

BIPAC 7100S

ADSL Modem/Router

with 10/100M LAN Port

User Manual

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1.1 An Overview of BIPAC 7100S

BIPAC 7100S ADSL Modem/Router provides a high-speed Ethernet port for high-speed Internet browsing. It can support downstream transmission rates of up to 8Mbps and upstream transmission rates of up to 1024Kbps. 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)).

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 Package Contents

1. Billion BIPAC 7100S ADSL Modem/Router
2. One CD-ROM containing the driver and online manual
3. One Quick Start Guide
4. One RJ-11 ADSL/telephone cable
5. One CAT-5 straight LAN cable
6. One power adapter

1.3 BIPAC 7100S Features

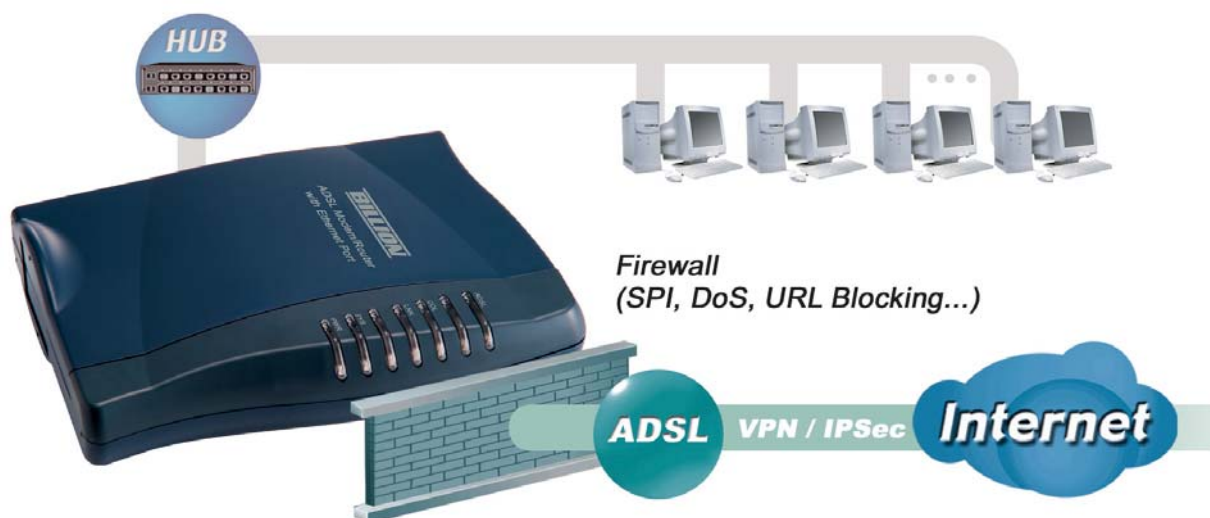
BIPAC 7100S ADSL Modem/Router provides the following features:

- **ADSL Multi-Mode Standard:** Supports downstream transmission rates of up to 8Mbps and upstream transmission rates of up to 1024Kbps. 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)).
- **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 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, an end user can enter the information easily which they from the 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 resource such as Internet simultaneously with one IP address/one Internet access account. Besides, many application layer gateway (ALG) are supported such as web browser, ICQ, FTP, Telnet, E-mail, News, Ping and others.
- **Domain Name System (DNS) relay:** Provides an easy way to map the domain name (a friendly name for user such as www.yahoo.com) and IP address. When local machine sets its DNS server with this router's IP address. Then every DNS conversion request packet from the PC to this router will be forwarded to the real DNS in outside network. After the router gets the reply, then forwards it back to the PC.
- **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 an account from this free Web server <http://www.dyndns.org/>. There are more than 5 DDNS servers supported.
- **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.

- **Firewall:** Supports SOHO firewall with NAT technology. Automatically detects and blocks the Denial of Service (DoS) attack. The URL-blocking and packet filtering are also supported. The hacker's attack will be recorded associated with timestamp in the security logging area. More firewall features will be added continually, please visit our web site to download latest firmware.
- **Dynamic Host Control Protocol (DHCP) client and server:** In the WAN site, the DHCP client can get an IP address from the Internet Server Provider (ISP) automatically. In the LAN site, the DHCP server can allocate multiple clients 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.
- **Rich Packet Filtering:** Not only filter the packet based on IP address, but also based on Port numbers and MAC address. It will increase the performance in LAN and WAN, also provide a higher-level security control
- **SNTP:** An easy way to get the network real time information from an SNTP server.
- **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.
- **Virtual Private Networks (VPN):** Allows user to make a tunnel with a remote site directly to secure the data transmission among the connection. User can use IPsec with IKE key management are supported by this router to make a VPN connection and the router already provides L2TP, IPsec and PPTP pass through function to establish a VPN connection if the user likes to run the PPTP client in his local computer.
- **Simple Network Management Protocol (SNMP):** It is an easy way to remotely manage the router via SNMP.

1.4 BIPAC 7100S Application



2.1 Cautions for Using Billion ADSL Modem/Router

Do not place the router under high humidity and high temperature.



Do not use the same power source for the device with other equipment.

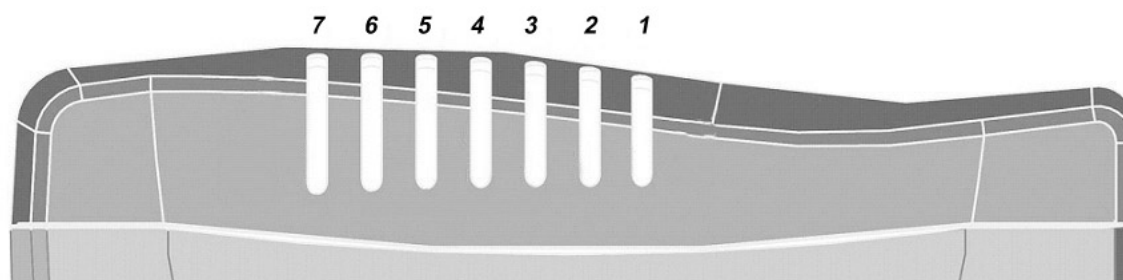
Do not open or repair the case yourself. If the device is too hot, turn off the power immediately and have a qualified serviceman repair it.



Place the product on the stable surface.

Only use the power adapter that comes with the package.

2.2 The Front LEDs



LED		Meaning
1	PWR	Lit green when power adapter is connected.
2	SYS	When flash, it indicates that the device is working properly.
4	LNK	Lit green when the LAN link is connected.
5	COL	Flashes green when collision happens
7	ADSL	When lit, it indicates that the ADSL (Line) port is connected to the DSLAM and working properly.

2.3 The Rear Ports

LINE (RJ-11 connector)

Connect the supplied RJ-11 cable to this port when connecting to the ADSL

Reset

Press it to restore the factory default setting back

LAN (RJ-45 connector)

Connect the supplied crossover cable to this port when connecting to a NIC (Network Interface card) in PC.

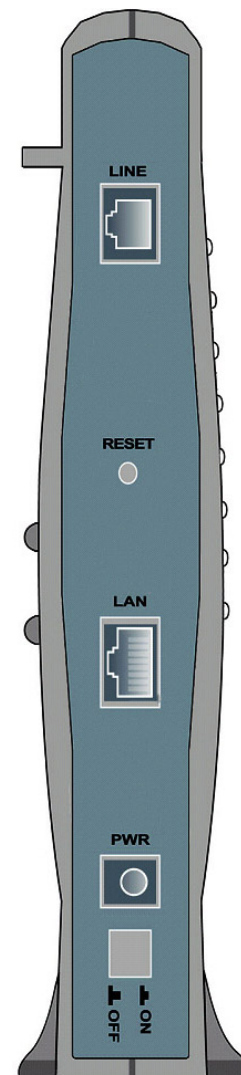
Connect an UTP Ethernet cable to this port when connecting to a LAN such as an office or home network.

Power (jack)

Connect the supplied power adapter to this jack.

Power Switch

A Power ON/OFF switch



2.4 Cabling

Through Ethernet Port

The product's LAN port is wired just like a Network Adapter's port. From the product directly to a PC, the cable should be an Ethernet crossover cable. From the product to a hub or switch, the cable should be an Ethernet straight through cable to a normal hub/switch port, or an Ethernet crossover cable to an uplink port.

The most common problem associated with Ethernet is bad cabling or ADSL line. Make sure that all connected devices are turned on. On the front of the product is a bank of LEDs. As a first check, please verify that the PWR, LAN LNK and ADSL SYN LEDs are lit. If they are not, verify that you are using the proper cables.

So long as the cables are connected and the LEDs are lit normally, follow section “**3.2 Configuring the Network Properties**” below to modify the network settings.



Since the product cannot auto-detect whether your cable is correct or not, please make sure you are using the right cable to a PC or a Hub.

BIPAC 7100S can be configured with your Web browser. The web browser is included as a standard application in following operation systems, UNIX, Linux, Mac OS, Windows 95/98/NT/2000/Me/XP, etc. The product provides a very easy and user-friendly interface for configuration.

3.1 Before Configuration

This section describes the configuration required by LAN-attached PCs that communicate with BIPAC 7100S, either to configure the device, or for network access. These PCs must have an Ethernet interface installed properly, be connected to BIPAC 7100S either directly or through a hub, and have TCP/IP installed and configured to obtain an IP address through a DHCP server or a fixed IP address which must be in the same subnet of BIPAC 7100S. The default IP address of router is 192.168.1.254 and subnet mask is 255.255.255.0. The best and easy way is to configure the PC to get an IP address from BIPAC 7100S.

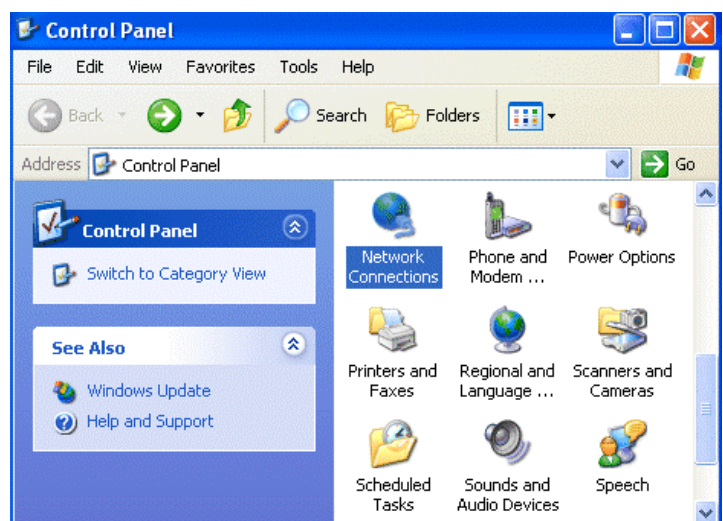
Please follow the steps below for PC's network environment installation. Before taking the first step, please check your PC's network components. If your PC connects the ADSL Modem/Router through Ethernet port, the TCP/IP protocol stack and Ethernet network adapter must be installed. If not, please refer to MS Windows relative manuals.



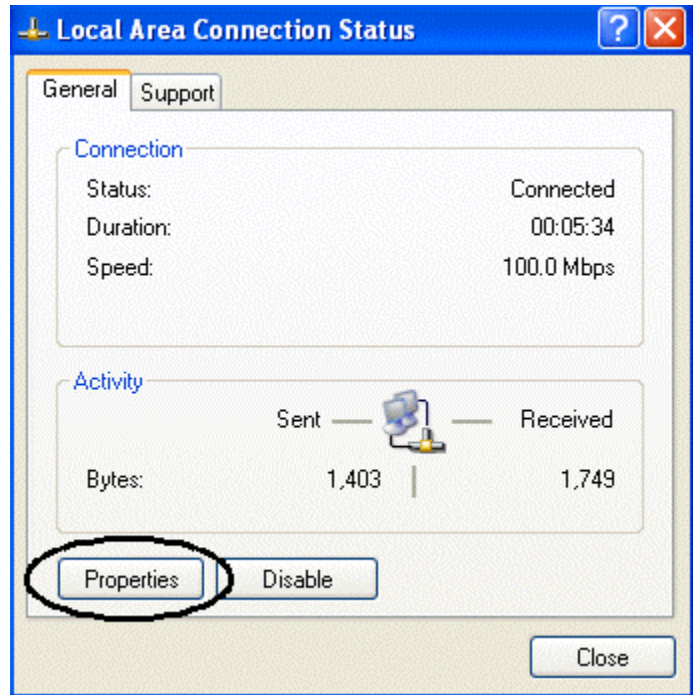
Any TCP/IP capable workstation can be used to communicate with or through BIPAC 7100S. To configure other types of workstations, please consult the manufacturer's documentation.

