the clients. Enter the IP address of the actual, remote DHCP server in the Remote DHCP Server field in this case.

When DHCP is used, the following items need to be set

Client IP Pool Starting Address: This field specifies the first of the contiguous addresses in the IP address pool.

Size of Client IP Pool: This field specifies the size or count of the IP address pool.

Primary DNS Server: Enter the IP addresses of the DNS servers. The DNS servers are passed to the DHCP clients along with the IP address and the subnet mask.

Secondary DNS Server: Enter the IP addresses of the DNS servers. The DNS servers are passed to the DHCP clients along with the IP address and the subnet mask.

Remote DHCP Server: If **Relay** is selected in the **DHCP** field above then enter the IP

address of the actual remote DHCP server here.

TCP/IP

IP Address: Enter the IP address of ADSL Router in dotted decimal notation, for example, 192.168.1.254 (factory default).

IP Subnet Mask: The default is 255.0.0.0. User can change it to other such as 255.255.255.0.Type the subnet mask assigned to you by your ISP (if given).

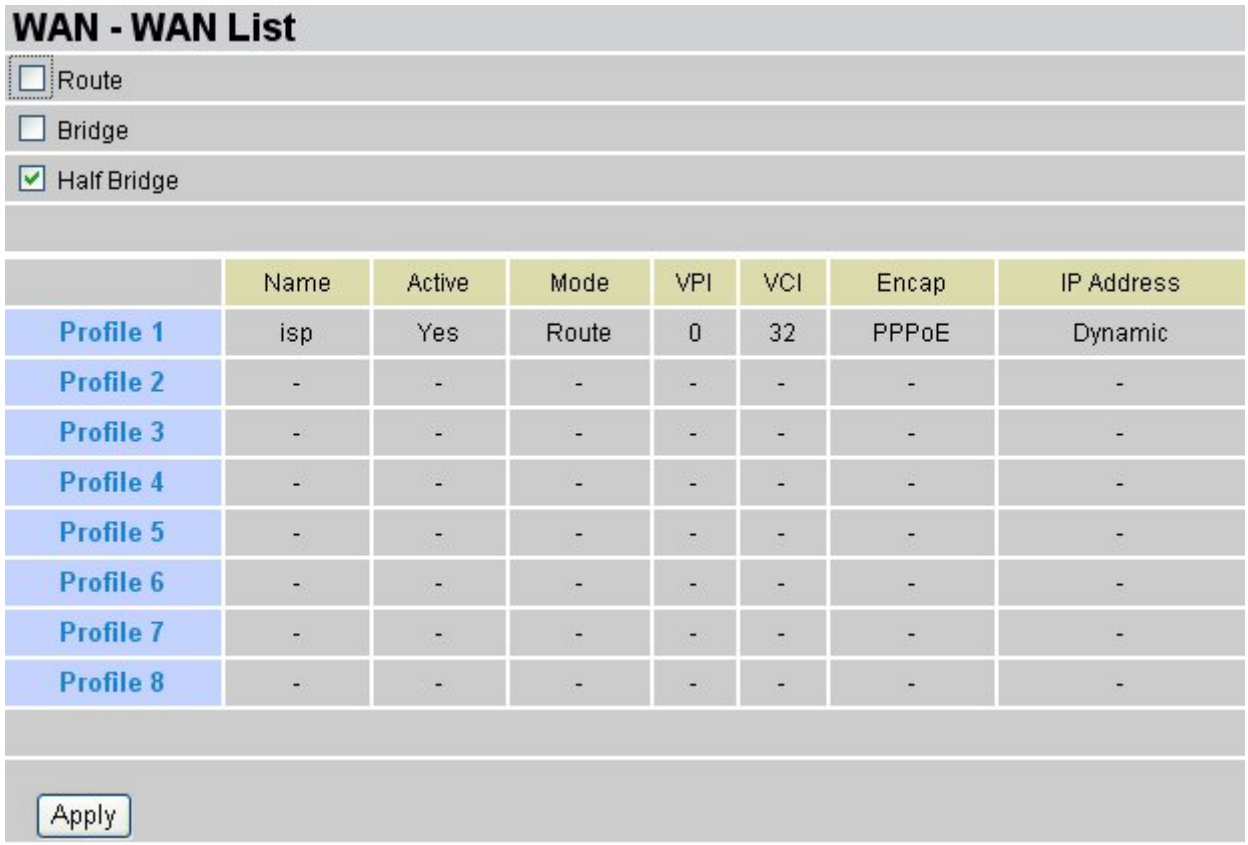
RIP Direction: Select the RIP direction from None, Both, In Only and Out Only.

RIP Version: Select the RIP version from RIP-1, RIP-2B and RIP-2M.

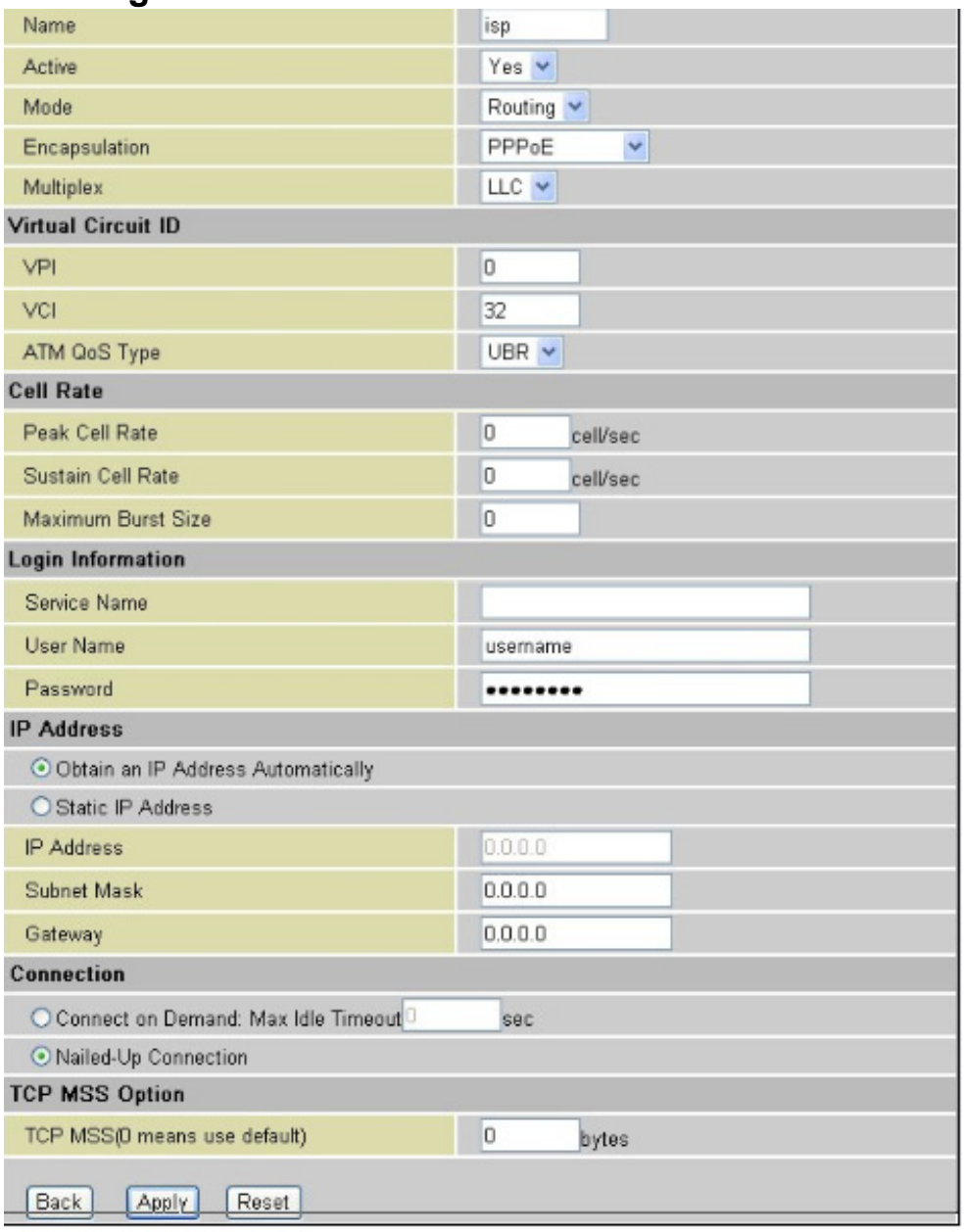
Multicast: IGMP (Internet Group Multicast Protocol) is a network-layer protocol used to establish membership in a Multicast group - it is not used to carry user data. The BIPAC 5102 Series supports both IGMP version 1 (IGMP-v1) and IGMP-v2. Select None to disable it

4.2.3 WAN Setup

A WAN (Wide Area Network) is an outside connection to another network or the Internet. And allows the user to set the configuration for the WAN/ADSL ports.
To change BIPAC 5102 Series WAN remote node settings, click WAN.



4.2.3.1 Half Bridge



- **Name:** Enter the name of your Internet Service Provider
- **Mode:** Select Routing (default) or Bridge
- **Encapsulation:** select Bridge in the Mode field, select either PPPoA or RFC 1483. select Routing in the Mode field, select PPPoA, RFC 1483, ENET ENCAP or PPPoE. Multiplex: Select the method of multiplexing used by your ISP. Choices are VC or LLC.
- **Virtual Circuit ID:** VPI and VCI define a virtual circuit.

VPI: The valid range for the VPI is 0 to 255

VCI: The valid range for the VCI is 32 to 65535

- **ATM QoS Type:** Select **CBR** to specify fixed (always-on) bandwidth for voice or data traffic. Select **UBR** for applications that are non-time sensitive, such as e-mail. Select **VBR** for burst traffic and bandwidth sharing with other applications.

Cell Rate: Cell rate configuration often helps eliminate traffic congestion that slows transmission of real time data such as audio and video connections.
Peak Cell Rate: Divide the DSL line rate (bps) by 424 (the size of an ATM cell) to find the Peak Cell Rate (PCR).
Sustain Cell Rate: The Sustain Cell Rate (SCR) sets the average cell rate (long-term) that can be transmitted.
Maximum Burst Size: Maximum Burst Size (MBS) refers to the maximum number of cells that can be sent at the peak rate.

Login Information: PPPoA and PPPoE encapsulation only.
Service Name: Type the name of your PPPoE service here
User Name: Enter the user name exactly as your ISP assigned.
Password: Enter the password provide by your ISP.

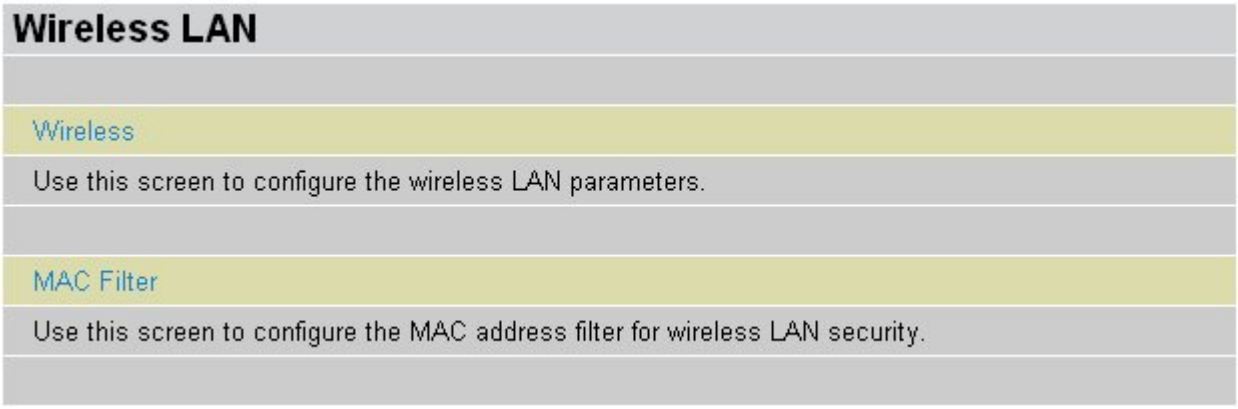
Connection: The schedule rule(s) have priority over your Connection settings.
Nailed-Up Connection: Select Nailed-Up Connection when you want your connection up all the time.
Connect on Demand: Select Connect on Demand when you don't want the connection up all the time and specify an idle time-out in the Max Idle Timeout field
Max Idle Timeout: Specify an idle time-out in the Max Idle Timeout field

TCP MSS Option: This will increase the current MSS limit to the number specified, hence the tweak test will report Max Packet Size as the specified number plus 40.