Configuring PC in Windows XP

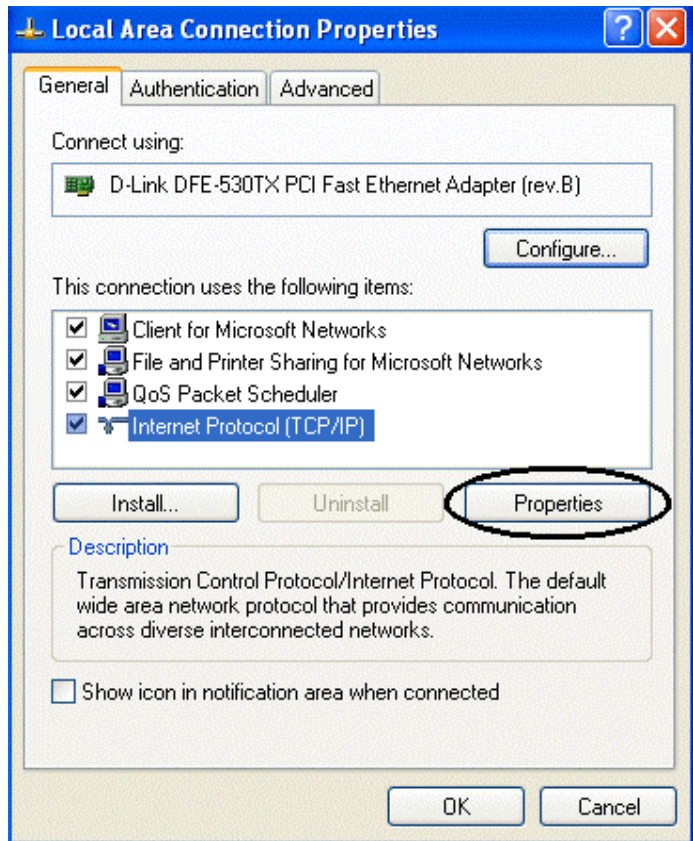
1. Go to **Start / Control Panel (in Classic View)**. In the Control Panel, double-click on **Network Connections**.
2. Double-click **Local Area Connection**.



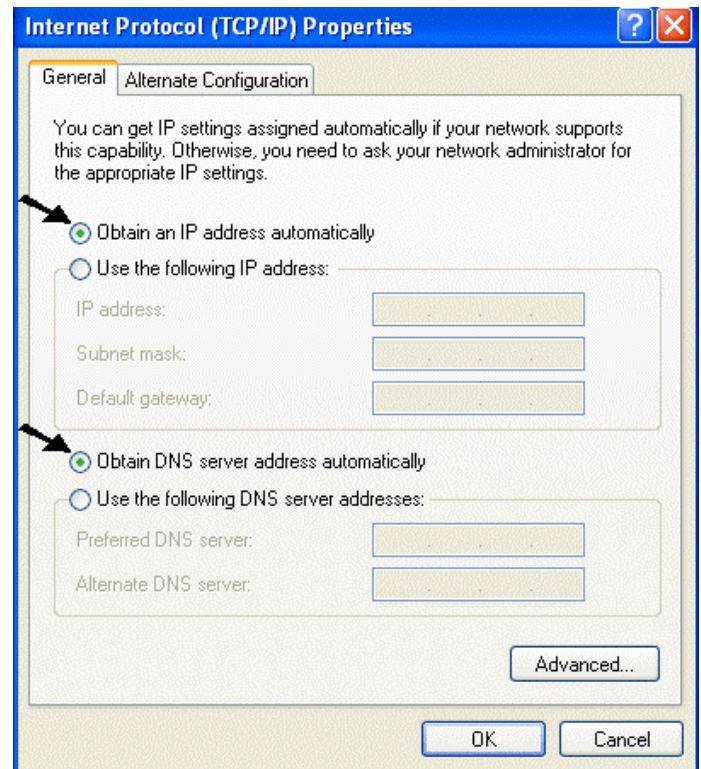
3. In the **Local Area Connection Status** window, click **Properties**.



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.

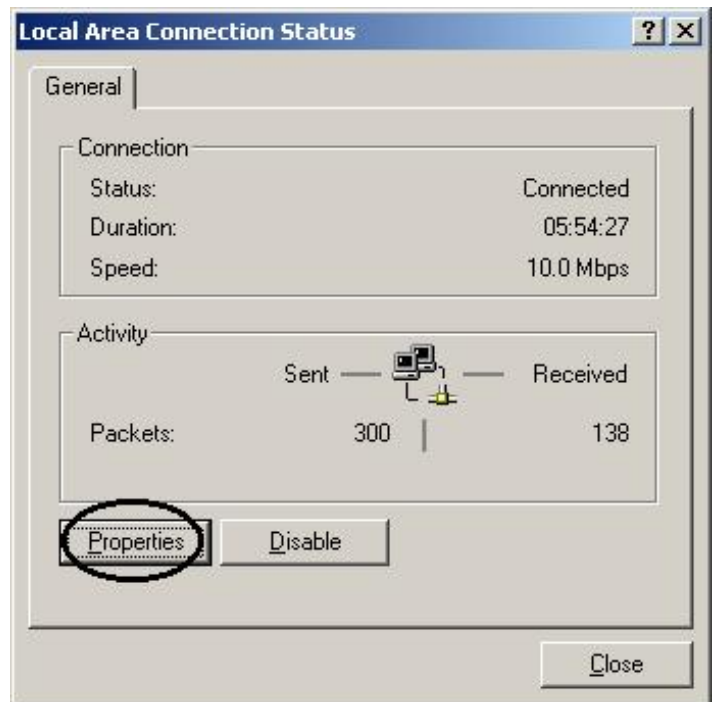


Configuring PC in Windows 2000

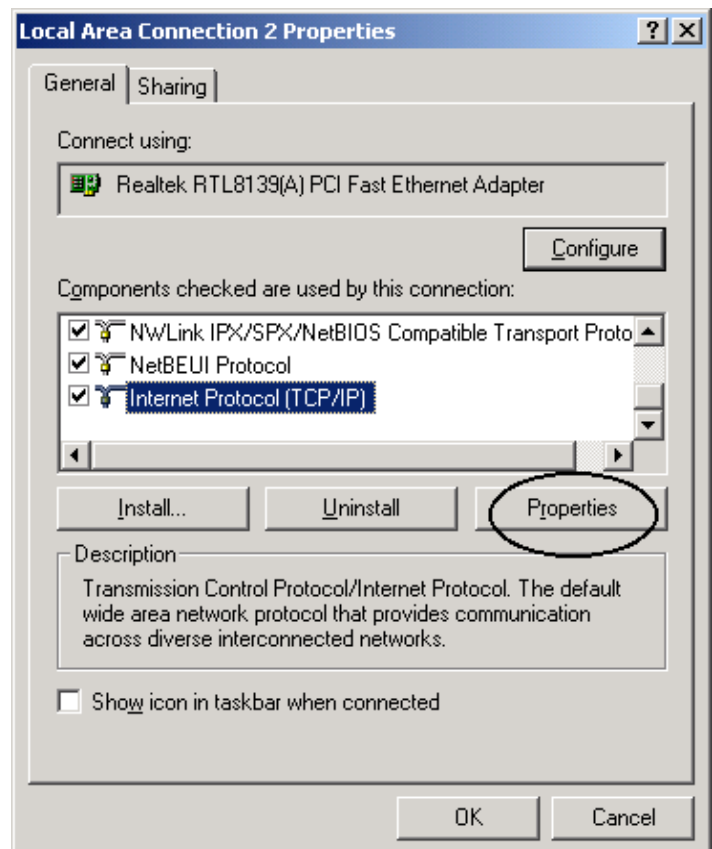
1. Go to **Start / Settings / Control Panel**. In the Control Panel, double-click on **Network and Dial-up Connections**.
2. Double-click **Local Area Connection**.



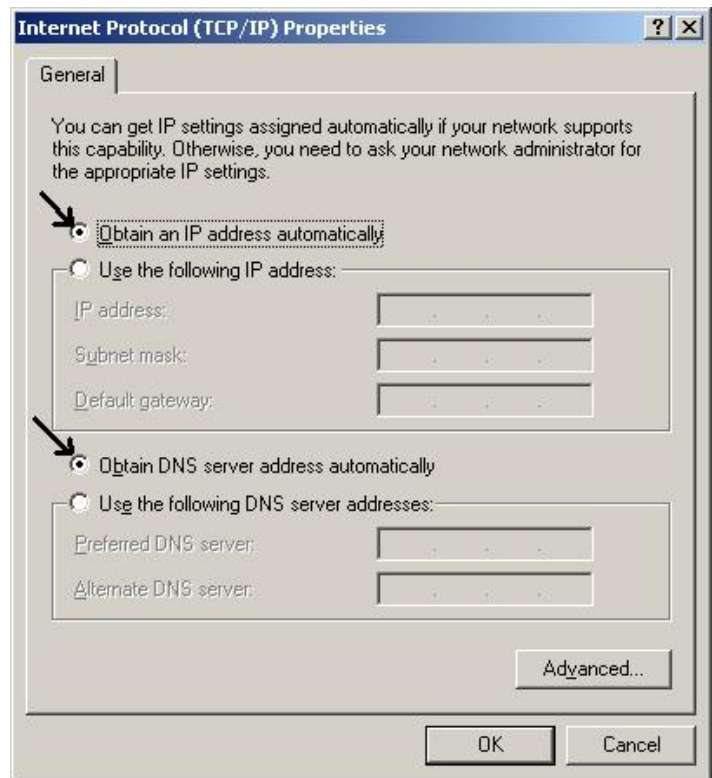
3. In the **Local Area Connection Status** window, click **Properties**.



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

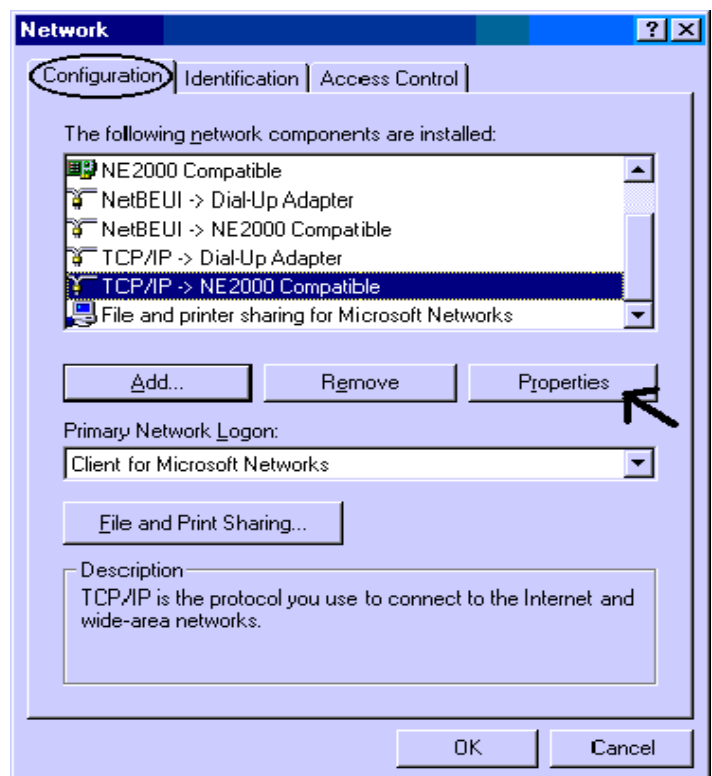


5. Select the **Obtain an IP address automatically** and the **Obtain DNS server address automatically** radio buttons.
6. Click **OK** to finish the configuration.

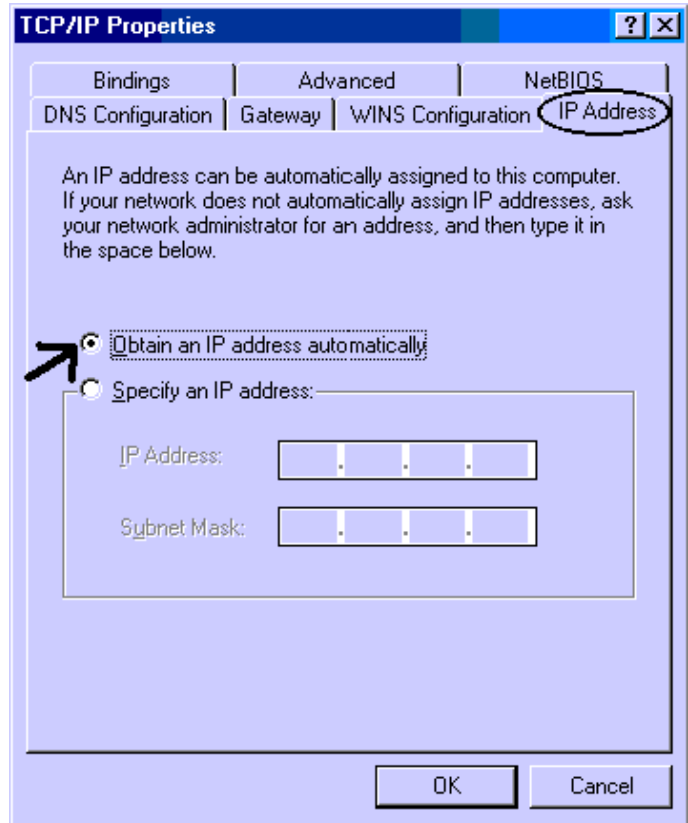


Configuring PC in Windows 95/98/ME

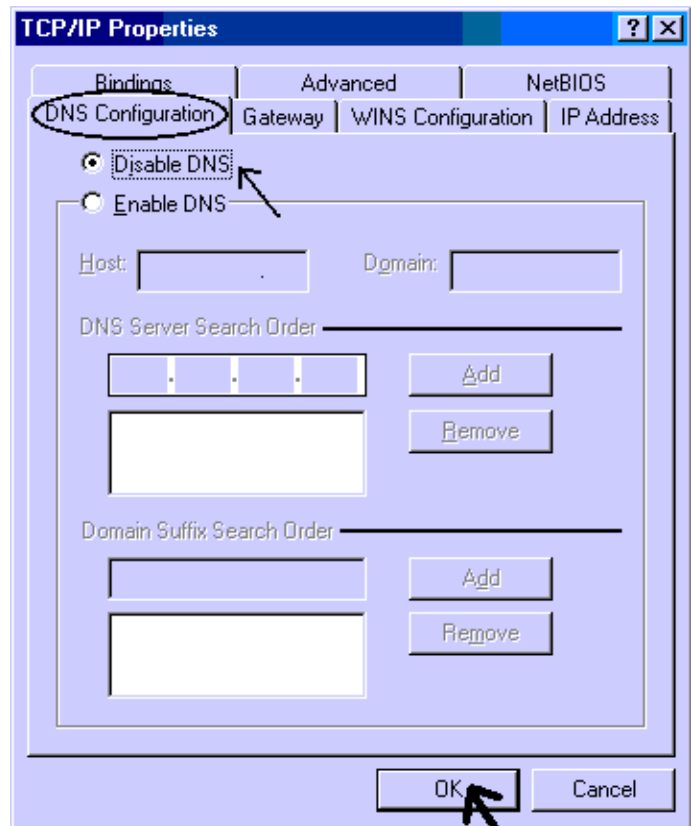
1. Go to **Start / Settings / Control Panel**. In the Control Panel, double-click on **Network** and choose the **Configuration** tab.
2. Select **TCP / IP -> NE2000 Compatible**, or the name of your Network Interface Card (NIC) in your PC.
3. Click **Properties**.



4. Select the **IP Address** tab. In this page, click the **Obtain an IP address automatically** radio button.

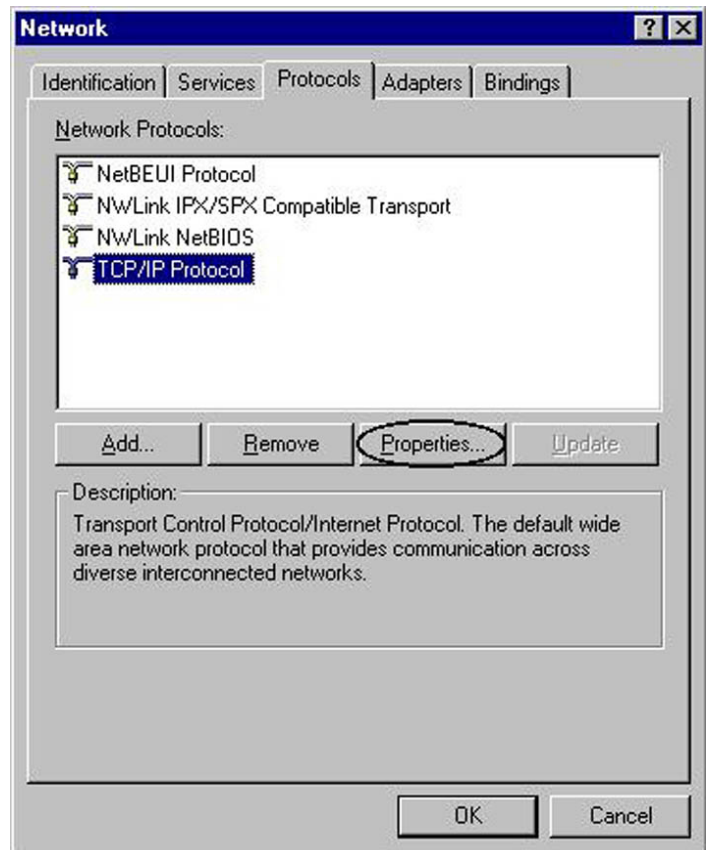


5. Then select the **DNS Configuration** tab.
6. Select the **Disable DNS** radio button and click **OK** to finish the configuration.

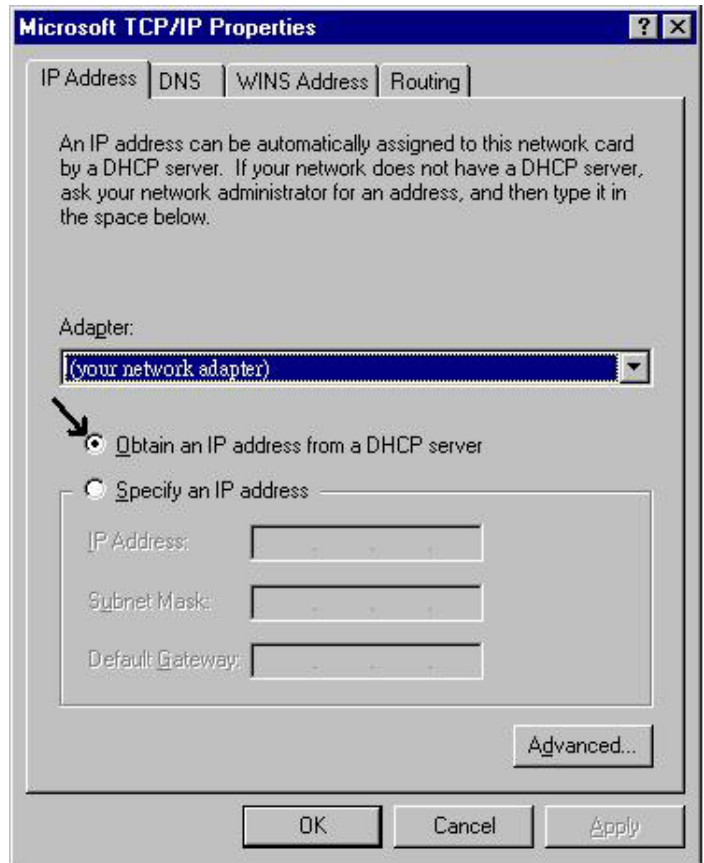


Configuring PC in Windows NT4.0

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 you configure this device, you need to know the following default settings.

1. Web Configuration

Password: There are two levels of password protection, **Administrator Level** and **User Level**.

	User Name	Password
Administrator Level	admin	password
User Level	user	password

2. Device IP Network settings in LAN site

IP Address: 192.168.1.254
Subnet Mask: 255.255.255.0

3. ISP setting in WAN site

Virtual Circuit 0: 1483 Routed IP LLC

4. DHCP server

DHCP server is enabled.
IP address pool from IP Address: 192.168.1.100 to IP Address: 192.168.1.199

3.2.1 Password

The default username and password are admin and password respectively.



If you ever forget the password to log in, you may press the RESET button up to 2 seconds to restore the factory default settings.

3.2.2 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	Obtain an IP address automatically. ISP assigns this IP address.
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 (Actually, it can supports up to 253 users.)	

3.3 Information from 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, IPoA, or PPTP-to-PPPoA Relaying.

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

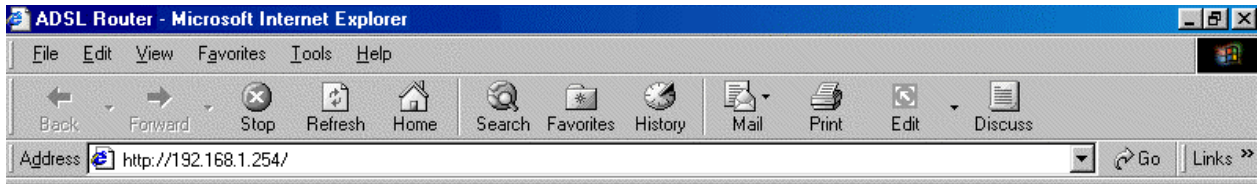
PPPoE	VPI/VCI, VC-based/LLC-based multiplexing, Username, Password, Service Name, and Domain Name System (DNS) IP address (it can be automatically assigned by your ISP when you connect or be set manually).
PPPoA	VPI/VCI, VC-based/LLC-based multiplexing, Username, Password, and Domain Name System (DNS) 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).

IPoA	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).
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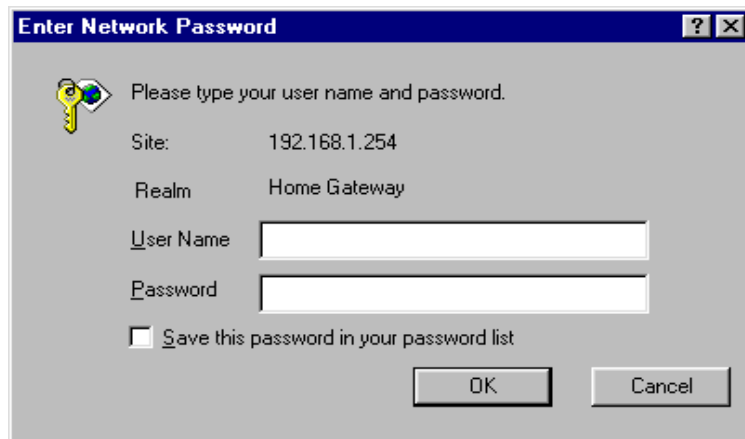
3.4 Configuring with Web Browser

The ADSL Modem/Router can be configured with your Web browser. The web browser is included as a standard application in following operation systems, UNIX, Linux, Mac OS, Windows 95/98/NT/2000/Me/XP, etc. The product provides a very easy and user-friendly interface for configuration.

Open the web browser, enter the local port IP address of the ADSL Router, which default at **192.168.1.254**, and click **“Go”** to get the login page.



There are two levels of password protection. The first level is for administrator and the second one is for user.



If you want to configure the device with administrator level, type **admin** in the username field and **password** in the password field. Then, click **“OK”** to log in. You can modify these passwords for security and management purpose.

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

- **Quick Start**
- **Configuration** (LAN, WAN, Firewall, System, VPN, Virtual Server, Advanced and Help)
- **Status** (System Status, Device Info, System Logs, Security Logs, ARP Cache Table, DHCP Table, Routing Table and VPN Connect Status)

3.4.1 Status

The Status section provides and contains many items including device H/W and S/W information, LAN, WAN, Port status and all defined interfaces. It also provides useful information for users to review the status of device.

System Status		
Device Info		
Firmware Version:	CX82xxx_4.1.0.9_B211	
Customer Software Version:	4.1.0.9_BiB211	
WAN		
IP Address	Subnet Mask	MAC Address
192.168.241.101	255.255.255.0	00:04:ED:00:00:01
LAN		
IP Address	Subnet Mask	MAC Address
192.168.1.254	255.255.255.0	00:04:ED:00:00:00

3.4.1.1 Status – ADSL Status

Displays the status of your ADSL connection. It will refresh every two seconds.