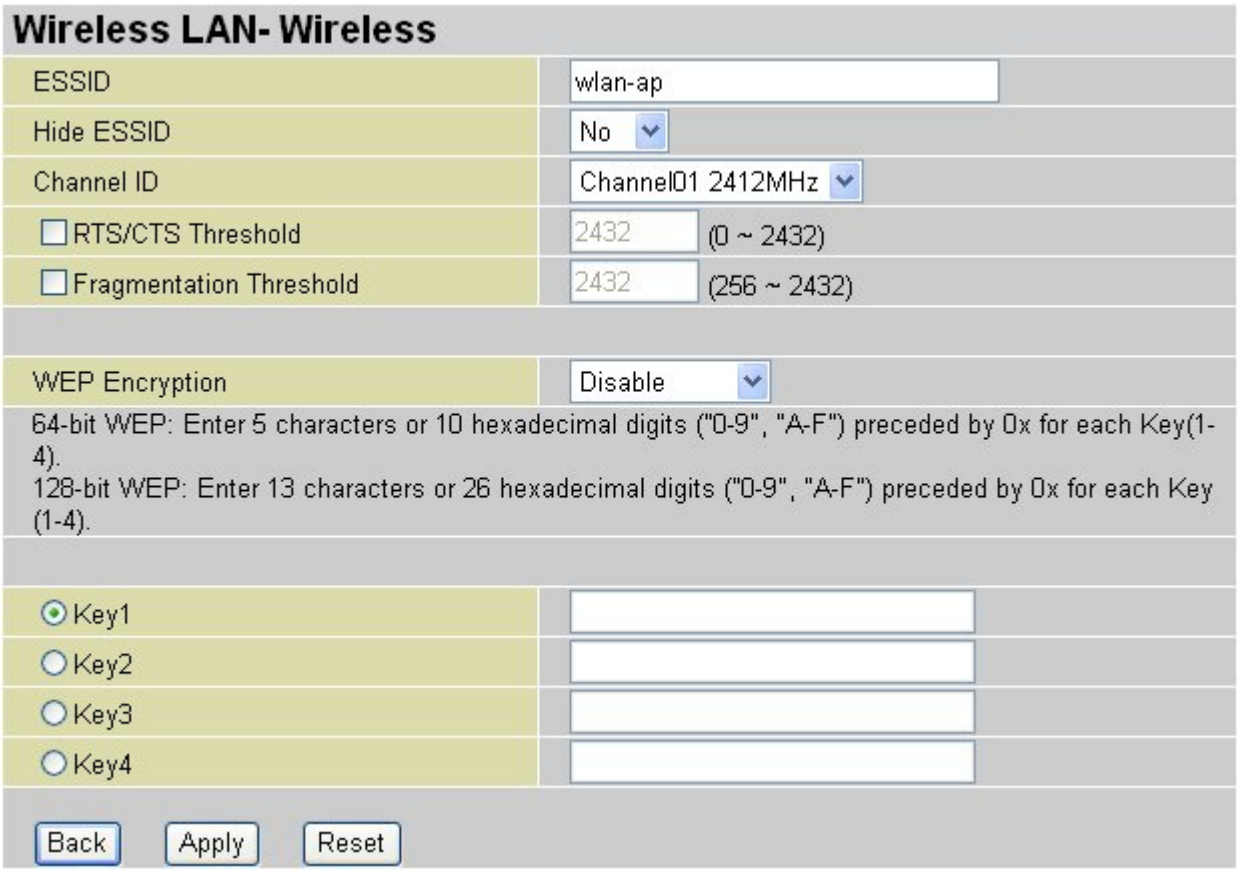
4.2.4 Wireless

NOTE: 802.11g is only supported for the BIPAC 5102G .

This section introduces the wireless LAN and some basic configurations. Wireless LANs can be as simple as two computers with wireless LAN cards communicating in a peer-to-peer network or as complex as a number of computers with wireless LAN cards communicating through access points which bridge network traffic to the wired LAN.



4.2.4.1 Wireless LAN-Wireless

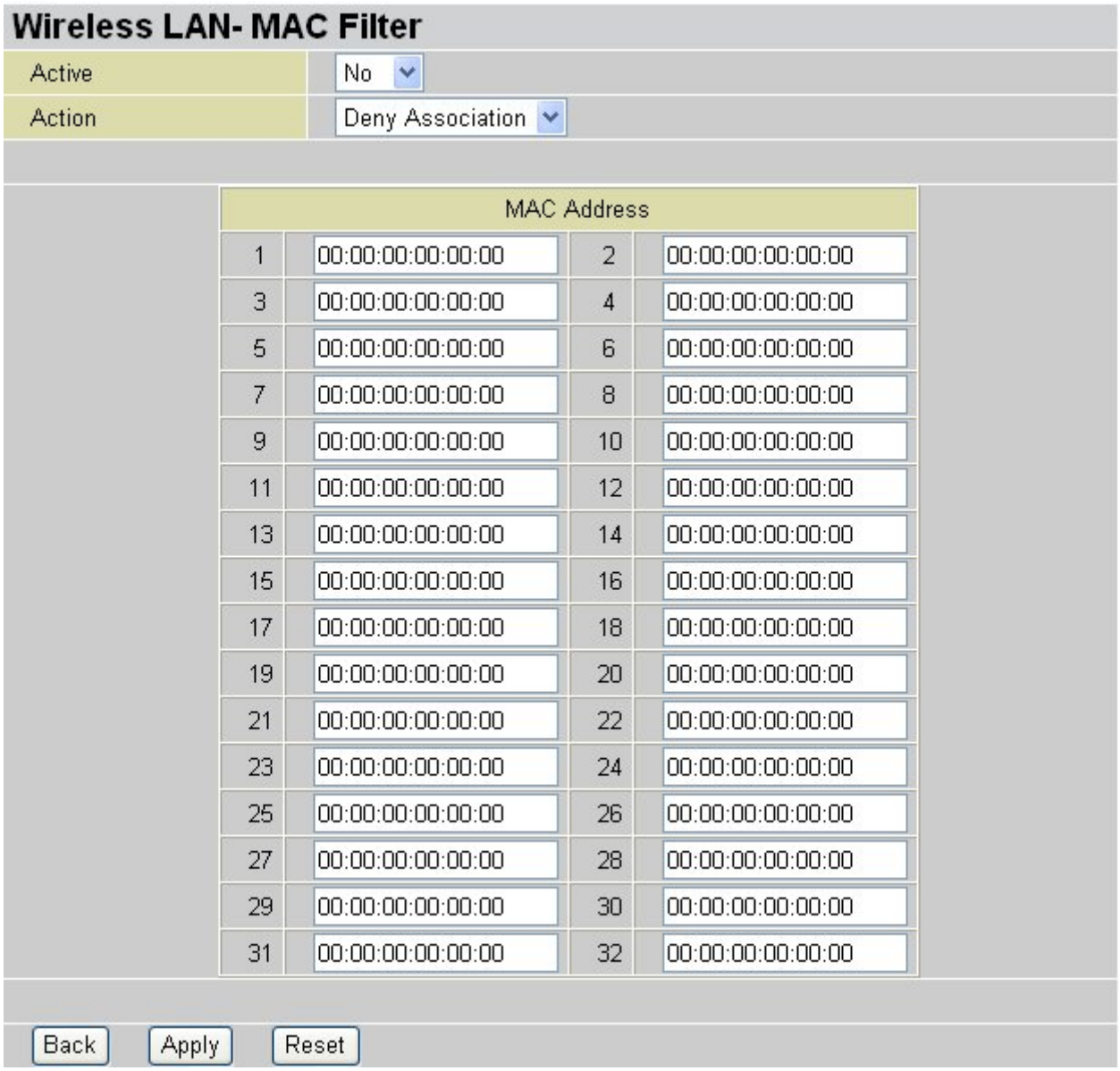


- **ESSID:** Enter the unique ID given to the Access Point (AP), which is already built-in to the router's wireless interface. To connect to this device, your wireless clients must have the same ESSID as the device.
- **Hide ESSID:** Select **Yes** to hide the ESSID in so a station cannot obtain the ESSID through passive scanning. Select **No** to make the ESSID visible so a station can obtain the ESSID through passive scanning.
- **Channel ID:** The range of radio frequencies used by IEEE 802.11b wireless devices is called a channel. Select a channel from the drop-down list box.
- **RTS/CTS Threshold:** Enter a value between 0 and 2432.
- **Fragmentation Threshold:** Enter a value between 256 and 2432.
- **WEP Encryption:** To prevent unauthorized wireless stations from accessing data transmitted over the network, the router offers highly secure data encryption, known as WEP. If you require high security for transmissions, there are two alternatives to select from: **64-bit WEP and 128-bit WEP**. WEP 128 will offer increased security over WEP 64.
Select **Disable** to allow all wireless computers to communicate with the access points without any data encryption. Select **64-bit WEP** or **128-bit WEP** to use data encryption.
- **Key 1 to Key 4:** Enter the key to encrypt wireless data. To allow encrypted data transmission, the WEP Encryption Key values on all wireless stations must be the same as

the router. There are four keys for your selection. The input format is in HEX style, 5 and 13 HEX codes are required for 64-bitWEP and 128-bitWEP respectively.
If you chose **64-bit WEP**, then enter any 5 ASCII characters or 10 hexadecimal characters ("0-9", "A-F").
If you chose **128-bit WEP**, then enter 13 ASCII characters or 26 hexadecimal characters ("0-9", "A-F").
You must configure all four keys, but only one key can be activated at any one time. The default key is key 1.

4.2.4.2 MAC Filter

The MAC filter screen allows you to configure the router to give exclusive access to up to 32 devices (Allow Association) or exclude up to 32 devices from accessing the router (Deny Association). Every Ethernet device has a unique MAC address. The MAC address is assigned at the factory and consists of six pairs of hexadecimal characters, for example, 00:AA:BB:00:00:02.



- **Active:** Select **Yes** from the drop down list box to enable MAC address filtering.
- **Action:** Define the filter action for the list of MAC addresses in the MAC address filter table.

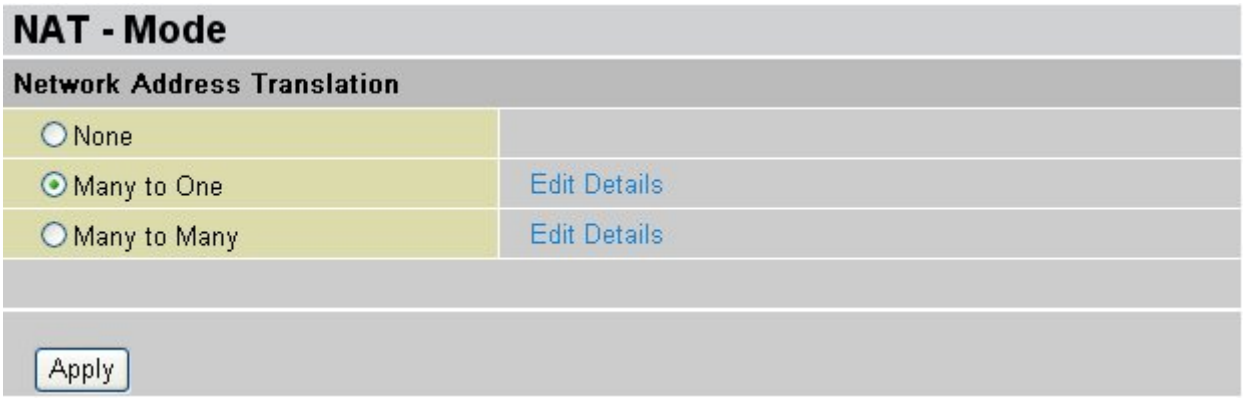
Select **Deny Association** to block access to the router, MAC addresses not listed will be allowed to access the router. Select **Allow Association** to permit access to the router, MAC addresses not listed will be denied access to the router.

- **MAC Address:** Enter the MAC addresses (in XX:XX:XX:XX:XX:XX format) of the wireless station that are allowed or denied access to the router in these address fields..

4.2.5 NAT

The NAT (Network Address Translation - NAT, RFC 1631) is the translation of the IP address of a host in a packet. The default setting is **Dynamic NAPT**. It provides dynamic Network Address Translation capability between LAN and multiple WAN connections, and the LAN traffic is routed to appropriate WAN connections based on the destination IP addresses and Route Table. This eliminates the need for the static NAT session configuration between multiple LAN clients and multiple WAN connections.

4.2.5.1 Selecting the NAT Mode



- **None:** Select this radio button to disable NAT
- **Many to One:** Select this radio button if you have just one public WAN IP address for your router.

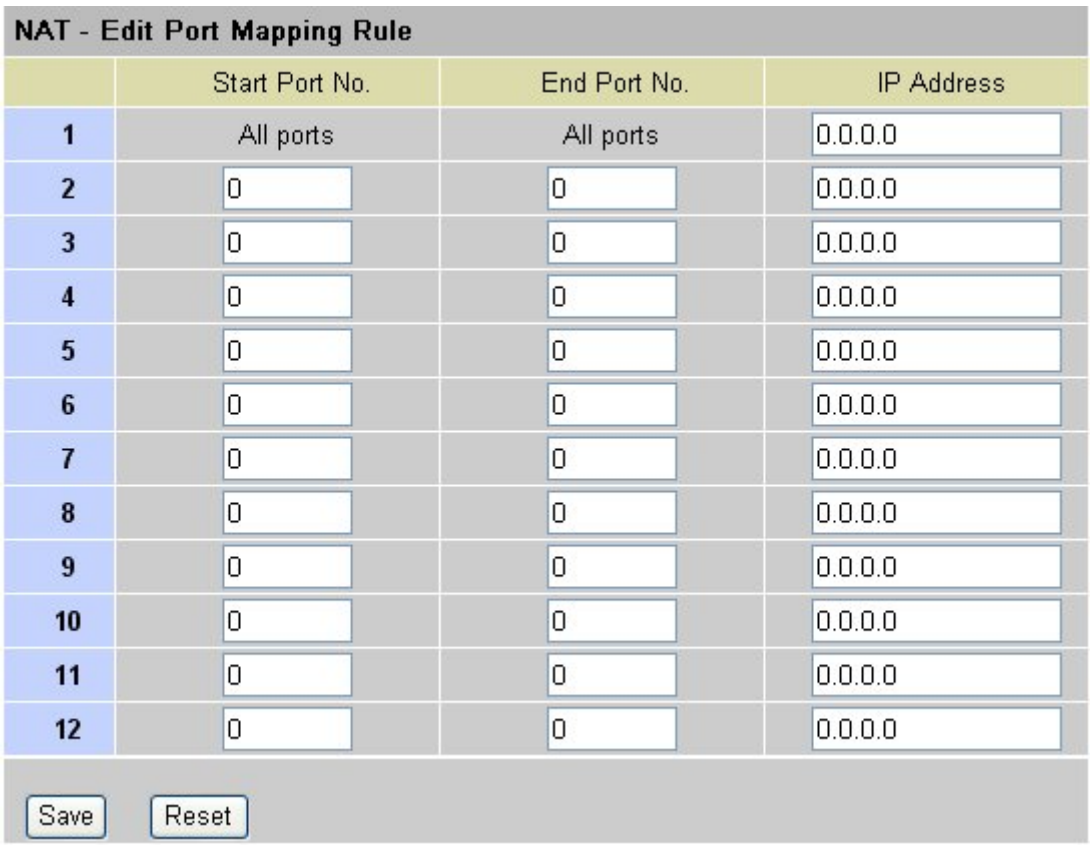
Edit Details: Click this link to go to the NAT - Edit Port Mapping rule screen

- **Many to Many:** Select this radio button if you have multiple public WAN IP addresses for your router.

Edit Details: Click this link to go to the NAT - Address Mapping Rules screen.

4.2.5.2 Configuring Edit Port Mapping

Click NAT, Select Many to One and click Edit Details to open the following screen.



- **Start Port No.:** Enter a port number in this field.
- **End Port No.**: Enter a port number in this field.
- **IP Address:** Enter your server IP address in this field.

4.2.5.3 Configuring Address Mapping

To change your BIPAC 5102 Series address mapping settings, click NAT, Select Many to Many and click Edit Details to open the following screen.

Local Start IP: This is the starting Inside Local IP Address. Local IP addresses are N/A for Server port mapping.

Local End IP: This is the end Inside Local IP Address (ILA). If your rule is for all local IP addresses, then enter 0.0.0.0 as the Local Start IP address and 255.255.255.255 as the Local End IP address. This field is N/A for One-to-one and Server mapping types.

Global Start IP: This is the starting Inside Global IP Address (IGA). Enter 0.0.0.0 here if you have a dynamic IP address from your ISP. You can only do this for Many-to-One and Server mapping types.

Global End IP: This is the ending Inside Global IP Address (IGA). This field is N/A for One-to-one, Many-to-One and Server mapping types.

Type:

1-1: One-to-one mode maps one local IP address to one global IP address. Note that port numbers do not change for the One-to-one NAT mapping type.

M-1: Many-to-One mode maps multiple local IP addresses to one global IP address. This is equivalent to Many to One (i.e., PAT, port address translation).

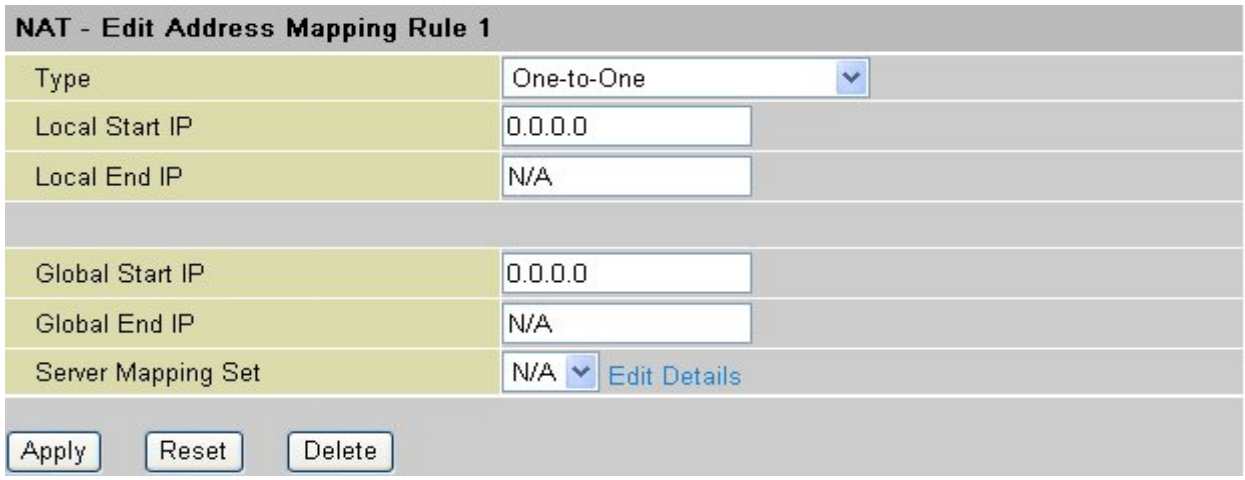
M-M Ov (Overload): Many-to-Many Overload mode maps multiple local IP addresses to shared global IP addresses.

MM No (No Overload): Many-to-Many No Overload mode maps each local IP address to unique global IP addresses.

Server: This type allows you to specify inside servers of different services behind the NAT to be accessible to the outside world.

4.2.5.4 Editing an Address Mapping Rule

To edit an address mapping rule, click the rule's link in the NAT Address Mapping Rules screen to display the screen shown next.



- **Type:**

1-1: One-to-one mode maps one local IP address to one global IP address. Note that port numbers do not change for the One-to-one NAT mapping type.

M-1: Many-to-One mode maps multiple local IP addresses to one global IP address. This is equivalent to Many to One (i.e., PAT, port address translation).

M-M Ov (Overload): Many-to-Many Overload mode maps multiple local IP addresses to shared global IP addresses.

MM No (No Overload): Many-to-Many No Overload mode maps each local IP address to unique global IP addresses.

Server: This type allows you to specify inside servers of different services behind the NAT to be accessible to the outside world.

- **Local Start IP:** This is the starting Inside Local IP Address (ILA). Local IP addresses are N/A for Server port mapping.
- **Local End IP:** This is the end Inside Local IP Address (ILA). If your rule is for all local IP addresses, then enter 0.0.0.0 as the Local Start IP address and 255.255.255.255 as the Local End IP address. This field is N/A for One-to-one and Server mapping types.
- **Global Start IP:** This is the starting Inside Global IP Address (IGA). Enter 0.0.0.0 here if you have a dynamic IP address from your ISP.
- **Global End IP:** This is the ending Inside Global IP Address (IGA). This field is N/A for One-to-one, Many-to-One and Server mapping types.
- **Server Mapping Set:** Only available when Type is set to Server.

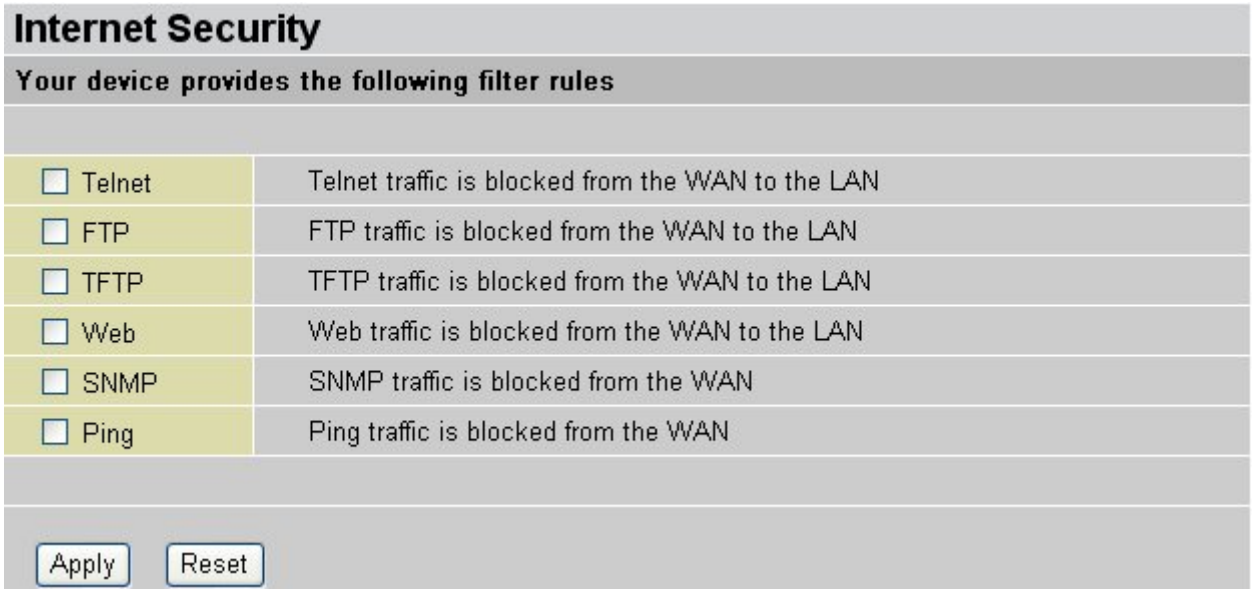
Select a number from 1 to 10 from the drop-down menu to choose a server set from the NAT - Address Mapping Rules screen.

Edit Details: Click this link to go to the NAT - Edit Port Mapping rule screen to edit a server set that you have selected in the Server Mapping Set field.

4.2.6 Security

Inbound direction of Packet Filter rules to prevent unauthorized computers or applications accessing your local network from the Internet.

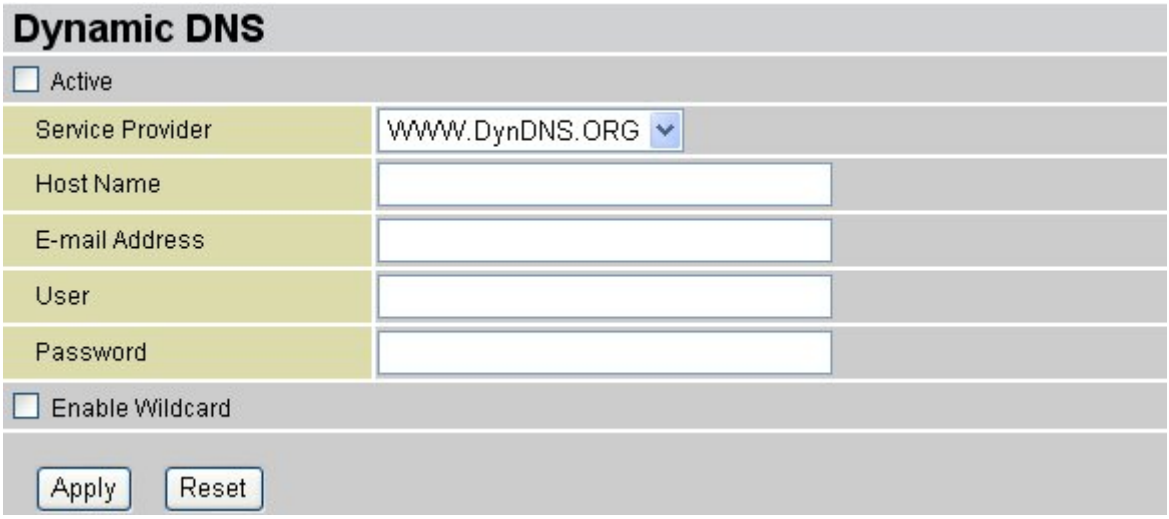
You can choose all filter rules by yourself, and the security is offer to some sections: Telnet, FTP, TFTP, Web, SNMP and Ping.



4.2.7 Dynamic DNS

The Dynamic DNS function allows you to alias a dynamic IP address to a static hostname, allowing users whose ISP does not assign them a static IP address to use a domain name. This is especially useful for hosting servers via your ADSL connection, so that anyone wishing to connect to you may use your domain name, rather than having to use your dynamic IP address, which changes from time to time. This dynamic IP address is the WAN IP address of the router, which is assigned to you by your ISP.