ADSL Status

Information

Showtime Firmware Version:	3.30
Line State:	ACTIVATION
Modulation:	N/A
Annex Mode:	ANNEX_A
Startup Attempts:	0
Max Tx Power:	-38 dBm/Hz
CO Vendor:	UNUSED_VENDOR_0
Elapsed Time:	0 days 14 hours 43 minutes 27 seconds

Information

	Downstream	Upstream	
SNR Margin	NA	NA	dB
Line Attenuation	NA	NA	dB
Errored Seconds	0	0	
Loss of Signal	0	0	
Loss of Frame	0	0	
CRC Errors	0	0	
Data Rate	0	0	kbps

SAVE CONFIG RESTART

3.4.1.1.1 ADSL Status – WAN Status

WAN Status

Select Virtual Circuit

Virtual Circuit: 0
Release

Execute

Information

IP Address	Subnet Mask	MAC Address
192.168.241.101	255.255.255.0	00:04:ED:00:00:01

SAVE CONFIG RESTART

3.4.1.1.2 ADSL Status – ATM Status

ATM Status	
Information	
Tx Bytes	0
Rx Bytes	0
Tx Cells	0
Rx Cells	0
Rx HEC Errors	0
Tx Mgmt Cells	0
Rx Mgmt Cells	0
Tx CLP0 Cells	0 1024x538
Rx CLP0 Cells	0
Tx CLP1 Cells	0
Rx CLP1 Cells	0
Rx Errors	0
Tx Errors	0
Rx Misrouted Cells	0
<input type="button" value="Reset Counters"/>	

3.4.1.2 Status – LAN Status

Displays the status of your Local Area Network (LAN) connection.

LAN Status		
Information		
IP Address	Subnet Mask	MAC Address
192.168.1.254	255.255.255.0	00:04:ED:00:00:00

3.4.1.2.1 LAN Status – TCP Status

The screenshot shows the 'TCP Status' page. On the left is a navigation menu with options: Status, ADSL Status, LAN Status, TCP Status (highlighted), PPP Status, Learned MAC Table, Routing Table, System Log, Security Log, Quick Start, Configuration, and Save Config to Flash. The main content area is titled 'TCP Status' and contains a 'Statistic' table with the following data:

Statistic	
Total Packets Sent	1615
Data Packets Sent	1042
Data Bytes Sent	793971
Total Packets Received	1265
Packets Received in-sequence	182
Bytes Received in-sequence	69085
Out of Order Packets	178
Out of Order Bytes	0 1024x539
Packets discarded for bad checksum	0
Packets discarded for bad header offset	0
Packets discarded because too short	0
Connections Initiated	0
Connections Accepted	182
Connections Established	182
Connections Closed	172

Below the table is a 'Reset Counters' button. At the bottom right of the page are 'SAVE CONFIG' and 'RESTART' buttons.

3.4.1.3 Status- PPP Status

Displays the status of your PPP connection. It will refresh every ten seconds.

The screenshot shows the 'PPP Status' page. The navigation menu on the left is the same as in the previous screenshot, with 'PPP Status' highlighted. The main content area is titled 'PPP Status' and includes a warning: 'If a * appears under Mode column, you need to check the WAN configuration make sure the VC has the correct encapsulation.' Below this is a 'Connection #' field with the value '1' and a 'Connect' dropdown menu. An 'Execute' button is located below the dropdown. Underneath is an 'Information' table with the following columns: #, Connection Name, Interface, Mode, Status, Pkts Sent, Pkts Rcvd, Bytes Sent, and Bytes Rcvd. The table contains one entry with the value '1024x540' in the Mode column. At the bottom right of the page are 'SAVE CONFIG' and 'RESTART' buttons.

3.4.1.4 Status- Learned MAC Table

Aging Timeout: Enter the time period for the router to memorize MAC addresses.

Learned MAC Table

Parameters

Aging Timeout: Seconds

Information

MAC Address	Expiration
00:05:5D:6B:FA:E1	100

3.4.1.5 Routing Table

Display the current routing paths of BIPAC 7100S.

Routing Table

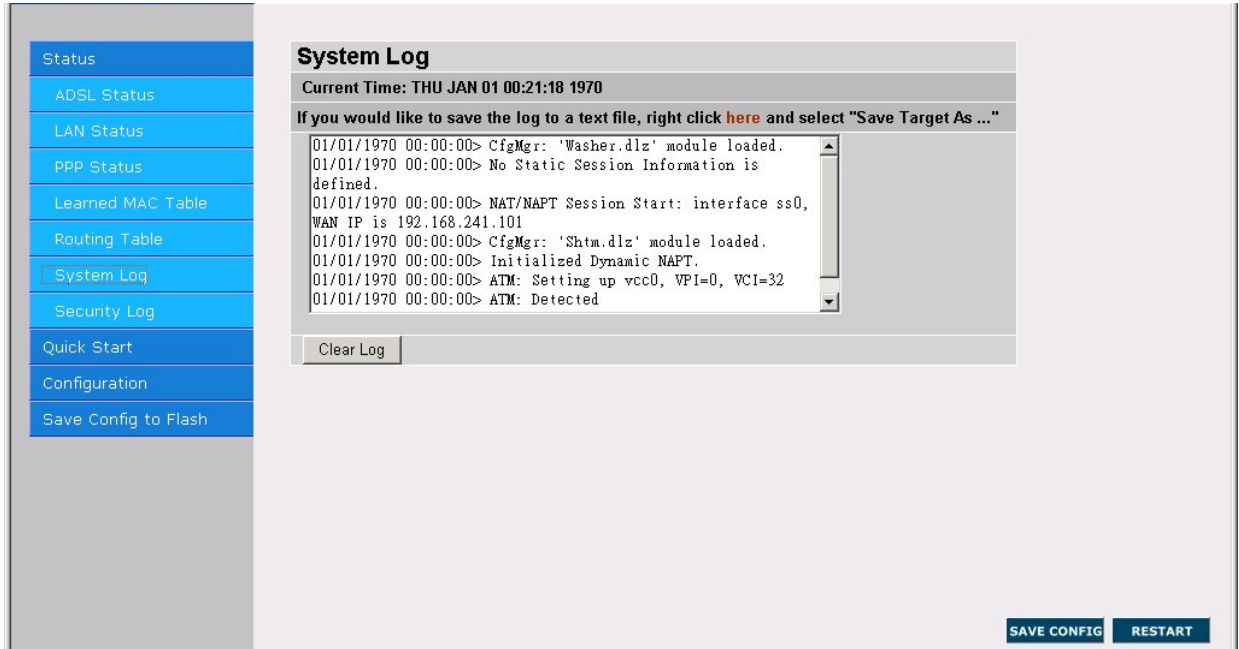
Parameters

Destination	Netmask	Gateway	Interface
192.168.1.0	255.255.255.0	192.168.1.254	br0
192.168.241.0	255.255.255.0	192.168.241.101	ss0
127.0.0.1	255.0.0.0	127.0.0.1	lo0

1024x540

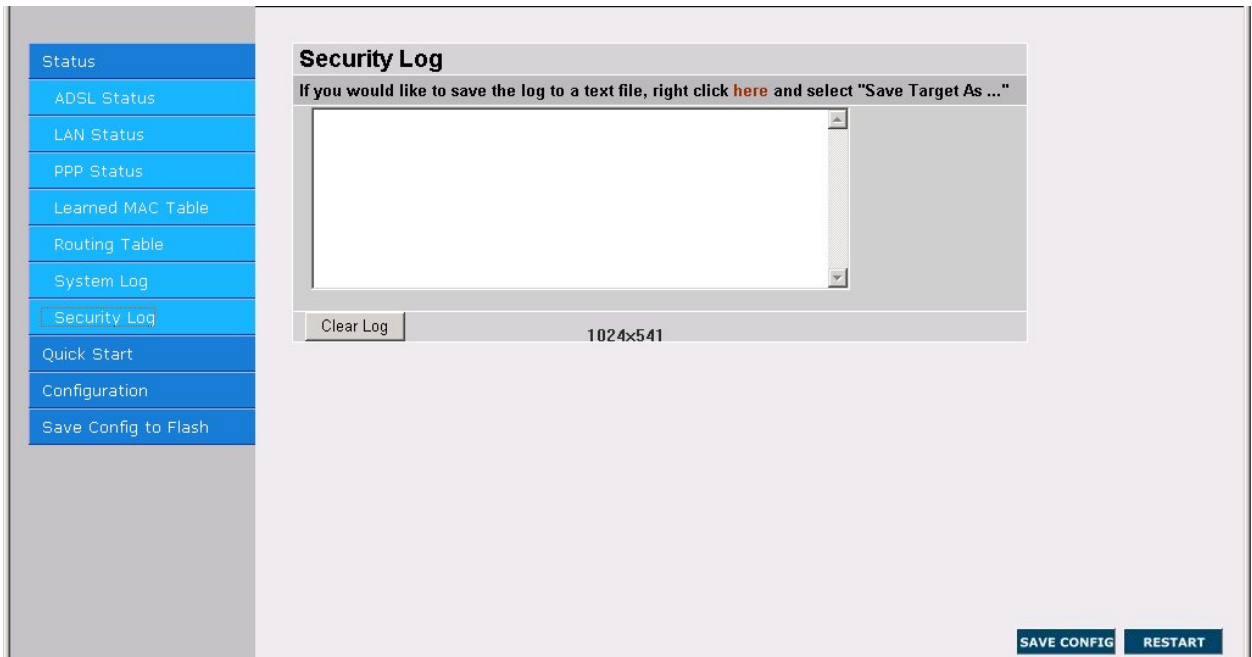
3.4.1.6 System Log

Display the system logs cumulated till the present time. You can trace the historical information through this function.



3.4.1.7 Security Logs

Display the information of security logs. If hacker attacks your sever, he will be isolated by the firewall function and the router will record related information. Hence, you know where the hacker comes from.



3.4.2 Quick Start

If you use this device to access the Internet through the ISP, this web page is enough for you to configure this router and access the Internet without a problem. Please check **Chapter 3.3** (*Information from the ISP*), then enter the proper values into this web page, click the **Apply** button and then click the **Save Config** button to save all of the configuration parameters to FLASH. After the router reboot, you may check the Status web page to check whether the router is connected to the ISP or not. In most cases, you can access the Internet immediately. If not, please refer to the sections below for more information.

Quick Start	
Pvc 0	
Per VC Settings	
Virtual Circuit	Enabled
Connection	
Encapsulation	1483 Bridged IP LLC
Bridge	Enabled
VPI	0
VCI	32
Static IP Settings	
IP Address	192.168.241.101
Subnet Mask	255.255.255.0
Gateway	0.0.0.0
Account Setup	
Username	
Password	
Automatic Reconnect	<input type="checkbox"/>
Submit	Reset
<input type="button" value="SAVE CONFIG"/> <input type="button" value="RESTART"/>	

3.4.3 Configuration

When you click this item, you get following sub-items to configure BIPAC 7100S.

LAN, WAN, Firewall, System, VPN, Virtual Server, Advanced and Help

3.4.3.1 WAN

The screens below contain settings for the WAN interface toward Internet.

Select Adapter

The screenshot shows the configuration interface of a Billion BIPAC 7100S ADSL Modem/Router. On the left is a vertical navigation menu with the following items: Status, Quick Start, Configuration, WAN, LAN, System, Firewall, Virtual Server, Advanced, and Save Config to Flash. The main content area is titled 'Select Adapter' and contains a form with a label 'Adapter' and a dropdown menu currently showing 'Pvc 0'. Below the dropdown is a 'Submit' button. At the bottom right of the main area are two buttons: 'SAVE CONFIG' and 'RESTART'.

Select the item of **PVCs** you want to configure. Then, press the **Submit** button.

<ul style="list-style-type: none"> Status Quick Start Configuration WAN LAN System Firewall Virtual Server Advanced Save Config to Flash 	WAN Configuration	
	Pvc 0 <input type="button" value="Change Adapter"/>	
	Virtual Circuit	
	Virtual Circuit	<input type="text" value="Enabled"/>
	Bridge	<input type="text" value="Enabled"/>
	IGMP	<input type="text" value="Disabled"/>
	Encapsulation	<input type="text" value="1483 Bridged IP LLC"/>
	ATM	
	VPI	<input type="text" value="0"/>
	VCI	<input type="text" value="32"/>
	Service Category	<input type="text" value="UBR"/>
	Peak Cell Rate	<input type="text" value="0"/> kbps
	Sustainable Cell Rate	<input type="text" value="0"/> kbps
	Max Burst Size	<input type="text" value="0"/>
	DHCP Client	
	DHCP Client	<input type="text" value="Disabled"/>
	Host Name	<input type="text"/>
	MAC Spoofing	
	MAC Spoofing	<input type="text" value="Disabled"/>
	Mac Address	<input type="text" value="00:00:00:00:00:00"/>
	Static IP Settings	
	IP Address	<input type="text" value="192.168.241.101"/>
	Subnet Mask	<input type="text" value="255.255.255.0"/>
	Gateway	<input type="text" value="0.0.0.0"/>
	PPP	
PPP	Advanced PPP configuration	
Service Name	<input type="text"/>	
Username	<input type="text"/>	
Password	<input type="text"/>	
Disconnect Timeout	<input type="text" value="0"/> minutes (Max:32767)	
MRU	<input type="text" value="1492"/>	
MTU	<input type="text" value="1492"/>	
MSS	<input type="text" value="1432"/>	
Lcp Echo Interval	<input type="text" value="10"/> seconds	
Lcp Echo Maximum Consecutive Failure	<input type="text" value="6"/>	
Authentication	<input type="text" value="Auto"/>	
Automatic Reconnect	<input type="checkbox"/> PPP Disconnect Timer Config	
<input type="button" value="Submit"/> <input type="button" value="Reset"/>		
<input type="button" value="SAVE CONFIG"/> <input type="button" value="RESTART"/>		

Virtual Circuit

Virtual Circuit: Enable/Disable the settings of this VC.