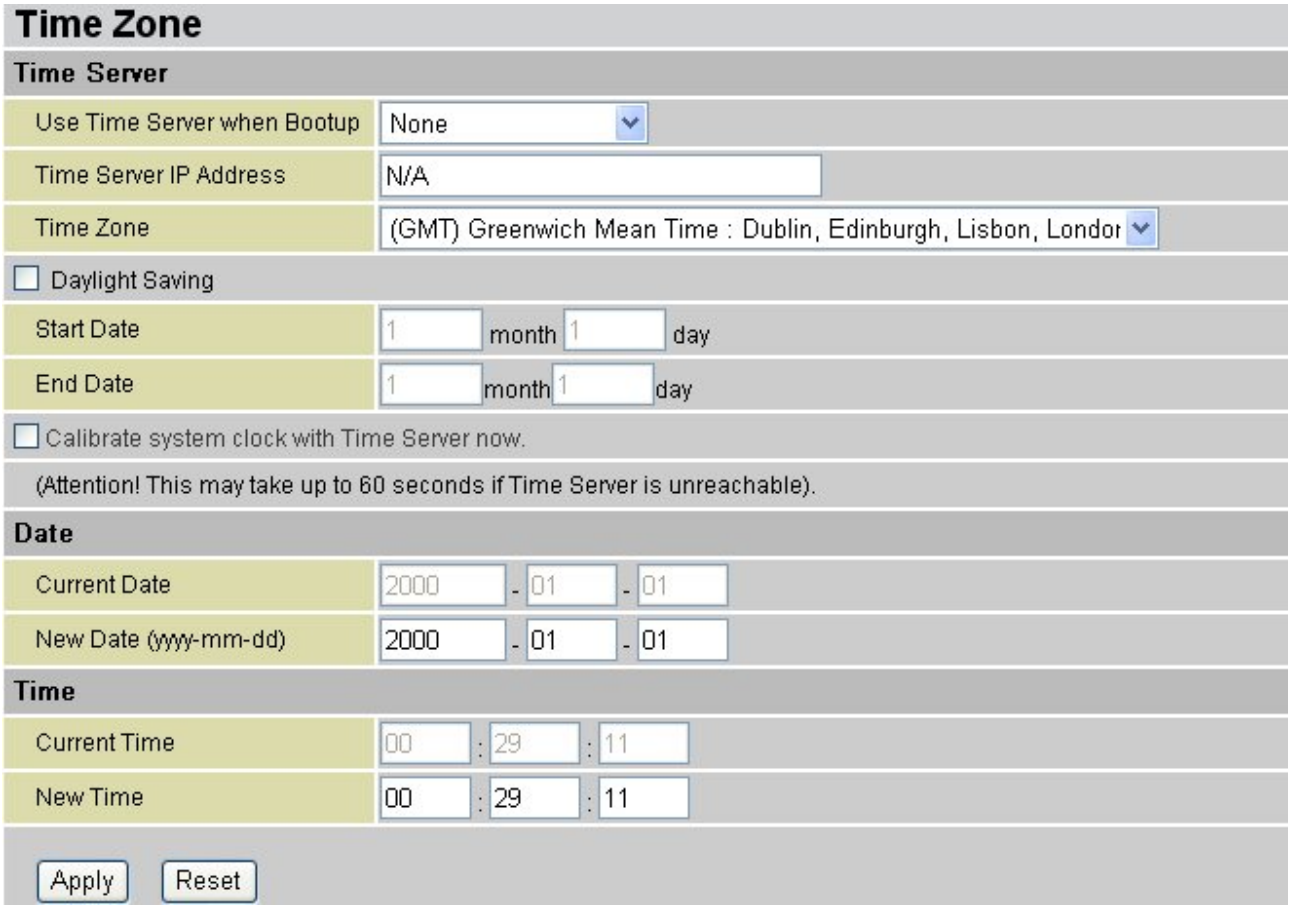
You will first need to register and establish an account with the Dynamic DNS provider using their website, for example http://www.dyndns.org/



- **Active:** Select this check box to use dynamic DNS.
- **Service Provider:** Select the name of your Dynamic DNS service provider.
- **Host Name**: Type the domain name assigned to your BIPAC 5102 Series by your Dynamic DNS provider.
- **E-mail Address:** Type your e-mail address.
- **User:** Type your user name.
- **Password:** Type the password assigned to you.
- **Enable Wildcard:** Select this check box to enable DYNDNS Wildcard.

4.2.8 Time Zone

The router does not have a real time clock on board; instead, it uses the Simple Network Time Protocol (SNTP) to get the current time from an SNTP server outside your network. Choose your local time zone. After a successful connection to the Internet, the router will retrieve the correct local time from the SNTP server you have specified. If you prefer to specify an SNTP server other than those in the drop-down list, simply enter its IP address as shown above. Your ISP may provide an SNTP server for you to use.



Time Server:

Use Time Server when Bootup: Select the time service protocol that your time server sends when you turn on the Router. Not all time servers support all protocols, so you may have to check with your ISP/network administrator or use trial and error to find a protocol that works.

The main difference between them is the format.

Daytime (RFC 867) format is day/month/year/time zone of the server.

Time (RFC 868) format displays a 4-byte integer giving the total number of seconds since 1970/1/1 at 0:0:0.

The default, **NTP (RFC 1305),** is similar to Time (RFC 868).

Select **None** to enter the time and date manually.

- **Time Server IP Address:** Enter the IP address of your time server. Check with your ISP/network administrator if you are unsure of this information.
- **Time Zone:** Choose the time zone of your location. This will set the time difference between your time zone and Greenwich Mean Time (GMT).
- **Daylight Savings:** Select this option if you use daylight savings time. Daylight saving is a period from late spring to early fall when many countries set their clocks ahead of normal local time by one hour to give more daytime light in the evening.
- **Start Date:** Enter the month and day that your daylight-savings time starts on if you selected **Daylight Savings**.
- **End Date:** Enter the month and day that your daylight-savings time ends on if you selected **Daylight Savings**.
- **Calibrate system clock with Time Server now:** Click this button to have your Router use the time server (that you configured above) to set its internal system clock.

Please wait for up to 60 seconds while the BIPAC 5102 Series locates the time server. If the BIPAC 5102 Series cannot find the time server, please check the time server protocol and its IP address. If the IP address was entered correctly, try pinging it for example to test the connection.

Date

- **Current Date:** This field displays the date of your BIPAC 5102 Series.

Each time you reload this page, the router synchronizes the time with the time server.

- **New Date (yyyy-mm-dd):** This field displays the last updated date from the time server.When you select **None** in the **Use Time Server when Bootup** field, enter the new date in this field and then click **Apply**.

Time

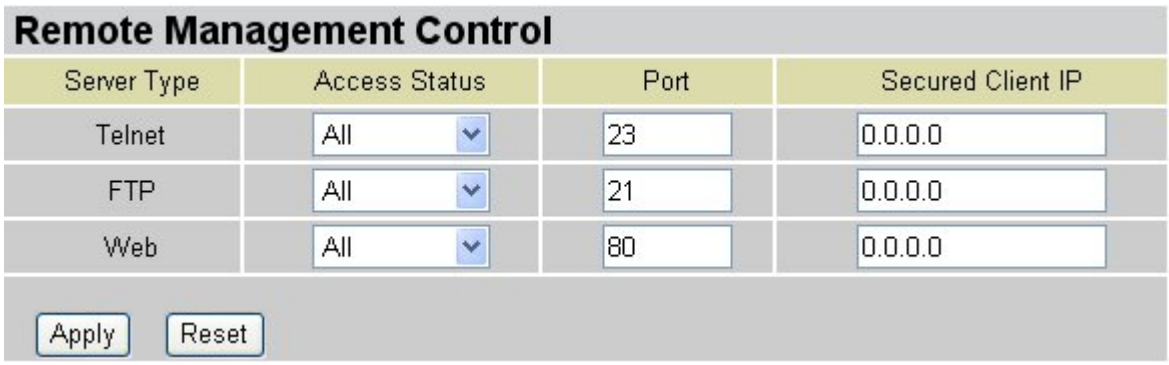
- **Current Time:** This field displays the time of your router. Each time you reload this page, the BIPAC 5102 Series synchronizes the time with the time server.
- **New Time:** This field displays the last updated time from the time server.

When you select **None** in the **Use Time Server when Bootup** field, enter the new time in this field and then click **Apply**.

4.2.9 Remote Management

Remote management allows you to determine which services/protocols can access which BIPAC 5102 Series interface from which computers.

You can configure the router for remote Telnet access or upload and download router firmware and configuration files using FTP. To use this feature, your computer must have an FTP client. And can use the BIPAC 5102 Series's embedded web configurator for configuration and file management.



Server Type: Each of these labels denotes a service that you may use to remotely manage the BIPAC 5102 Series.

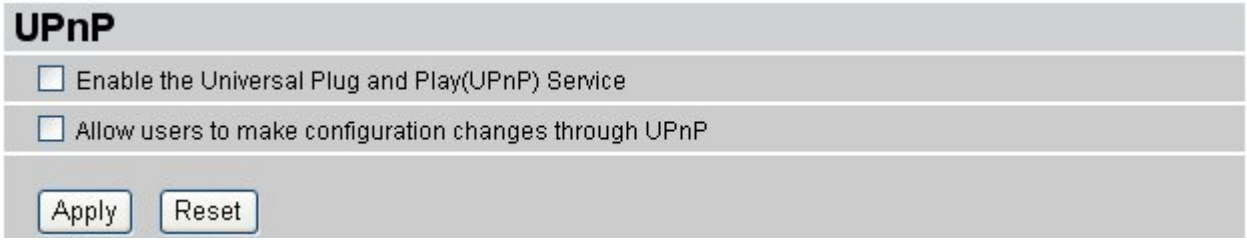
Access Status: Select the access interface. Choices are **All**, **LAN Only**, **WAN Only** and **Disable**.

Port: This field shows the port number for the remote management service. You may change the port number for a service in this field, but you must use the same port umber to use that service for remote management.

Secured Client IP: The default 0.0.0.0 allows any client to use this service to remotely manage the BIPAC 5102 Series. Type an IP address to restrict access to a client with a matching IP address.

4.2.10 UPnP

UPnP offers peer-to-peer network connectivity for PCs and other network devices, along with control and data transfer between devices. UPnP offers many advantages for users running NAT routers through UPnP NAT Traversal, and on supported systems makes tasks such as port forwarding much easier by letting the application control the required settings, removing the need for the user to control advanced configuration of their device.
Both the user's Operating System and the relevant application must support UPnP in addition to the router. Windows XP and Windows Me natively support UPnP (when the component is installed), and Windows 98 users may install the Internet Connection Sharing client from Windows XP in order to support UPnP. Windows 2000 does not support UPnP.



Enable the Universal Plug and Play (UPnP) Service: Select this checkbox to activate UPnP. Be aware that anyone could use a UPnP application to open the web configurator's login screen without entering the BIPAC 5102 Series 's IP address

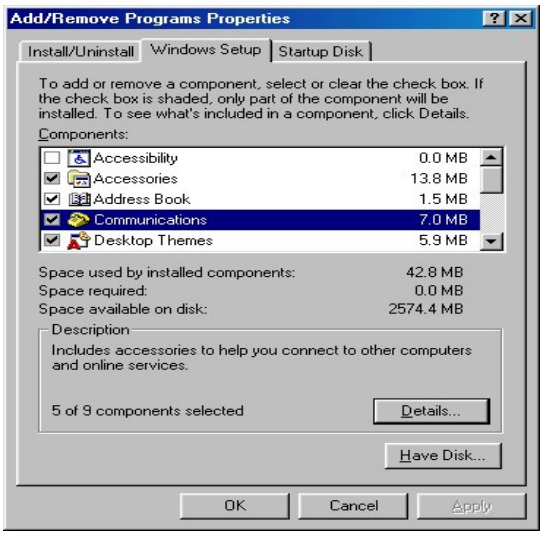
Allow users to make configuration changes through UPnP: Select this check box to allow UPnP-enabled applications to automatically configure the BIPAC 5102 Series so that they can communicate through the BIPAC 5102 Series, for example by using NAT traversal, UPnP applications automatically reserve a NAT forwarding port in order to communicate with another UPnP enabled device; this eliminates the need to manually configure port forwarding for the UPnP enabled application.

4.2.10.1 Installing UPnP in Windows Example

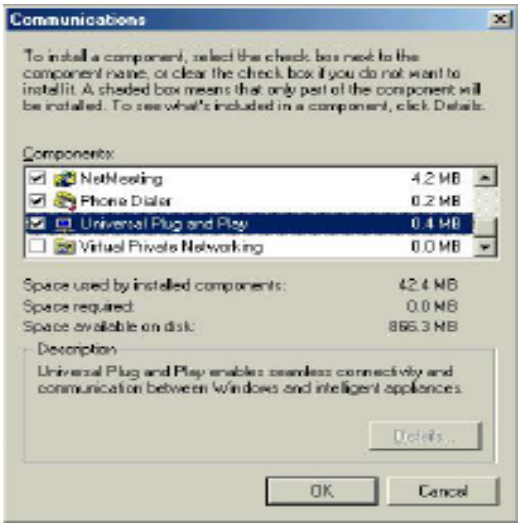
Follow the steps below to install the UPnP in Windows Me.

Step 1. Click Start and Control Panel. Double-click Add/Remove Programs.

Step 2. Click on the Windows Setup tab and select Communication in the Components selection box. Click Details.



Step 3. In the Communications window, select the Universal Plug and Play check box in the Components selection box.



Step 4. Click OK to go back to the Add/Remove Programs Properties window and click Next.

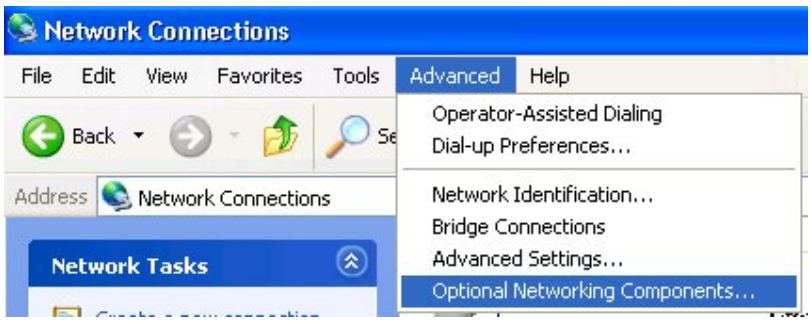
Step 5. Restart the computer when prompted.

Follow the steps below to install the UPnP in Windows XP.

Step 1. Click Start and Control Panel.

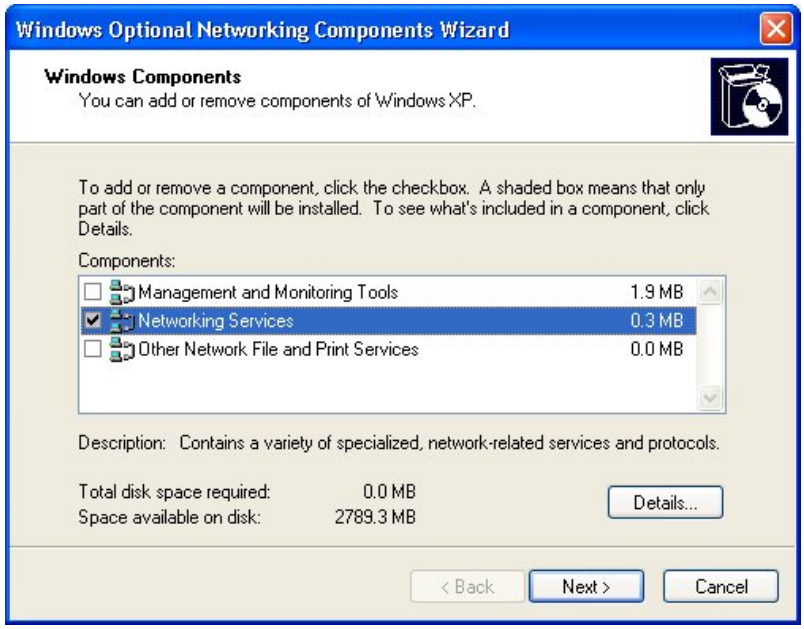
Step 2. Double-click Network Connections.

Step 3. In the Network Connections window, click Advanced in the main menu and select Optional Networking Components ….



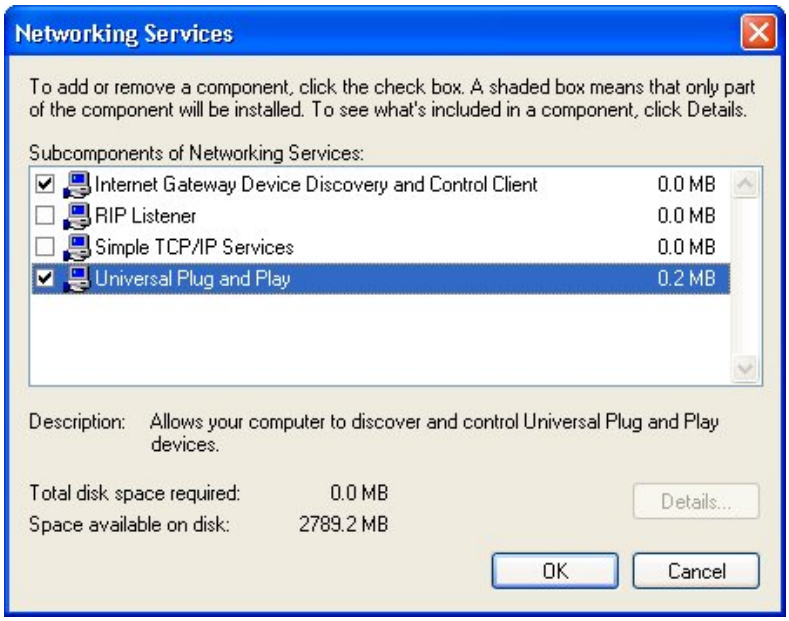
The Windows Optional Networking Components Wizard window displays.

Step 4. Select Networking Service in the Components selection box and click Details.



Step 5. In the Networking Services window, select the Universal Plug and Play check box.

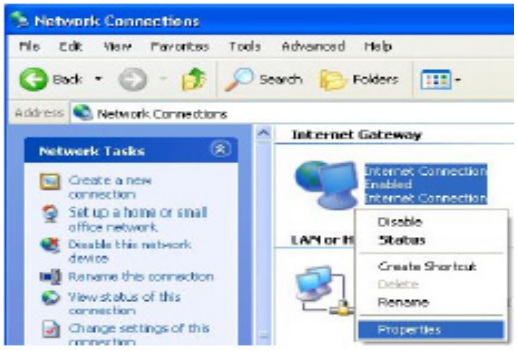
Step 6. Click OK to go back to the Windows Optional Networking Component Wizard window and click Next.



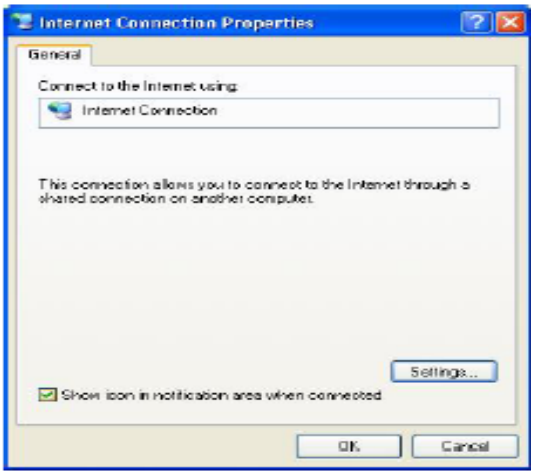
Auto-discover Your UPnP-enabled Network Device

Step 1. Click start and Control Panel. Double-click Network Connections. An icon displays under Internet Gateway.

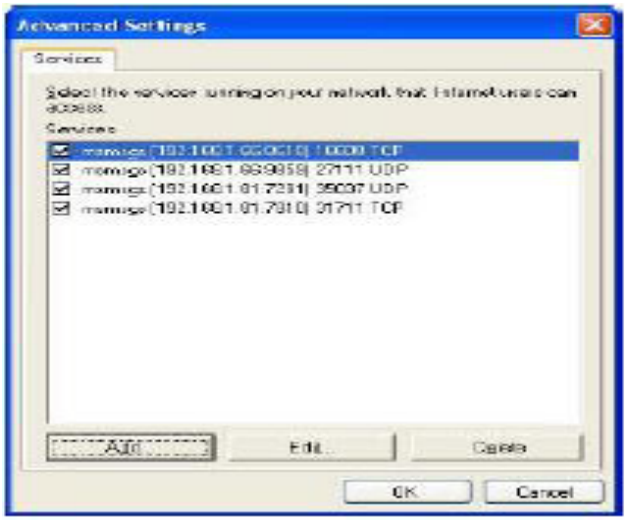
Step 2. Right-click the icon and select Properties.

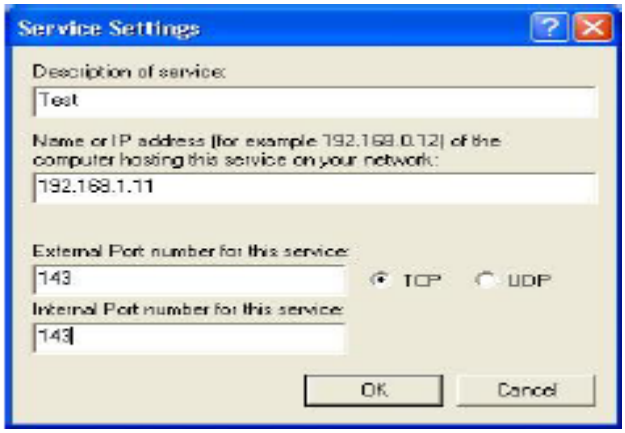


Step 3. In the Internet Connection Properties window, click Settings to see the port mappings there were automatically created.

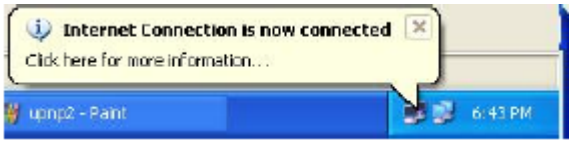


Step 4. You may edit or delete the port mappings or click Add to manually add port mappings.

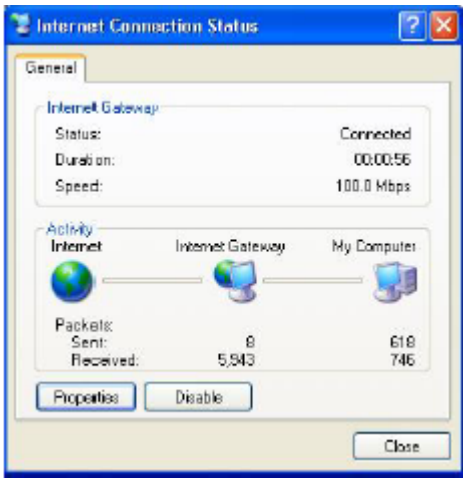




Step 5. Select Show icon in notification area when connected option and click OK. An icon displays in the system tray



Step 6. Double-click on the icon to display your current Internet connection status.



Web Configurator Easy Access

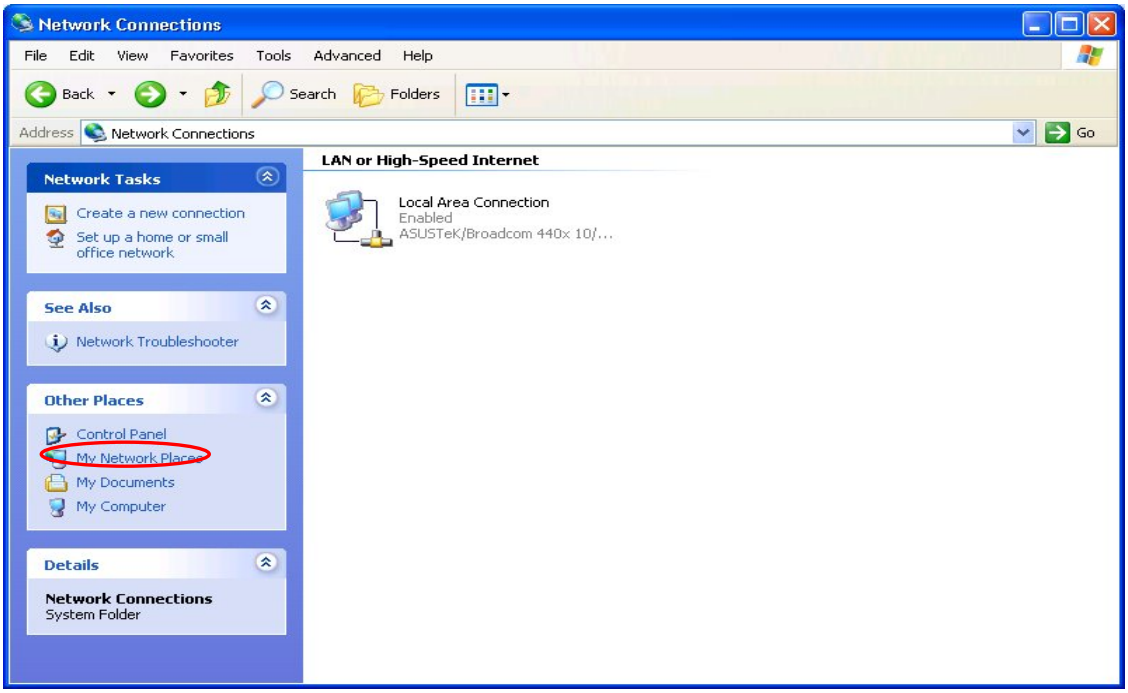
With UPnP, you can access the web-based configurator on the BIPAC 5102 Series without finding out the IP address of the BIPAC 5102 Series first. This comes helpful if you do not know the IP address of the BIPAC 5102 Series.

Follow the steps below to access the web configurator.