Bridge: If you set this device to be bridge mode, select Enable; if not, please select Disable.

IGMP: You can Enable or Disable this function.

Encapsulation: There are eleven ways — PPPoE VC-Mux, PPPoE LLC, PPPoE None, PPPoA VC-Mux, PPPoA LLC, 1483 Bridged IP VC-Mux, 1483 Bridged IP LLC, 1483 Routed IP VC-Mux, 1483 Routed IP LLC, Classical IP over ATM, Native ATM — for the device to have a public IP address and then to access Internet. You have to check with your ISP about which way is adopted. VPI: Consult the telephone company to get the Virtual Path Identifier (VPI) number. The default value is 0.

ATM

VPI: Consult the telephone company to get the Virtual Path Identifier (VPI) number. The default value is 0.

VCI: Consult the telephone company to get the Virtual Channel Identifier (VCI) number. The default value is 32.

Service Category: Select **UBR** or **CBR**.

DHCP Client

DHCP Client: Check to enable the DHCP client function if you want the device to get an IP address automatically from your ISP.

Host Name: Enter the name of your work group.

MAC Spoofing

MAC Spoofing: The MAC Spoofing is for solving the scenario when the ISP only recognizing the specified MAC address.

Static IP Settings

IP Address: Enter the information provided by your ISP.

Subnet Mask: Enter the information provided by your ISP.

Default Gateway: Enter the gateway address provided by your ISP.

PPP

If your encapsulation is set to be PPPoE or PPPoA, the following fields must be entered.

Service Name: This item is for identification purpose. If it is required, your ISP will provide you the information. Maximum input is 31 alphanumeric characters.

Username: Enter the username provided by your ISP.

Password: Enter the password provided by your ISP.

Disconnect Timeout **seconds:** Auto-disconnect the ADSL Router when there is no activity on the line for a predetermined period of time. You can input any number from 0 to 32767. The default value is 0 seconds.

MRU: Maximum Receive Unit indicates the peer of PPP connection the maximum size of the PPP information field this device can be received. The default value is 1492 and is used in the beginning of the PPP negotiation. In the normal negotiation, the peer will accept this MRU and will not send packet with information field larger than this value.

MTU: Maximum Transmission Unit indicates the network stack of any packet is larger than this value will be fragmented before the transmission. During the PPP negotiation, the peer of the PPP connection will indicate its MRU and will be accepted. The actual MTU of the PPP connection will be set to the smaller one of MTU and the peer's MRU. The default value is 1492.

MSS: Maximum Segment Size is the largest size of data that TCP will send in a single IP packet. When a connection is established between LAN client and a host in the WAN side, the LAN client and the WAN host will indicate their MSS during the TCP connection handshake. The default value is 1492.

Authentication: Default at "Auto".

Automatic Reconnect: Check to enable this device to automatically re-establish the PPPoE session when disconnected by ISP.

3.4.3.2 LAN

This screen contains settings for LAN interface attached to the LAN port.

Status	<h4 style="margin: 0;">LAN Configuration</h4> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2" style="background-color: #D3D3D3;">Device IP address</td> </tr> <tr> <td style="background-color: #D3D3D3;">IP Address</td> <td><input type="text" value="192.168.1.254"/></td> </tr> <tr> <td style="background-color: #D3D3D3;">Subnet Mask</td> <td><input type="text" value="255.255.255.0"/></td> </tr> <tr> <td colspan="2" style="background-color: #D3D3D3;">DHCP Server</td> </tr> <tr> <td style="background-color: #D3D3D3;">DHCP Server</td> <td><input type="text" value="Enabled"/></td> </tr> <tr> <td style="background-color: #D3D3D3;">DHCP address pool selection</td> <td><input type="text" value="User Defined"/></td> </tr> <tr> <td style="background-color: #D3D3D3;">User Defined Start Address</td> <td><input type="text" value="192.168.1.100"/></td> </tr> <tr> <td style="background-color: #D3D3D3;">User Defined End Address</td> <td><input type="text" value="192.168.1.199"/></td> </tr> <tr> <td style="background-color: #D3D3D3;">DHCP Gateway Selection</td> <td><input type="text" value="Automatic"/></td> </tr> <tr> <td style="background-color: #D3D3D3;">User Defined Gateway Address</td> <td><input type="text"/></td> </tr> <tr> <td style="background-color: #D3D3D3;">Lease Time</td> <td><input type="text" value="1"/> days <input type="text" value="0"/> hours <input type="text" value="0"/> minutes <input type="text" value="0"/> seconds</td> </tr> <tr> <td style="background-color: #D3D3D3;">User Mode</td> <td><input type="text" value="Multi-User"/></td> </tr> </table> <div style="margin-top: 5px;"> <input type="button" value="Submit"/> <input type="button" value="Reset"/> </div> <p style="color: #A52A2A; font-size: small;">Ethernet Mode Setting</p>	Device IP address		IP Address	<input type="text" value="192.168.1.254"/>	Subnet Mask	<input type="text" value="255.255.255.0"/>	DHCP Server		DHCP Server	<input type="text" value="Enabled"/>	DHCP address pool selection	<input type="text" value="User Defined"/>	User Defined Start Address	<input type="text" value="192.168.1.100"/>	User Defined End Address	<input type="text" value="192.168.1.199"/>	DHCP Gateway Selection	<input type="text" value="Automatic"/>	User Defined Gateway Address	<input type="text"/>	Lease Time	<input type="text" value="1"/> days <input type="text" value="0"/> hours <input type="text" value="0"/> minutes <input type="text" value="0"/> seconds	User Mode	<input type="text" value="Multi-User"/>
Device IP address																									
IP Address		<input type="text" value="192.168.1.254"/>																							
Subnet Mask		<input type="text" value="255.255.255.0"/>																							
DHCP Server																									
DHCP Server		<input type="text" value="Enabled"/>																							
DHCP address pool selection		<input type="text" value="User Defined"/>																							
User Defined Start Address		<input type="text" value="192.168.1.100"/>																							
User Defined End Address		<input type="text" value="192.168.1.199"/>																							
DHCP Gateway Selection		<input type="text" value="Automatic"/>																							
User Defined Gateway Address		<input type="text"/>																							
Lease Time		<input type="text" value="1"/> days <input type="text" value="0"/> hours <input type="text" value="0"/> minutes <input type="text" value="0"/> seconds																							
User Mode		<input type="text" value="Multi-User"/>																							
Quick Start																									
Configuration																									
WAN																									
LAN																									
System																									
Firewall																									
Virtual Server																									
Advanced																									
Save Config to Flash																									

Device IP Address

IP Address: Default at 192.168.1.254.

This is the device IP address in LAN site. If you plan to change it to another IP address to a different range of IP subnet. Please make sure your PC is also located at the same IP subnet. Otherwise, you may not be able to access the router.

Subnet Mask: Default at 255.255.255.0.

DHCP Server

DHCP Server: Check DHCP Server to enable the router to distribute IP Addresses, subnet mask and DNS setting to computers. Hence, the following fields will be activated. If you do not check this selection, remember to specify a static IP address, subnet Mask, and DNS setting for each of your local computers. Be careful not to assign the same IP address to different computers.

DHCP address pool selection: Auto or User Defined. If select the AUTO, router will assign an IP address back to PC's IP request. If User Defined, please specify the IP pool range.

User Defined Start Address: Enter the start address of this local IP network address pool. The pool is a piece of continuous IP address segment. The default value is 192.168.1.100.

User Defined End Address: Enter the last address of this local IP network address pool that you want the DHCP server to assign IP addresses to. The default value is 192.168.1.199.

With this case, the DHCP pool is from 192.168.1.100 to 192.168.1.199. Therefore, the local computer will get an IP address located at this range randomly.

Lease Time: Set the lease time you required.

User Mode: There are two selections, Single User and Multi-User, for this setting.

3.4.3.3 System

There are five items under the **System** section: Password, Time Zone, Upgrade, Factory Setting and Restart.

3.4.3.3.1 Password

In factory setting, the default password is **password**, 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.

Please note that the minimum input for password is **8** alphanumeric characters long. Since it is **case sensitive**, be sure that you remember whether a letter is in upper or lower case and make sure that your Caps Lock is off. Moreover, please do not use the sign “&” in the passwords.

The screenshot shows the web interface for configuring the admin password. On the left is a vertical navigation menu with the following items: Status, Quick Start, Configuration, WAN, LAN, System, Password (highlighted), Admin, User, Time Zone, Upgrade, Factory Setting, Restart, Firewall, VPN, and Virtual Server. The main content area is titled "Admin Password Configuration" and contains the following text: "The password for Admin should be at least 8 characters. Do not use '&' in the password." Below this text are two input fields: "Admin Password" and "Retype Password". At the bottom of the form are "Submit" and "Cancel" buttons. In the bottom right corner of the interface, there are two buttons: "SAVE CONFIG" and "RESTART".

The screenshot shows the 'User Password Configuration' page. On the left is a navigation menu with items: Status, Quick Start, Configuration, WAN, LAN, System, Password, Admin, User, Time Zone, Upgrade, Factory Setting, Restart, Firewall, VPN, and Virtual Server. The main content area has a title 'User Password Configuration' and a warning: 'Do not use '&' in the password.' Below this are two input fields: 'User Password' and 'Retype Password'. At the bottom left of the main area are 'Submit' and 'Reset' buttons. At the bottom right are 'SAVE CONFIG' and 'RESTART' buttons.