Step 1. Click Start and then Control Panel.

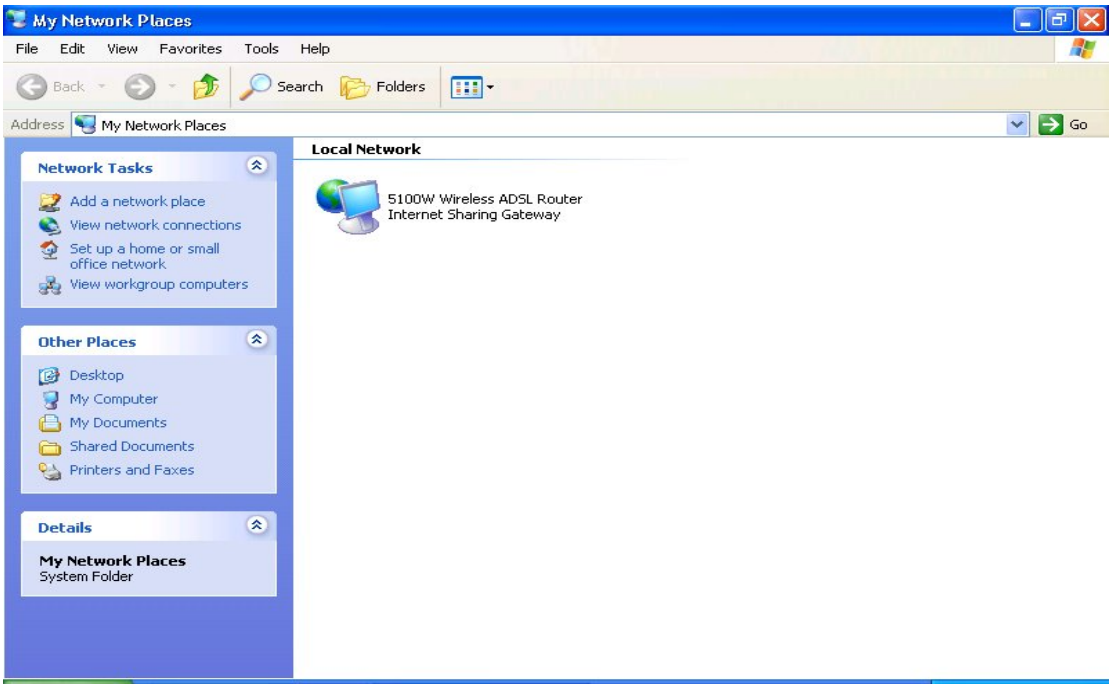
Step 2. Double-click Network Connections.

Step 3. Select My Network Places under Other Places.



Step 4. An icon with the description for each UPnP-enabled device displays under Local Network.

Step 5. Right-click on the icon for your BIPAC 5102 Series and select Invoke. The web configurator login screen displays.

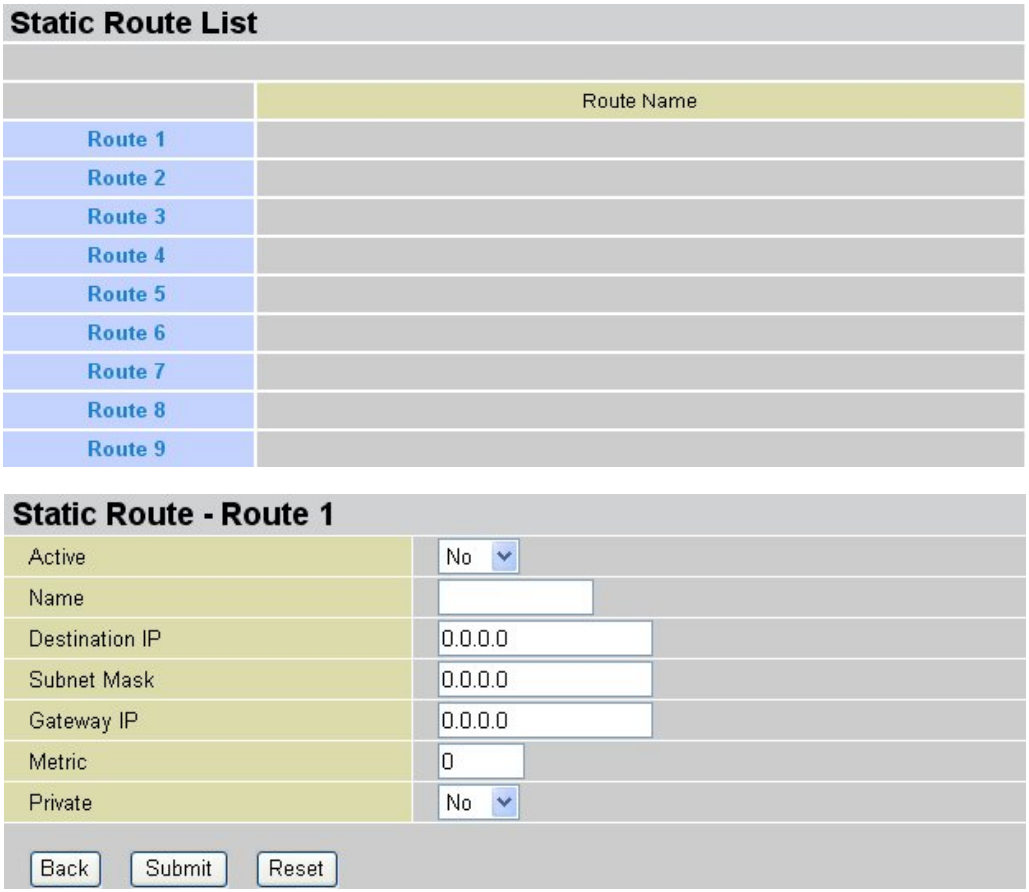


Step 6. Right-click on the icon for your BIPAC 5102 Series and select Properties. A properties window displays with basic information about the BIPAC 5102 Series.

4.3 Static Route

4.3.1 Current Route

If you have another router with a LAN-to-LAN connection, you may create a static routing on the router that is the gateway to Internet.

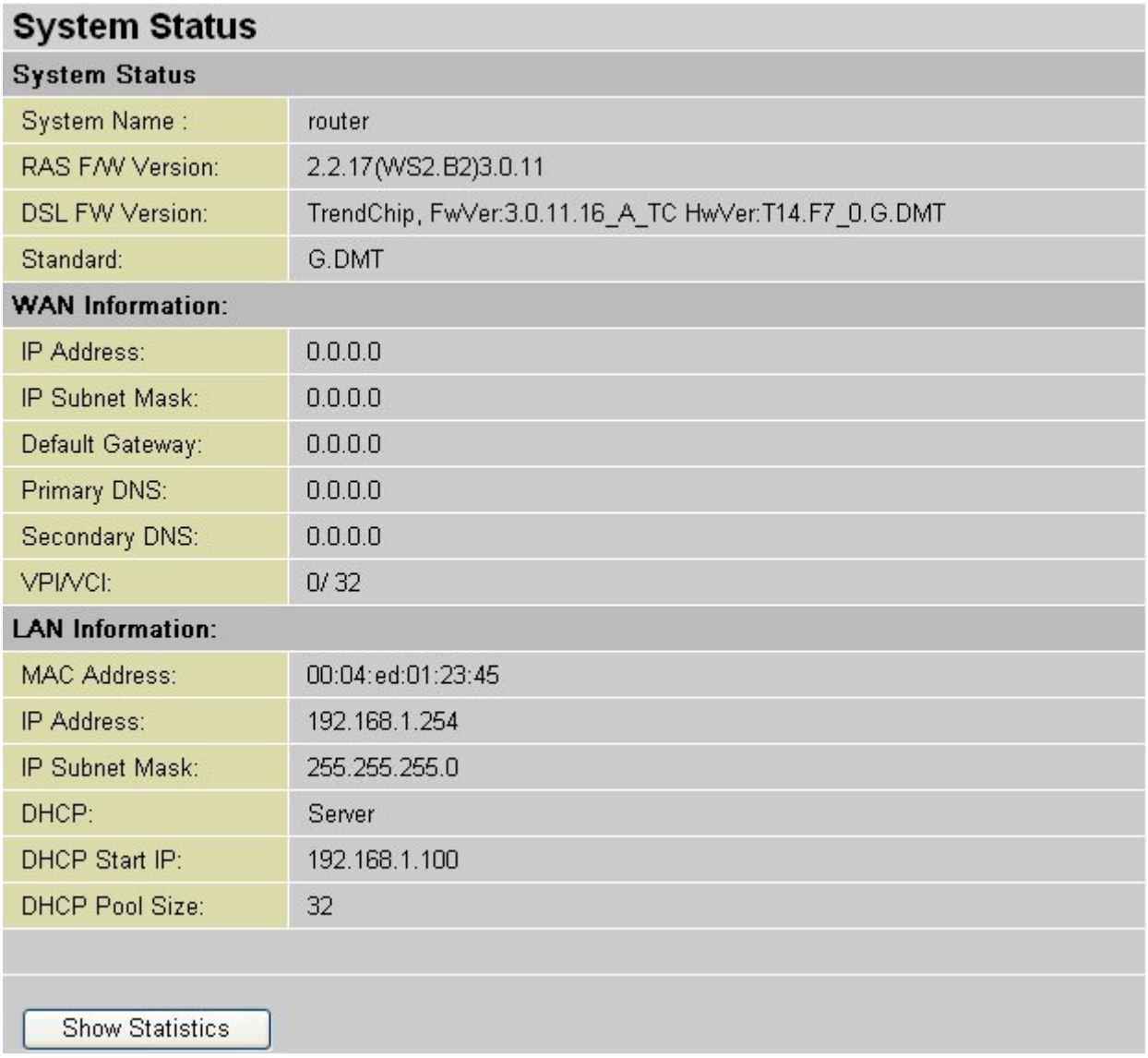


- **Active:** Whether the connection is currently active.
- **Name:** Enter the name of your Internet Service Provider
- **Destination IP**：This is the destination subnet IP address.
- **Subnet Mask**：It is the destination IP addresses based on above destination subnet IP
- **Gateway IP**：This is the gateway IP address to which packets are to be forwarded.
- **Metric**：It represents the cost of transmission for routing purposes. The number need not be precise, but it must be between 1 and 15.
- **Private**：This parameter determines if the Prestige will include the route to the remote node in its RIP broadcasts. Set “Yes”, it is kept private and is not included in RIP broadcasts. Set “No”, the remote node will be propagated to other hosts through RIP broadcasts.

4.4 Maintenance

Use the maintenance screens to view system information, upload new firmware, manage configuration and restart your BIPAC 5102 Series

4.4.1 System Status



System Status:

- **System Name:** This is the name of the router. It is for identification purposes.
- **RAS F/W Version:** This is the firmware version and the date created.
- **DSL FW Version:** This is the DSL firmware version associated with your router
- **Standard**: This is the standard that the router is using.

WAN Information:

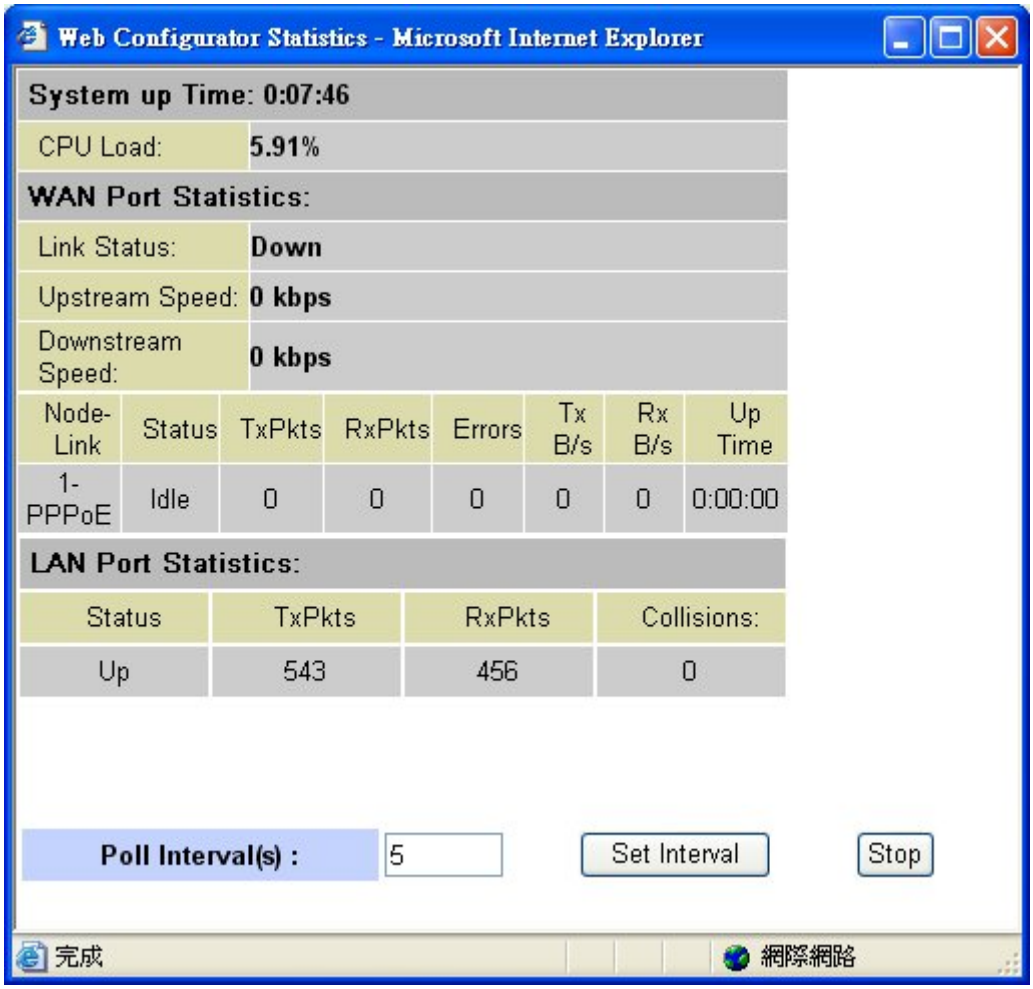
- **IP Address:** This is the WAN port IP address
- **IP Subnet Mask:** This is the WAN port IP subnet mask.
- **Default Gateway:** This is the IP address of the default gateway
- **VPI/VCI:** This is the Virtual Path Identifier and Virtual Channel Identifier that you entered in the first Wizard screen.

LAN Information

- **MAC Address:** This is the MAC (Media Access Control) or Ethernet address
- **IP Address:** This is the LAN port IP address.
- **IP Subnet Mask:** This is the LAN port IP subnet mask.
- **DHCP Server:** This is the WAN port DHCP role - Server, Relay or None.
- **DHCP Start IP:** This is the first of the contiguous addresses in the IP address pool.
- **DHCP Pool Size:** This is the number of IP addresses in the IP address pool.

4.4.2 **System Statistics**

Read-only information here includes port status and packet specific statistics. Also provided are "system up time" and "poll interval(s)".



- **System up Time:**This is the elapsed time the system has been up
- **CPU Load:** This field specifies the percentage of CPU utilization.
- **WAN Port Statistics:** This is the WAN port.
- **Link Status:** This is the status of your WAN link.
- **Transfer Rate:** This is the transfer rate in kbps.
- **Upstream Speed:** This is the upstream speed of the router
- **Downstream Speed:** This is the downstream speed of the router
- **Node-Link:** This field displays the remote node index number and link type. Link types are PPPoA, ENET, RFC 1483 and PPPoE.
- **LAN Port Statistics:** This is the LAN port
- **Interface:** This field displays the type of port

- **Status:** For the WAN port, this displays the port speed and duplex setting if you're using Ethernet encapsulation and **down** (line is down), **idle** (line (ppp) idle), **dial** (starting to trigger a call) and **drop** (dropping a call) if you're using PPPoE encapsulation.For a LAN port, this shows the port speed and duplex setting.
- **TxPkts:** This field displays the number of packets transmitted on this port.
- **RxPkts:** This field displays the number of packets received on this port.
- **Errors:** This field displays the number of error packets on this port.
- **Tx B/s:** This field displays the number of bytes transmitted in the last second.
- **Rx B/s:** This field displays the number of bytes received in the last second.
- **Up Time:** This field displays the elapsed time this port has been up.
- **Collisions:** This is the number of collisions on this port.
- **Poll Interval(s):** Type the time interval for the browser to refresh system statistics.
- **Set Interval:** Click this button to apply the new poll interval you entered in the **Poll Interval** field above.
- **Stop:** Click this button to halt the refreshing of the system statistics.

4.4.3 DHCP Table

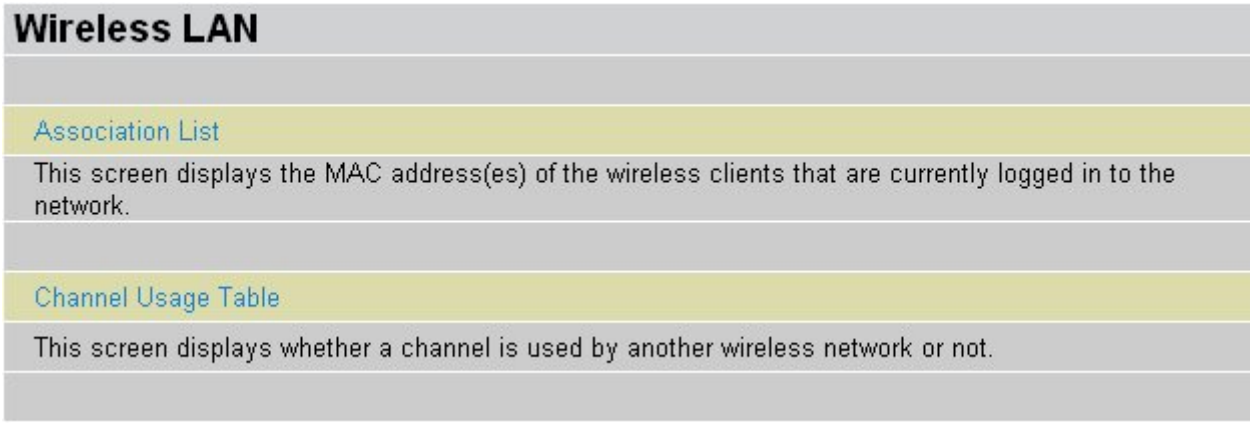
DHCP (Dynamic Host Configuration Protocol, RFC 2131 and RFC 2132) allows individual clients to obtain TCP/IP configuration at start-up from a server.

- **Host Name:** This is the name of the host computer.
- **IP Address:** This field displays the IP address relative to the **Host Name** field
- **MAC Address:** This field displays the MAC (Media Access Control) address of the computer with the displayed host name.

4.4.4 Wireless

NOTE: 802.11g is only supported for the BIPAC 5102G .

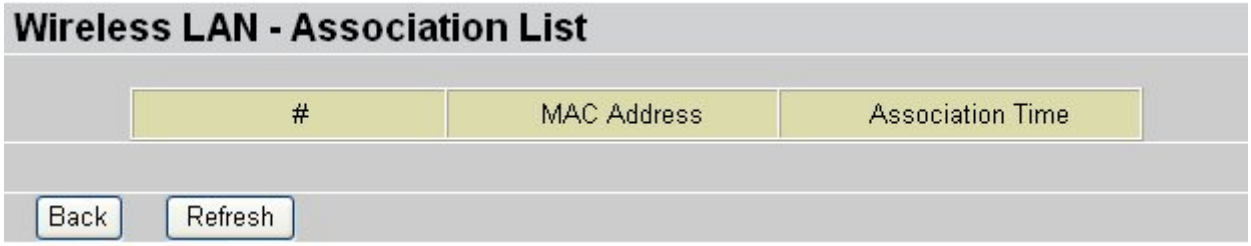
These read-only screens display information about the router's wireless LAN.



4.4.4.1 Association List

This screen displays the MAC address(es) of the wireless clients that are currently logged in to the network.

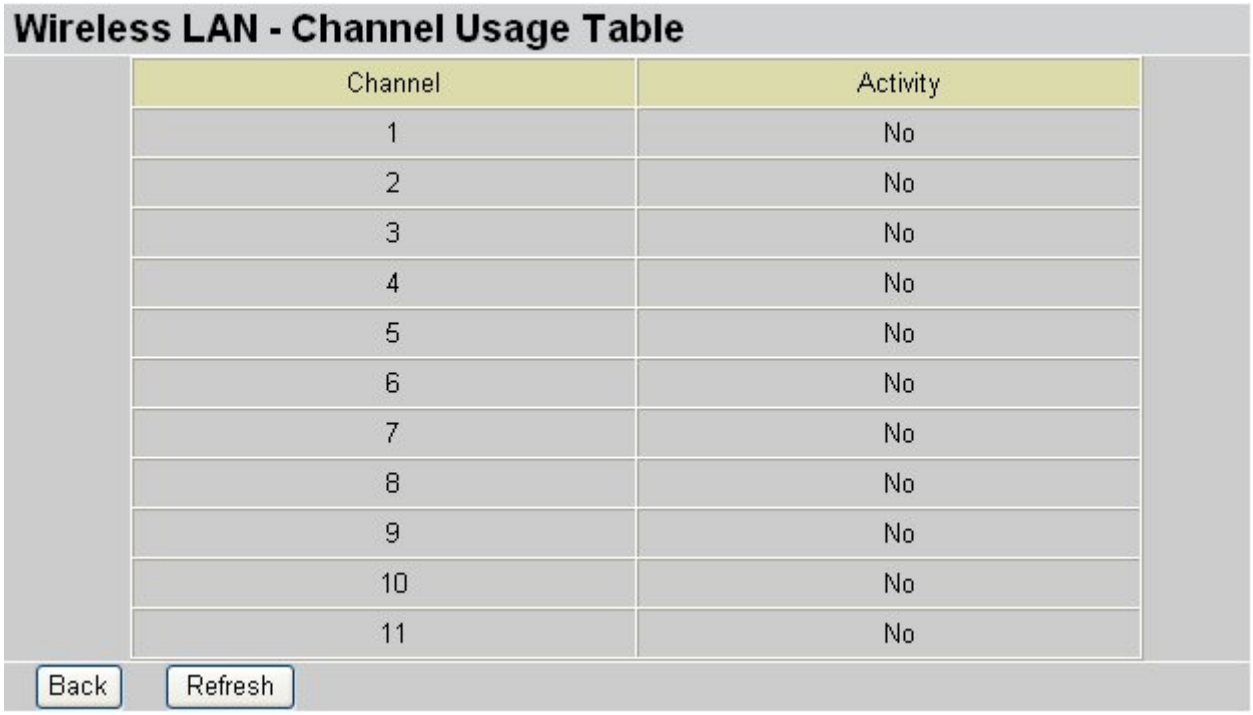
Click Wireless LAN and then Association List to open the screen shown next.



- **#:** This is the index number of an associated wireless client.
- **MAC Address:** This field displays the MAC (Media Access Control) address of the computer with the displayed host name.
- **Association Time:** This field displays how long a wireless station has been associated to the router.

4.4.4.2 Channel Usage Table

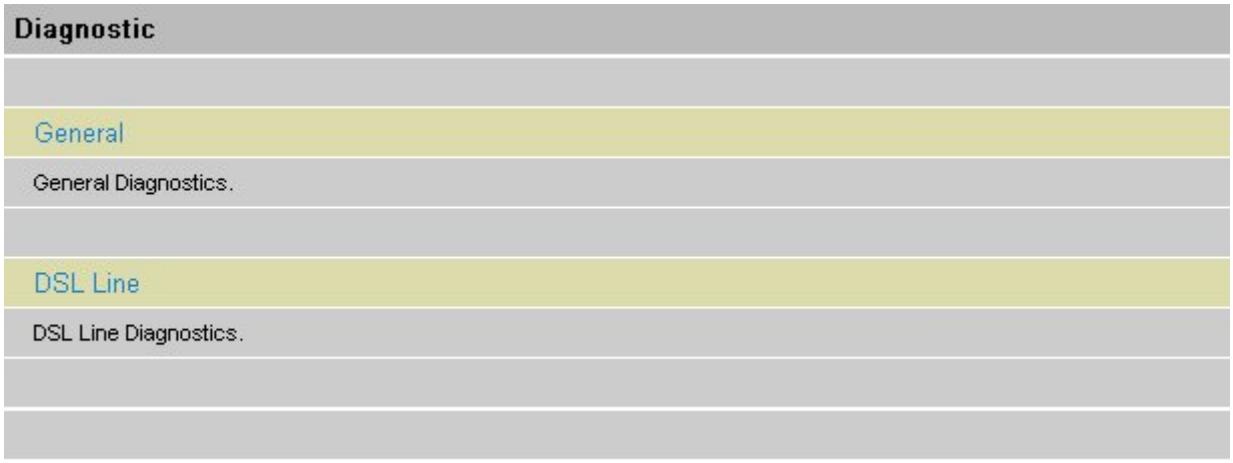
This screen displays the state of the channels within the router's transmission range. Click Wireless LAN and then Channel Usage Table to open the screen shown next.