3.4.3.3.2 Time Zone

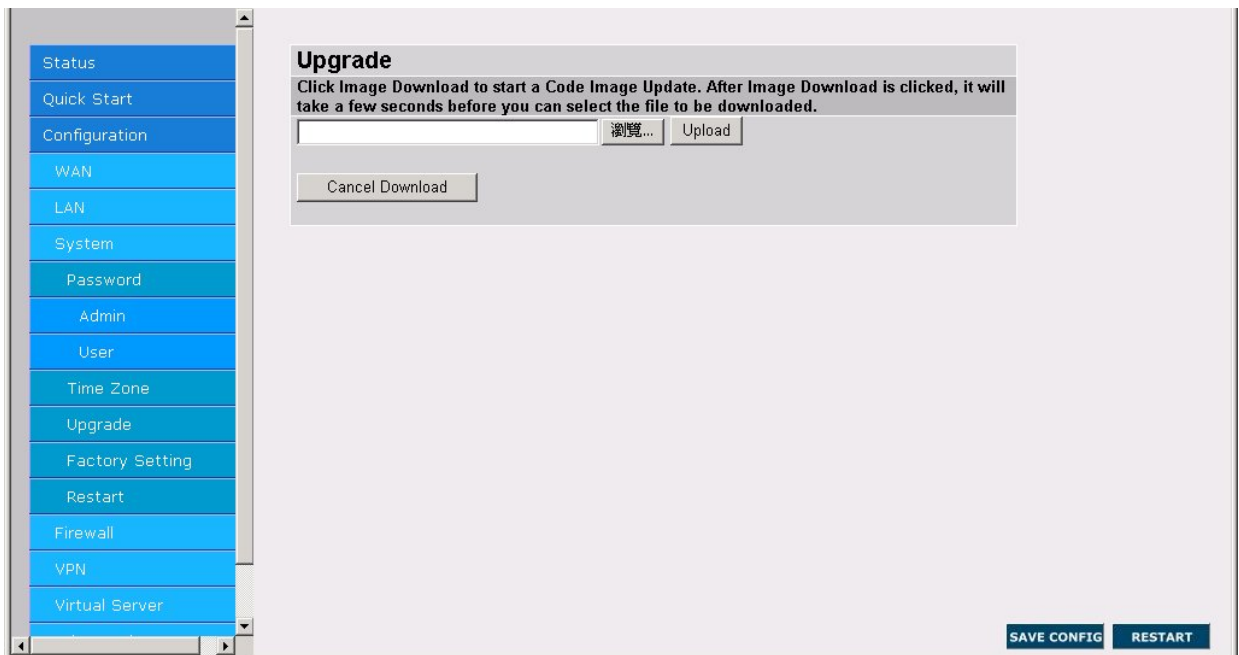
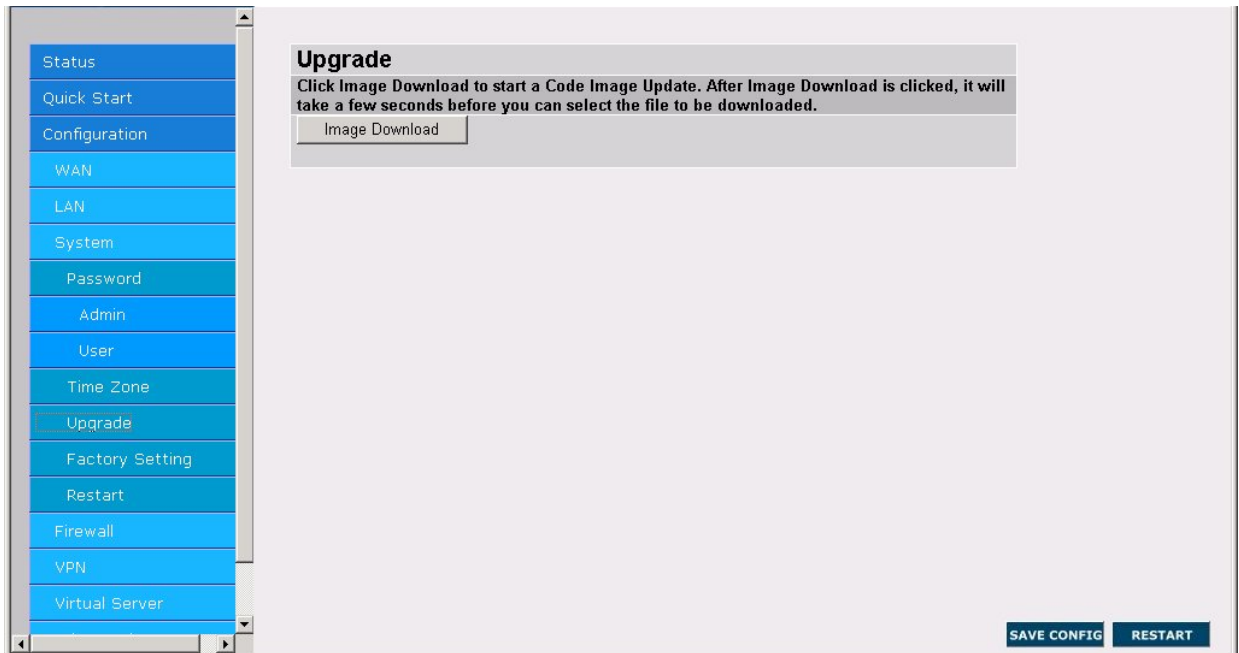
BIPAC 7100S does not have a real time clock on board; instead, it uses the simple network time protocol (SNTP) to get the current time from the SNTP server in outside network. Please choose your local time zone and click Submit. You will get the correct time information after you really establish a connection to Internet. The current time of selected time zone will be shown in the Status – System window.

The screenshot shows the 'Time Zone' configuration page. The left navigation menu is the same as in the previous screenshot, with 'Time Zone' highlighted. The main content area has a title 'Time Zone' and a section 'Choose your local time zone' with a checked checkbox 'Automatically adjust clock for daylight saving changes'. Below this are three input fields: 'Time Zone' (a dropdown menu showing '(GMT+01:00) Brussels, Copenhagen, Madrid, Paris, Vilnius'), 'SNTP Server IP Address' (a text box), and 'Resync Poll Interval' (a text box with '30' and 'minutes' next to it, and a 'Sync Now !' button). At the bottom left are 'Submit' and 'Cancel' buttons. At the bottom right are 'SAVE CONFIG' and 'RESTART' buttons.

Automatically adjust clock for daylight saving changes: It is optional for different time zone area.

SNTP Server IP Address: Specify the IP address if you want to use your familiar SNTP server.

3.4.3.3.3 Upgrade



To upgrade the firmware of BIPAC 7100S, 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 7100S will reset automatically to make the new firmware work.

3.4.3.3.4 Factory Setting

If for any reason, you have to reset this router back to factory default settings, be careful that the current settings will be lost and the settings are reset back to its default value. The factory default values is detailed in the **section 3.2 “Factory Default Settings”**.



3.4.3.3.5 Restart

In case the router stops responding correctly or in some other way stops functioning, you can perform the restart. Your setting won't be changed. Performing the restart, click on the **Submit** button.



3.4.3.4 Firewall

User can decide to enable this firewall function including Packet Filter, Block Hacker Attack, and Block WAN request features for better security control or not. But be noted, it wastes network processor computation power. The performance will be lower about 10% to 15%. More firewall features will be added continually, please visit our web site to download latest firmware.

3.4.3.4.1 Packet Filter

Packet filtering function enables you to configure your router to check specified internal/external user (**IP address**) from Internet access, or you can disable specific service request (**Port number**) to /from Internet. This configuration program allows you to set up different filter rules up to 6 for different users based on their IP addresses or their network Port number. The relationship among all filters is “**or**” operation, which means the device checks these different filter rules one by one, starting from the first rule. As long as one of the rules is satisfied, the specified action will be taken.



Add: Click this button to add a new packet filter rule. After click, next figure will appear.

Edit: Check the Rule No. you want to edit. Then, click the “Edit” button.

Delete: Check the Rule No. you want to delete. Then, click the “Delete” button.

Status	Packet Filter			
Quick Start	Parameters			
Configuration	Rule1	<input checked="" type="radio"/> Outgoing <input type="radio"/> Incoming		
WAN	Active	Yes	Packet Type	Any
LAN	Log	Yes	Action When Matched	Drop
System	Source IP Address		Destination IP Address	
Firewall	From		From	
Packet Filtering	To		To	
Bridge Filtering	Source Port		Destination Port	
Intrusion Detection	From		From	
Block WAN Request	To		To	
URL Blocking	Submit		Cancel	
Virtual Server				
Advanced				
Save Config to Flash				
	SAVE CONFIG RESTART			

Outgoing **Incoming** : Determine whether the rule is for outgoing packets or for incoming packets.

Active: Choose "Yes" to enable the rule, or choose "No" to disable the rule.

Packet Type: Specify the packet type (TCP, UDP, ICMP or any) that the rule will be applied to.

Select **TCP** if you want to scope for the connection-based application service on the remote server using the port number. Or select **UDP** if you want to scope for the connectionless application service on the remote server using the port number.

Log: Choose "Yes" if you want to generate logs when the filter rule is applied to a packet.

Action When Matched: If any packet matches this filter rule, **Forward** or **Drop** this packet.

Source IP Address: Enter the incoming or outgoing packet's source IP address(es).

Source Port: Check the TCP or UDP packet's source port number(s).

Destination IP Address: Enter the incoming or outgoing packet's destination IP address(es).

Destination Port: Check the TCP or UDP packet's destination port number(s).



If the DHCP server option is enabled, you have to be very careful in assigning the IP addresses of filtered private IP range in order to avoid conflicts because you do not know which PC in LAN is assigned to which IP address. The easiest and safest way is that the filtered IP address is assigned to specific PC that is not allowed to access outside resource such as Internet. You configure the filtered IP address manually to this PC, but it is still in the same subnet with the router.

3.4.3.4.2 Bridge Filtering

The screenshot shows the 'Bridge Filtering' configuration page. On the left is a navigation menu with options: Status, Quick Start, Configuration, WAN, LAN, System, Firewall, Packet Filtering, Bridge Filtering (selected), Intrusion Detection, Block WAN Request, URL Blocking, Virtual Server, Advanced, and Save Config to Flash. The main content area is titled 'Bridge Filtering' and contains the following sections:

- Parameters:** 'Enable Bridge Filtering' with radio buttons for 'Yes' and 'No' (currently 'No' is selected).
- Table:** A table with columns: ID, Src MAC*, Dest MAC*, Type**, and an empty cell. The first row has ID '1' and three empty input fields.
- Information:** Radio buttons for 'Block' (selected) and 'Forward', and an 'Add' button.
- Footnote:** '* MAC address. Should look like 000002fa6fab.' and '** Ethernet type. Should look like a5ff.'

At the bottom right of the page are two buttons: 'SAVE CONFIG' and 'RESTART'.

Enable Bridge Filtering: Check **Yes** to enable this function or check **No** to disable.

Src MAC: Enter the source MAC address.

Dest MAC: Enter the destination MAC address.

Type: Enter the Ethernet type.

Block Forward: Check **Block** if you want to block requests from the source MAC address sending to the destination MAC address. Check **Forward** if you want to forward requests from the source MAC address sending to the destination MAC address.

3.4.3.4.3 Intrusion Detection

Check "Enable" if you want to detect invader sneak in your computer without permitted. The ADSL Router can automatically detect and block the DoS (Denial of Service) attack if user enables this function. This kind of attack is not to achieve the confidential data of this network; instead, it aims to crush specific equipment or the entire network. If this happens, the users will not be able to access the network resources. There are few samples of hacker patterns implemented as below.

- **IP Spoofing**
- **Ping of Death (Length > 65535)**
- **Land Attack (Same source / destination IP address)**
- **IP with zero length**
- **Sync flooding**
- **Smurf Attack (ICMP Echo with x.x.x.0 or x.x.x.255)**

- Snork Attack
- UDP port loop-back
- TCP NULL scan

The screenshot shows a web interface for configuring Intrusion Detection. On the left is a vertical menu with options: Status, Quick Start, Configuration, WAN, LAN, System, Firewall, Packet Filtering, Bridge Filtering, Intrusion Detection (highlighted), Block WAN Request, URL Blocking, Virtual Server, Advanced, and Save Config to Flash. The main content area is titled "Intrusion Detection" and contains a "Parameters" section with the following fields:

Parameters	
Intrusion Detection	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Alert Mail	<input type="checkbox"/> Enable
Your E-mail	<input type="text"/>
Recipient's E-mail	<input type="text"/>
SMTP Server	<input type="text"/>
Submit Cancel	

At the bottom right of the main content area, there are two buttons: "SAVE CONFIG" and "RESTART".

3.4.3.4 Block WAN Request

Check "Enable" if you want to exclude outside PING request from reaching on this router.

The screenshot shows a web interface for configuring Block WAN Request. On the left is a vertical menu with options: Status, Quick Start, Configuration, WAN, LAN, System, Firewall, Packet Filtering, Bridge Filtering, Intrusion Detection, Block WAN Request (highlighted), URL Blocking, Virtual Server, Advanced, and Save Config to Flash. The main content area is titled "Block WAN Request" and contains a "Parameters" section with the following fields:

Parameters	
Block WAN Request	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Submit Cancel	

At the bottom right of the main content area, there are two buttons: "SAVE CONFIG" and "RESTART".

3.4.3.4.5 URL Blocking

The screenshot displays the 'URL Blocking' configuration page. On the left is a sidebar with menu items: Status, Quick Start, Configuration, WAN, LAN, System, Firewall, Packet Filtering, Bridge Filtering, Intrusion Detection, Block WAN Request, URL Blocking (highlighted), Virtual Server, Advanced, and Save Config to Flash. The main area is titled 'URL Blocking' and contains the following parameters:

- Parameters**
- Selection:** Disable Enable
- Always Block
- Block: From [00] : [00] to [00] : [00] [Sunday] to [Sunday]
- Use Domains Filtering
- Use Keyword Filtering
- Disable all web traffic except for Trusted Domains
- Buttons: Submit, Cancel
- Bottom right buttons: SAVE CONFIG, RESTART

URL blocking function enables you to avoid your LAN PCs from accessing some URLs. You must check the “**Enable**” radio button to make the following figure appear for further configuration.

Always Block: Check this will block all browsing requests from PCs

Block: to specify the time period when you want this function activated. But be noted that SNTP (Time Zone) function must WORK.

Keyword Filtering: Check if you want to enable the Keyword Filtering function and click the hyper link to enter further configuration.

Use Domain Filtering: Check if you want to enable the Domain Filtering function and click the hyper link to enter further information.

3.4.3.5 VPN (Virtual Private Networks)

we will introduce the VPN settings to establish a secure communication path with remote site based on IPsec. Please check “Enable” and click “Add” button. Then you will see IKE Setup page as below figure. Then, you can configure the rule as your security plan.

Active: To enable this VPN tunnel setting or not.

Remote Gateway IP or Host Name: the public IP address or host name of remote VPN device. For example, it may be jet.dyndns.org (If remote IP is not fixed.) or 210.243.142.29.

Remote Subnet: The IP subnet of remote LAN environment, network ID. For example, it is 192.168.4.0

Remote Subnet Mask: The range of remote IPs can be communicated. For example, it is 255.255.255.0.

Proposal: There are two methods to check the authentication information, AH (authentication header) and ESP (Encapsulating Security Payload).

ESP: Data will be encrypted and/or authentic. DES and 3DES encryption methods are supported. The DES uses 56 bits as an encryption method. The 3DES uses 128 bits as an encryption method. MD5 and SHA1 authentication protocols are supported. The authentication keys are a string and must be exactly 16 characters long for MD5 and 20 characters long for SHA1. The ESP can be one of following proposals:

.ESP: DES without Authentication

.ESP: 3DES without Authentication

.ESP: DES with MD5

.ESP: DES with SHA-1

.ESP: 3DES with MD5

ESP: 3DES with SHA-1

.ESP: MD5 without Encryption

.ESP: SHA-1 without Encryption

AH: Data will be authentic only. MD5 and SHA1 authentication protocols are supported. The authentication keys are a string and must be exactly 16 characters long for MD5 and 20 characters long for SHA1.

PreShared Key: IKE authentication method. This is a string from 8 characters to 128 characters. Both sides should use the same key.

Advanced IKE Setup: Press "Advanced IKE Setup" button, you will see Advanced IKE Setup page as below figure. Then, you can configure the parameters of IKE.

3.4.3.6 Virtual Server

- Status
- Quick Start
- Configuration
- WAN
- LAN
- System
- Firewall
- Virtual Server
- Advanced
- Save Config to Flash

Virtual Server Configuration

Use the following form to add special port that you want to be opened for your special application

ID	Public Port (From)	Public Port (To)	Port Type	Map To	Host IP Address	Private Port	
1			<input checked="" type="radio"/> TCP <input type="radio"/> UDP	--->			Add This Setting

Information

ID	Public Port (From)	Public Port (To)	Port Type	Map To	Host IP Address	Private Port	

SAVE CONFIG
RESTART

Being a natural Internet firewall, the ADSL Router protects your network from being accessed by outside users. When it needs to allow outside users to access internal servers, e.g. Web server, FTP server, E-mail server or News server, this product can act as a virtual server. You can set up a local server with specific port number that stands for the service, e.g. Web (80), FTP (21), Telnet (23), SMTP (25), POP3 (110), DNS (53), ECHO (7), NNTP (119). When an incoming access request to the router for specified port is received, it will be forwarded to the corresponding internal server.

For example, if you set the Public Port number 21 (FTP) to be mapped to the IP Address 192.168.1.100, then all the ftp requests from outside users will be forwarded to the local server with IP address of 192.168.1.100.

- Status
- Quick Start
- Configuration
- WAN
- LAN
- System
- Firewall
- Virtual Server
- Advanced
- Save Config to Flash

Virtual Server Configuration

Use the following form to add special port that you want to be opened for your special application

ID	Public Port (From)	Public Port (To)	Port Type	Map To	Host IP Address	Private Port	
4			<input checked="" type="radio"/> TCP <input type="radio"/> UDP	--->			Add This Setting

Information

ID	Public Port (From)	Public Port (To)	Port Type	Map To	Host IP Address	Private Port	
1	21	21	TCP	--->	192.168.1.50	*	Delete This Setting
2	80	80	TCP	--->	192.168.1.100	*	Delete This Setting
3	23	23	UDP	--->	192.168.1.150	*	Delete This Setting

SAVE CONFIG
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Public Port (from) & Port (To): Enter the public port number & range you want to configure.

Port Type: Select **TCP** if you want to scope for the connection-based application service on the remote server using the port number. Or select **UDP** if you want to scope for the connectionless application service on the remote server using the port number.

Host IP Address: Enter the IP address of certain internal server to which requests from the specified port is forwarded.

3.4.3.7 Advanced

There are eight items under the **Advanced** section: ADSL, DNS, Dynamic DNS, NAT, RIP, Static Routing, MISC Configuration and Diagnostic Test.

3.4.3.7.1 ADSL

Trellis: Default at Enabled.

Handshake Protocol: Default at Autosense – G.dmt first. You can also choose other protocols, such as Autosense – T1.413 first, G.dmt/G.lite, T1.413, G.dmt, G.lite.

Wiring Selection: Default at Tip/Ring. Select Auto or A/A1 if necessary.

ADSL Configuration	
Parameters	
Annex Mode Config	User Selected
User Selected Annex Mode	Annex A
Trellis	Enabled
Handshake Protocol	Autosense - G.dmt first
Wiring Selection	Tip/Ring
Bit Swapping (No system reboot needed)	Disabled

3.4.3.7.2 DNS

A Domain Name System (DNS) contains a mapping table for domain name and IP address. In the Internet, every host has a unique and friendly name such as www.yahoo.com and IP address. The IP address is so hard to remember that you may just enter the friendly name www.yahoo.com and then the DNS will convert it to its equivalent IP address.

You can obtain Domain Name System (DNS) IP address automatically if ISP provides it when you logon. Or your ISP may provide you with an IP address of DNS. If this is the case, you must enter the DNS IP address.

DNS Configuration

DNS Proxy Selection

DNS Proxy: Enabled

Auto Discovery:

User Configuration:

DNS Server: Add

DNS Server Selection

DNS Server: Disabled

Url Name:

Host Ip: Add

Apply Reset

DNS Proxy Settings

#	DNS Server IP

DNS Server Setting

#	Url Name (Host.Domain)	Host IP

SAVE CONFIG RESTART

3.4.3.7.3 Dynamic DNS

With Dynamic DNS service, a domain name can be translated into a dynamic IP address, which is often issued by ISP for dial-up service. A local server, such as Web server, Email server or FTP server, can then be easily accessed without knowing the changing IP address.

Dynamic DNS

Parameters

Dynamic DNS: Enable Disable

Host: www.dyndns.org (dynamic)

User Name:

Password:

Period: 28 Day(s)

Submit Cancel

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Billion BIPAC 7100S ADSL Modem/Router

Check the "Enable" button to access the Dynamic DNS service. You may sign up Dynamic DNS service at <http://www.dyndns.org> and there you can also register domain names.

Host: Enter one domain name you have registered.

User Name: Enter the username used for sign-up.

Password: Enter the password used for sign-up.

Period: Set the time period for the Router to exchange information with the DDNS server. In addition to update periodically according to this period setting, BIPAC 7100S will take the same action automatically whenever the assigned IP changes

3.4.3.7.4 NAT

The **NAT Configuration** page allows the user to set the configuration for the Network Address Translation.

Session Name	User's IP	Action
<input type="text"/>	<input type="text"/>	<input type="button" value="Add"/>

#	Session Name	User's IP
Available Sessions		
#	Session Name	Interface

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 Rout Table. This eliminates the need for the static NAT session configuration between multiple LAN clients and multiple WAN connections.

NAT (Static): This option maps single WAN IP address to the local PC IP address. It is peer-to-peer mapping, one-to-one. For each WAN interface, only one local PC IP address can be associated with each WAN interface. Click the link **Session Name Configuration** to add the session name for WAN interface.

NAPT (Static): This option maps the single WAN IP address to many local PCs IP addresses, one-to-many. It is the multiple-mapping mechanism. For each WAN interface, more than one local PC can be associated with one WAN interface. Click the **Session Name Configuration** to add the session name for WAN interface.

Session Name: Enter the desired session name.

User's IP: Allows the user to assign the IP address to map the corresponding NAT/NAPT sessions.

Session Name status will be displayed at the middle of this page to show the corresponding Session Name with its IP address.

Click **Session Name Configuration**, the following screen displays.

NAT Session Name Configuration		
Parameters		
Session Name	Interface	Action
<input type="text"/>	Ip Pvc 0	Add
<input type="button" value="Submit"/> <input type="button" value="Reset"/>		
Go back to NAT Configuration		
Information		
#	Session Name	Interface

Session Name: Enter the desired session name.

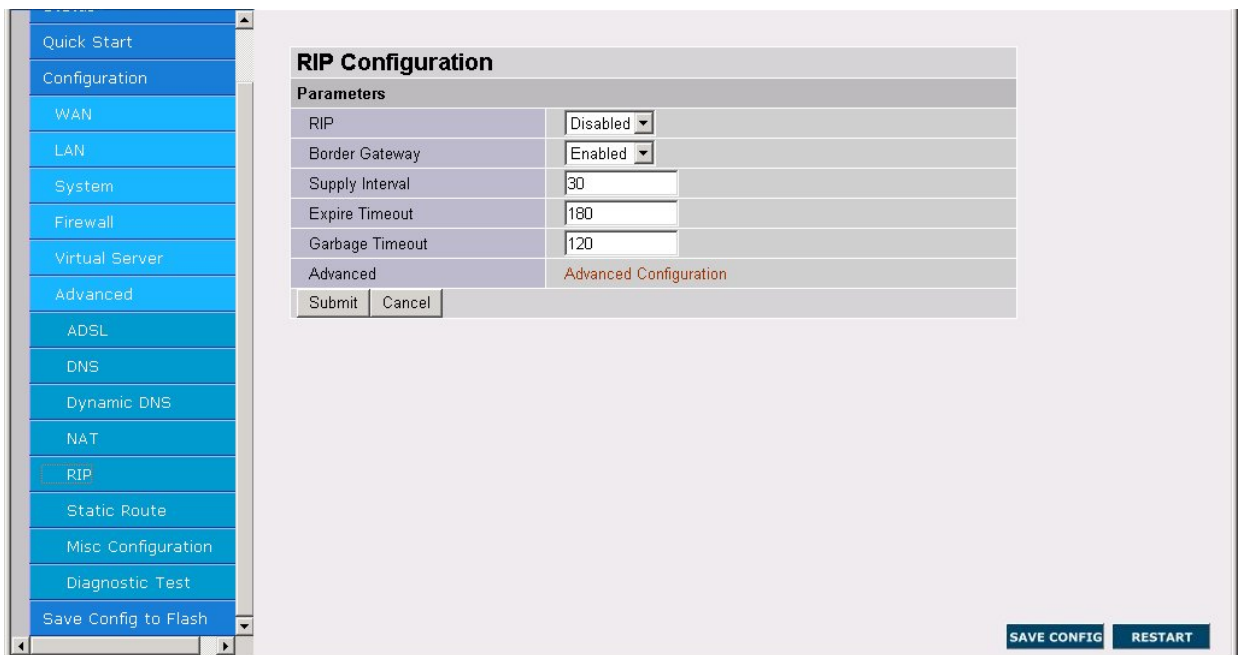
Interface: This field allows the user to choose specific WAN interface (PVC or PPP Session) for NAT session.

NAT allows only one entry (User IP) per session, NAPT allows many entries (User IPs) per session.

Select **Add** or **Delete** and then press the **Submit** button to add or delete any NAT session name setting to/from the following table.

Go back to the previous page, NAT Configuration, to continue further settings.

3.4.3.7.5 RIP



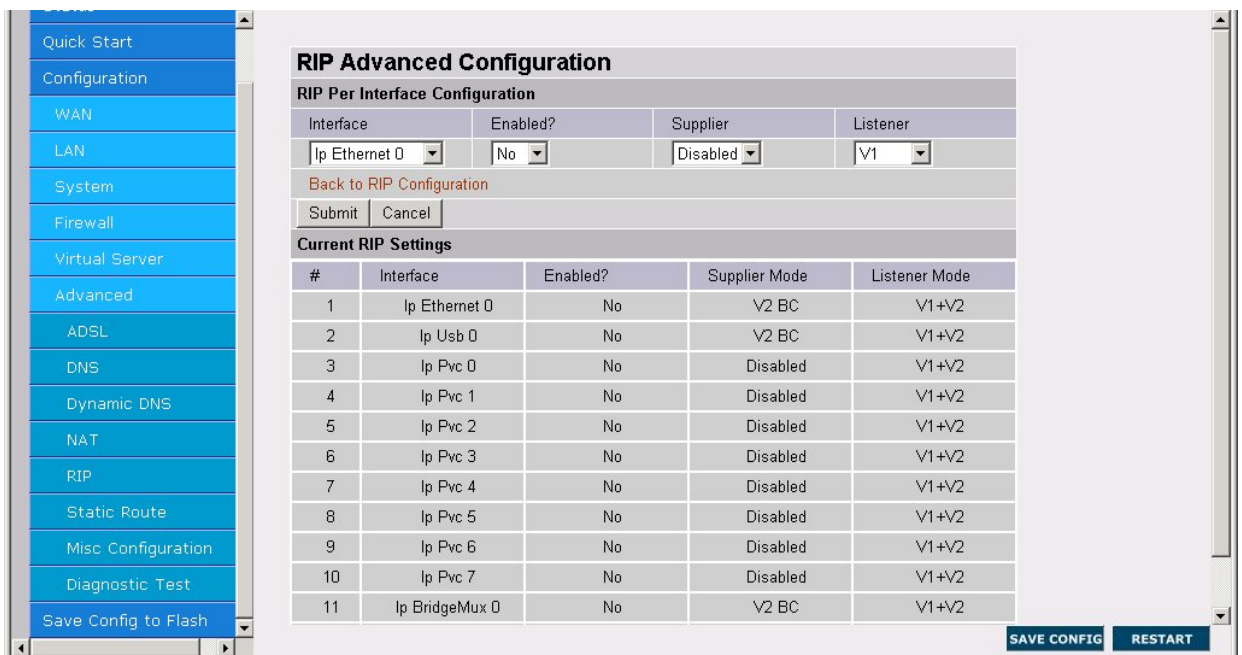
RIP: Default is **Disabled**.