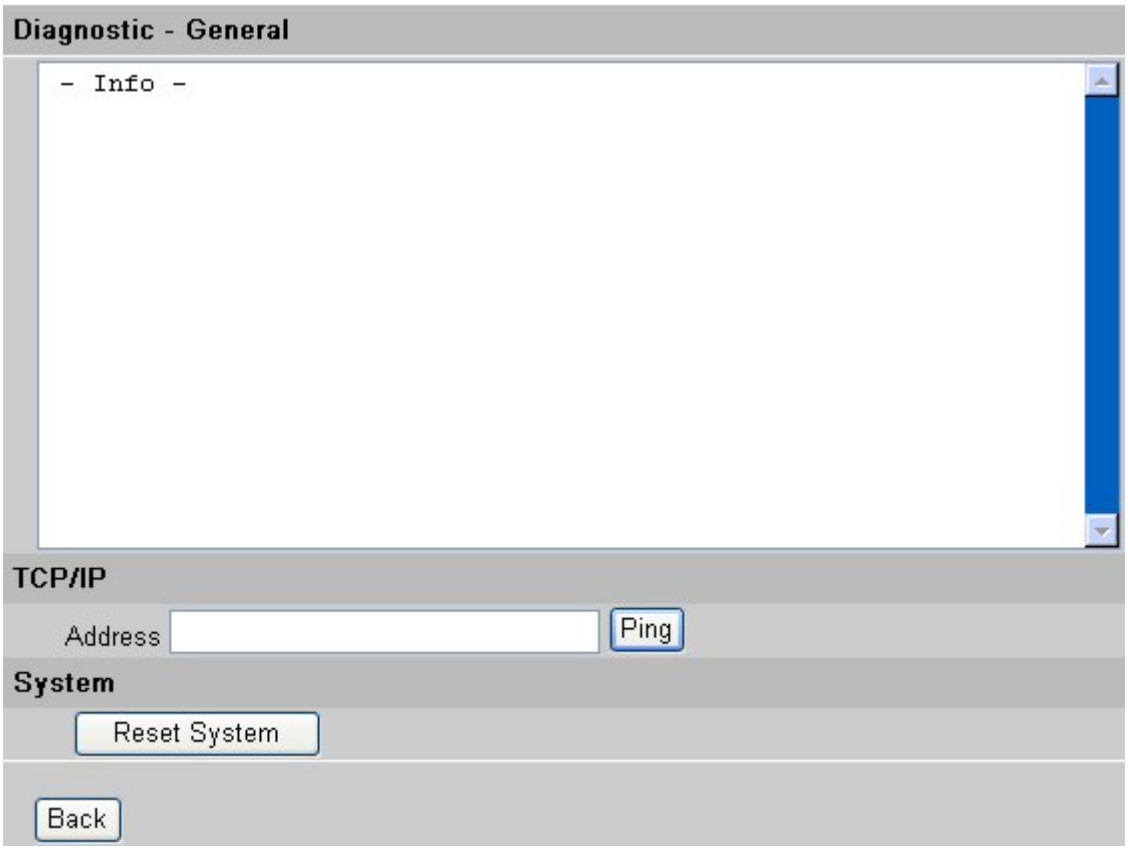
- **Channel:** This is the index number of the channel.
- **Activity:** This field displays **Yes** if another AP or Ad-hoc network is using the channel within the router's transmission range.

4.4.5 Diagnostic

These read-only screens display information to help you identify problems with the BIPAC 5102 Series



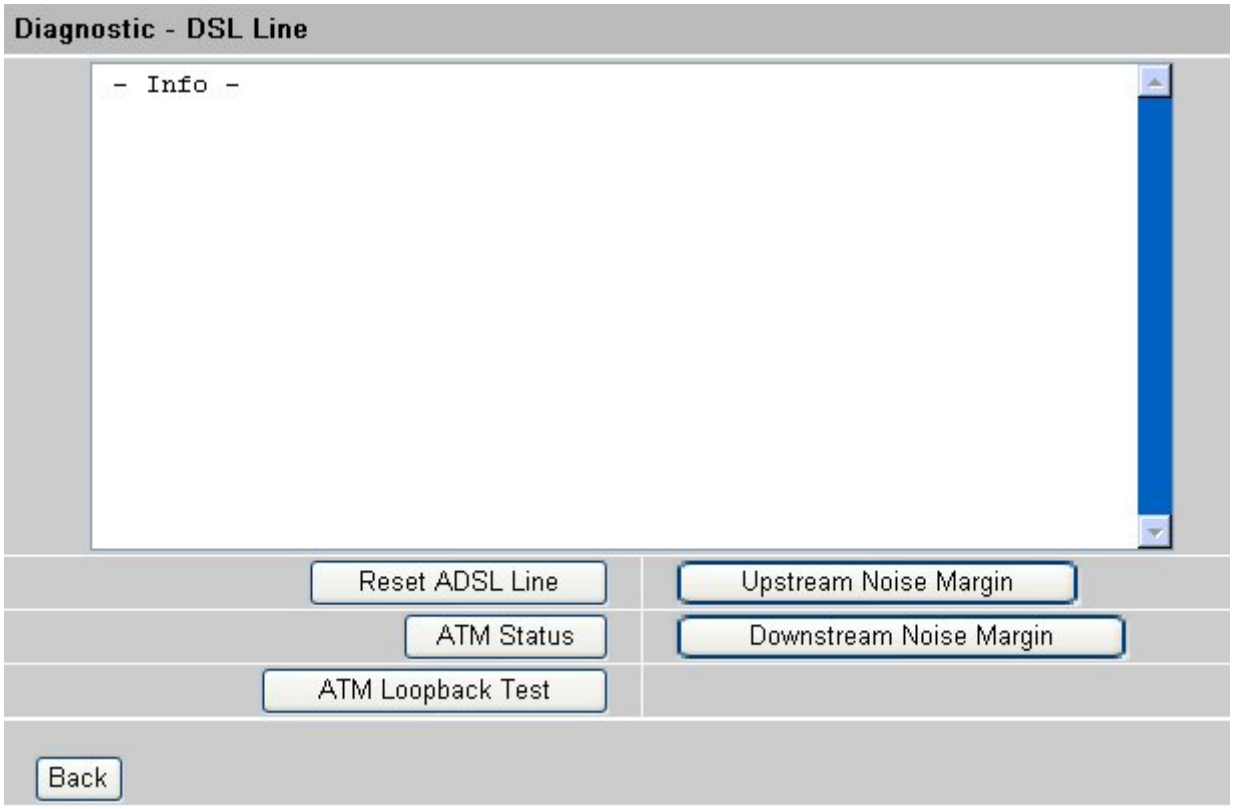
4.4.5.1 Diagnostic-General



- **TCP/IP Address:** Type the IP address of a computer that you want to ping in order to test a connection.
- **Ping:** Click this button to ping the IP address that you entered.
- **Reset System:** Click this button to reboot the BIPAC 5102 Series. A warning dialog box

is then displayed asking you if you're sure you want to reboot the system. Click **OK** to proceed.

4.4.5.2 Diagnostic DSL Line

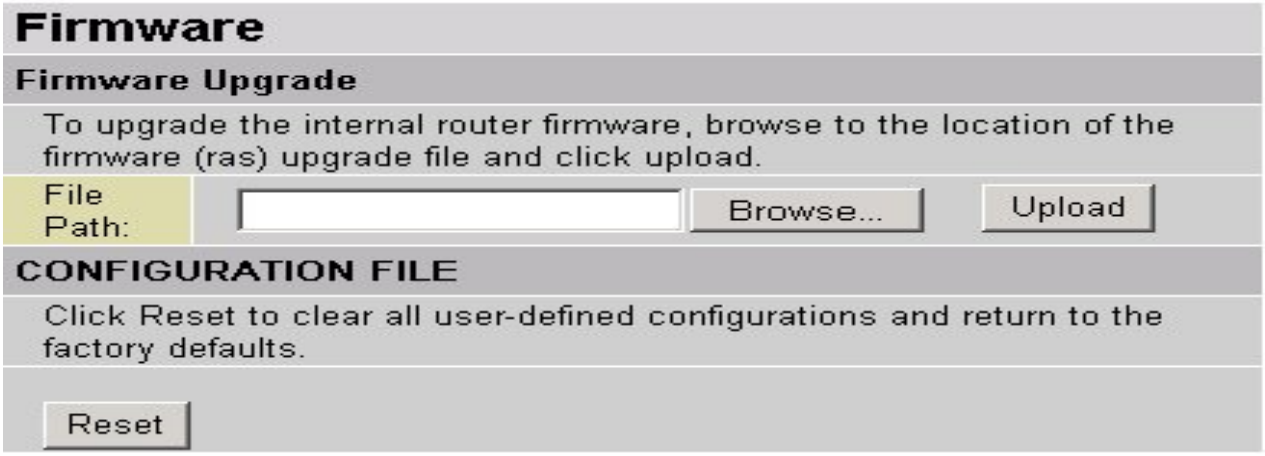


- **Reset ADSL Line:** Click this button to reinitialize the ADSL line. The large text box above then displays the progress and results of this operation
- **ATM Status:** Click this button to view ATM status.
- **ATM Loopback Test:** Click this button to start the ATM loopback test. Make sure you have configured at least one PVC with proper VPIs/VCIs before you begin this test. The ATM loopback test is useful for troubleshooting problems with the DSLAM and ATM network.
- **Upstream Noise Margin:** Click this button to display the upstream noise margin.
- **Downstream Noise Margin:** Click this button to display the downstream noise margin.

4.4.6 Firmware

Your router's "firmware" is the software that allows it to operate and provides all its functionality. Think of your router as a dedicated computer, and the firmware as the software it runs. Over time this software may be improved and modified, and your router allows you to upgrade the software it runs to take advantage of these changes.

To upgrade the firmware of BIPAC 5102 Series, you should download or copy the firmware to your local environment first. Press the **"Browse…"** button to specify the path of the firmware file. Then, click **"Upgrade"** to start upgrading. When the procedure is completed, BIPAC 5102 Series will reset automatically to make the new firmware work.



- **File Path:** Type in the location of the file you want to upload in this field or click **Browse ...** to find it.
- **Browse...:** Click **Browse...** to find the .ras file you want to upload. Remember that you must decompress compressed (.zip) files before you can upload them.
- **Upload**: Click **Upload** to begin the upload process. This process may take up to two minutes.
- **Reset:** Click this button to clear all user-entered configuration information and return the BIPAC 5102 Series to its factory defaults. Refer to the Resetting the BIPAC 5102 Series section.

After two minutes, log in again and check your new firmware version in the System Status screen.

If the upload was not successful, the following screen will appear. Click Back to go back to the Firmware screen.

Error Message:

ERROR: FAIL TO UPDATE DUE TO... The uploaded file was not accepted by the router.

Back

Warning

DO NOT power down the router or interrupt the firmware upgrading while it is still in process. Improper operation could damage the router.

4.4.7 Restart

Click **Restart** with option **Current Settings** to reboot your router (and restore your last saved configuration).

If you wish to restart the router using the factory default settings (for example, after a firmware upgrade or if you have saved an incorrect configuration), select ***Factory Default Settings*** to reset to factory default settings.

You may also reset your router to factory settings by holding the small Reset pinhole button on the back of your router in for 10-12 seconds whilst the router is turned on.

4.5 Logout

To exit the router's web interface, choose **Logout**. Please ensure that you have saved the configuration settings before you logout.

Be aware that the router is restricted to only one PC accessing the configuration web pages at a time. Once a PC has logged into the web interface, other PCs cannot get access until the current PC has logged out of the web interface. If the previous PC forgets to logout, the second PC can access the page after a user-defined period, by default 3 minutes.

Chapter 5
Troubleshooting

If the ADSL Router is not functioning properly, you can refer first to this chapter for simple troubleshooting before contacting your service provider. This could save your time and effort but if the symptoms persist, then consult your service provider.

Problems starting up the router

Problem	Corrective Action
None of the LEDs are on when you turn on the router.	Check the connection between the adapter and the router. If the error persists, you may have a hardware problem. In this case you should contact technical support.
You have forgotten your router login and/or password.	Try the default login and password, please refers to Chapter 3. If this fails, you can restore your router to its factory settings by holding the Reset button on the back of your router for 6 seconds above.

Problems with the WAN Interface

Problem	Corrective Action
Initialization of the PVC connection ("linesync") failed.	Ensure that the telephone cable is connected properly from the ADSL port to the wall jack. The ADSL LED on the front panel of the router should be on. Check that your VPI, VCI, encapsulation type and type of multiplexing settings are the same as those provided by your ISP. Reboot the router GE. If you still have problems, you may need to verify these settings with your ISP.

Frequent loss of ADSL linesync (disconnections).	Ensure that all other devices connected to the same telephone line as your router (e.g. telephones, fax machines, analogue modems) have a line filter connected between them and the wall socket (unless you are using a Central Splitter or Central Filter installed by a qualified and licensed electrician), and ensure that all line filters are correctly installed and the right way around. Missing line filters or line filters installed the wrong way around can cause problems with your ADSL connection, including causing frequent disconnections.

Problems with the LAN Interface

Problem	Corrective Action
Can't ping any PCs on the LAN.	Check the Ethernet LEDs on the front panel. The LED should be on for a port that has a PC connected. If it is off, check the cables between your router and the PC. Make sure you have uninstalled any software firewall for troubleshooting.
	Verify that the IP address and the subnet mask are consistent between the router and the workstations.

APPENDIX

Product Support and Contact Information

Most problems can be solved by referring to the **Troubleshooting** section in the User's Manual. If you cannot resolve the problem with the **Troubleshooting** chapter, please contact the dealer where you purchased this product.

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