Border Gateway: Default is **Enabled**.

Supply Interval **seconds:** The default value is 30 seconds.

Expire Timeout **seconds:** The default value is 180 seconds.

Garbage Timeout **seconds:** The default value is 120 seconds.



3.4.3.7.6 SNMP

SNMP Configuration			
System Name	<input type="text"/>		
System Contact	<input type="text"/>		
System Location	<input type="text"/>		
System OID	1.3.6.1.4.1.4900		
Read Community	public		
Write Community	private		
Trap Community	trap community		
Trap SNMP Version	Version 1		
Trap IP #1	<input type="text"/> 0.0.0.0	Trap Port #1	<input type="text"/> 0
Trap IP #2	<input type="text"/> 0.0.0.0	Trap Port #2	<input type="text"/> 0
Trap IP #3	<input type="text"/> 0.0.0.0	Trap Port #3	<input type="text"/> 0
Trap IP #4	<input type="text"/> 0.0.0.0	Trap Port #4	<input type="text"/> 0
Trap IP #5	<input type="text"/> 0.0.0.0	Trap Port #5	<input type="text"/> 0
<input type="button" value="Submit"/> <input type="button" value="Reset"/>			

Simple Network Management Protocol (SNMP) is an optional feature that may or may not be supported by your ADSL Bridge/Router.

SNMP is an application layer protocol that is used for managing networks. SNMP is an optional feature that may or may not be in the specific firmware that you are working with. There are several components that make up the SNMP structure, including agents, network management stations (NMS), network management protocols, and a management information base (MIB). An SNMP agent is a node that resides on the network, typically a computer or a router. The SNMP agent is controlled and configured by the NMS by sending SNMP messages between one another. SNMP agents are logged and identified in a Management Information Base (MIB), in which they are identified by an object identifiers (OID).

One feature of SNMP is SNMP traps. SNMP traps are used to notify network managers of significant events that have taken place in the network. These traps are sent to the SNMP NMS (NMS Server located at Trap IP) through the specified ports.

SNMP System Identification: The System Name, System Contact, System Location, and System OID are provided to identify the SNMP NMS. The System OID is the ID number placed in all Trap reports.

The System Name, System Contact, and System Location can be up to 127 characters. Default value for System OID is 1.3.6.1.4.1.4900. **Read Community:** This is the password to access public information. The Read Community can be up to 127 characters. Default is "public." **Write Community:** This is the password to access private information.

The Write Community can be up to 127 characters. Default is "private." **Trap Community:** This is the password to access and view SNMP traps.

The Trap Community can be up to 127 characters. Default is "trap community." **Trap SNMP Version:** Select from Version 1 or Version 2. Default is Version 1. **Trap IP:** This is the IP address to which SNMP traps are sent. There can be up to 5 different SNMP trap destination IP addresses. **Trap Port:** This is the corresponding port for the SNMP trap (see **Trap IP** above)

3.4.3.7.7 Static Routing

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.

The screenshot shows the configuration interface for the Billion BIPAC 7100S ADSL Modem/Router. On the left is a navigation menu with items: Status, Quick Start, Configuration, WAN, LAN, System, Firewall, Virtual Server, Advanced, ADSL, DNS, Dynamic DNS, NAT, RIP, Static Route (highlighted), and Misc Configuration. The main content area is divided into two sections:

- System Default Gateway Configuration**
Parameters:
Address Pool Selection: None, Auto, Select Interface | Ip Ethernet 0
Submit
- Static Route Configuration**
Parameters:
Destination: [input field] Netmask: [input field] Gateway: Specify IP [input field], Select Interface | Ip Ethernet 0
Submit Cancel Add [dropdown]
Manually Configured Routes:
Table with columns: #, Destination, Netmask, Gateway

At the bottom right of the configuration area are buttons for **SAVE CONFIG** and **RESTART**.

Add: Click this button to add a new static routing. When you click this button, the next figure appears.

Delete: Check the item you want to delete. Then, click the “Delete” button.

Destination / Subnet Mask / Gateway Address: Fill in these fields required by this Static Routing function.

3.4.3.7.8 MISC Configuration

Miscellaneous Configuration	
Parameters	
HTTP Server Access	<input type="radio"/> All <input checked="" type="radio"/> Restricted
<input checked="" type="checkbox"/> LAN	
<input checked="" type="checkbox"/> WAN Specify IP	<input type="text" value="10.0.0.3"/>
Subnet Mask	<input type="text" value="255.0.0.0"/>
HTTP Server Port	<input type="text" value="80"/>
HTTP Password Protection	<input type="text" value="Enabled"/>
FTP Server	<input type="text" value="Enabled"/>
	<input checked="" type="checkbox"/> Disable WAN side FTP access
TFTP Server	<input type="text" value="Disabled"/>
DMZ	<input type="text" value="Disabled"/>
DMZ Host IP	<input type="text" value="0.0.0.0"/>
DHCP Relay	<input type="radio"/> NONE <input checked="" type="radio"/> DHCP Server <input type="radio"/> DHCP Relay
DHCP Relay Target IP	<input type="text" value="0.0.0.0"/>
IGMP Proxy	<input type="text" value="Disabled"/>
PPP Half Bridge	<input type="text" value="Disabled"/>
PPP Reconnect on WAN Access	<input type="text" value="Disabled"/>
Connect PPP when ADSL link is up	<input type="text" value="Enabled"/>
IPnP	<input type="text" value="Disabled"/>

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HTTP server access: Default at **Restricted**.

HTTP server port: Default at **80**.

FTP server: Default at **Enabled**.

TFTP server: Default at **Disabled**.

DMZ: Regarding the DMZ Host, it is a local computer exposed to the Internet. Therefore, an incoming packet will be checked by NAT algorithms in the ADSL Router, then passed to the DMZ host when the packet is not sent by hacker or not limited by the virtual server list.

DMZ HOST IP: Enter the IP address of the DMZ host.

DHCP Relay: Default at **DHCP Server**.

DHCP Target IP: Default is **0.0.0.0**

IGMP Proxy: Default at **Disabled**.

PPP Half Bridge: Default at **Disabled**.

PPP reconnect on WAN access: Default at **Disabled**. Select **Enabled** if you want to automatically re-establish the PPPoE/PPPoA session when disconnected by ISP.

3.4.3.7.9 Diagnostic Test

As soon as you enter the test program, all tests will run automatically to diagnose the connection status of the device.

The screenshot shows the web interface of the Billion BIPAC 7100S ADSL Modem/Router. On the left is a navigation menu with options: Quick Start, Configuration, WAN, LAN, System, Firewall, Virtual Server, Advanced, ADSL, DNS, Dynamic DNS, NAT, RIP, Static Route, Misc Configuration, Diagnostic Test (highlighted), and Save Config to Flash. The main content area displays the 'Results' of a 'Diagnostic Test'.

Results		
Diagnostic Test		
Checking LAN Connection		
Testing Ethernet LAN connection	PASS	HELP
Checking ADSL Connection		
Testing ADSL Synchronization	FAIL	HELP
Checking Circuit 0 for Network Connection		
Test ATM OAM Segment Loop Back	SKIPPED	HELP
Test ATM OAM End-to-End Loop Back	SKIPPED	HELP
Test Ethernet connect to ATM	SKIPPED	HELP
Test IP connect to Ethernet	SKIPPED	HELP
Testing Internet Connection		
Ping primary DNS	SKIPPED	HELP
Query DNS for www.google.com	SKIPPED	HELP
Ping www.google.com	SKIPPED	HELP

At the bottom right of the interface are two buttons: 'SAVE CONFIG' and 'RESTART'.

Checking LAN Connection

Testing Ethernet LAN connection

This test passes if the Ethernet LAN interface is working properly.

Checking ADSL Connection

Testing ADSL Synchronization

This test checks your DSL modem to see if it can successfully negotiate and establish a DSL connection with your service provider's central office equipments. The test returns PASS if a DSL connection is established.

If this test returns FAIL, please try the test again a few minutes after this test is completed. Since your DSL modem need a couple of seconds to a few minutes to establish the DSL connection depending on your phone line quality. If this test returns FAIL, make sure your phone line is connected to your DSL modem securely, and also check with your service provider to see if your service is activated.

If this test returns FAIL, all other tests will be skipped.

Checking Circuit 0 for Network Connection

Test ATM OAM Segment Loop Back

This test sends ATM OAM F5 Segment loop back request cells to the central office equipments through your DSL connection. This test will pass if response cell is received. Since your service provider might not support this test, your DSL modem could still work even if this test fails.

If this test fails consistently and your DSL modem seems not working, check to make sure the VPI and VCI are configured correctly.

This test returns FAIL if the DSL synchronization test failed.

Test ATM OAM End-to-End Loop Back

This test sends ATM OAM F5 End-to-End loop back request cells to the central office equipments through your DSL connection. This test returns PASS if response cell is received. Since your service provider might not support this test, your DSL modem could still work even if this test fails.

If this test return FAIL consistently and your DSL modem seems not working, check to make sure the VPI and VCI are configured correctly.

This test returns SKIPPED if the DSL synchronization test failed.

Test Ethernet connect to ATM

This test returns PASS if the ATM AAL5 module is loaded correctly in your DSL modem. If this test returns FAIL, an internal error has occurred.

This test returns SKIPPED if the DSL synchronization does not return PASS.

Test IP connect to PPP

This test returns PASS if your DSL modem has been assigned a valid IP address by your service provider through DHCP or your DSL modem is assigned a valid IP address statically.

If this test returns FAIL, run this test again a few minutes after this test is completed. If this test returns FAIL consistently and DHCP client is turned on in your DSL modem, check with your service provider. If this test returns FAIL consistently and your DSL modem is statically assigned an IP address, make sure the IP address is the correct one assigned by your service provider.

This test returns SKIPPED if "Ethernet connect to AAL5" test does not return PASS.

Test Internet connection

This test returns PASS if the gateway can be reached through ping request. The gateway is assigned by your service provider, or obtained from your service provider by PPP negotiation or DHCP negotiation.

If this test returns FAIL, run this test again a few minutes after this test is completed. If this test returns FAIL consistently and your DSL modem seems not working, check to make sure your statically assigned IP address is configured correctly or DHCP client is turned on with the current VC.

This test returns SKIPPED if "IP connect to PPP" or "IP connect to Ethernet" test does not return PASS.

3.4.4 Save Config

Click the **Submit** button to write settings to flash. Then, the system will reboot for changes to take effect.



Chapter 4

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 ADSL Router

Problem	Corrective Action
None of the LEDs are on when you turn on the ADSL Router.	Check the connection between the adapter and the ADSL Router. If the error persists, you may have a hardware problem. In this case, you should contact technical support.

Problems with the WAN Interface

Problem	Corrective Action
Initialization of the PVC connection failed.	<p>Ensure that the cable is connected properly from the ADSL port to the wall jack. The ADSL SYN LED on the front panel of the ADSL Router should be on. Check that your VPI, VCI, type of encapsulation and type of multiplexing settings are the same as what you collected from your telephone company and ISP.</p> <p>Reboot the ADSL Router. If you still have problems, you may need to verify these variables with the telephone company and/or ISP.</p>

Problems with the LAN Interface

Problem	Corrective Action
Can't ping any station on the LAN.	Check the LAN LNK LED on the front panel. The LED should be on for a port that has a station connected. If it is off, check the cables between your ADSL Router and the station.
	Verify that the IP address and the subnet mask are consistent between the ADSL Router and the workstations.

Problems Connecting to a Remote Node or ISP

Problem	Corrective Action
Can't connect to ISP.	Check section 3.4.1.3 "Status – PPP status" to verify the line status.

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.

Contact Billion**AUSTRALIA**

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