# **Internet BroadBand Router**

[4 Port / 7 Port / 8 Port]

**User Guide** 

Doc. No.: 032102-01

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# INTRODUCTION

With the explosive growth of the Internet, accessing information and services at any time, day or night has become a standard requirement for most people. The era of the standalone PC is waning. Networking technology is moving out of the exclusive domain of corporations and into homes with at least two computers. Broadband network access is also gaining ground. However, allowing more than two computers to access the Internet at the same time means less affordable, higher costs. Thus, there is a need to share one legal IP address over a single Internet connection to link the home with the Internet. The scarcity of IP addresses and high network access costs can be solved by using a shared Internet connection through an Internet sharing device. All linked computers can make full use of broadband capabilities over such a device. This device not only comes equipped with a wide range of features, but also can be installed and configured right out of the box. This device supports a simple local area network and Internet access share, offering great cost savings. The local area network connects up home computers while also allowing any of the computers to access the Internet, share resources, or play online games—the basis of the family computing lifestyle.

# Applications:

#### **Broadband Internet access:**

Several computers can share one high-speed broadband connection (LAN and WAN-Internet).

#### **Resource sharing:**

Share resources such as printers, scanners and other peripherals.

#### File sharing:

Exchange data, messages, and distribute files thus making good use of hard disk space.

#### **Online gaming:**

Through the local area network, online gaming and e-commerce services can be easily setup.

With a broadband connection of 512K/64K through a NAT broadband sharing device, up to five (or eight) computers can get on the Internet without any appreciable loss of speed. Both download and upload speeds work just fine. In addition, a built-in firewall function—a security and anti-hacker system--can be activated. Such a low-cost but effective solution is scalable—adding more computers are as simple as buying a hub or a switch and linking them through the uplink port.



# HARDWARE INSTALLATION

# Hardware Requirements:

Broadband Sharing Device: Internet BroadBand Router.

Hub: Hub or switch depending on the number of computers.

Network adapter: Any standard Ethernet card (Ethernet NIC)

Network Cable: Ethernet UTP Cat. 5 (Type 5) cable; cable length depends on actual distances.

Broadband modem: ADSL Modem or Cable Modem provided by the ISP.

# Parts Names and Functions

LED	Status			
Indicator	Solid	Flashing		
Power	Turns solid green when power is applied to this device.	N/A.		
Status	Lights up after system has booted successfully.	Receiving/		
		Sending data		
Mail	N/A	Incoming mail		
Wah	Data transmitted or received at the rate of 100 Mbps	Receiving/		
web		Sending data through the WAN port.		
	Glows to indicate the Ethernet port is connected to a	Receiving/		
<b>LINK/AC1</b> <sup>#</sup> computer, Hub or Switch.		Sending data through the Ethernet port.		
10/100         Data transmitted or received at the rate of 100 Mbps         Rd           Set         Set		Receiving/		
		Sending data		

## **Table 1: LED Indicators**

Port	Functions
Uplink	Uplink to an Ethernet Switch/Hub.
Local #	RJ-45 dual-speed (10/100Mbps) auto-sensing ports for connecting to either 10Mbps or 100Mbps Ethernet connections.
WAN	For connecting to an ADSL/Cable Modem device.
MDIX	Press to uplink to an Ethernet Switch/Hub.
Reset	Use a pin-shape item to push to reset this device to factory default settings.
DC 5V	For connecting to the power adapter plug.

# **Table 2: Connections Ports**

# Hardware connections

- 1. Install the network card.
- 2. Connect the broadband modem (ADSL or Cable modem)
- 3. Connect the Internet Broadband Router (Internet BroadBand Router)
- 4. Check the installation.

# Install the network card

Each computer connected to the local area network has to have one Ethernet card.



- 1. Switch off the computer. Open the computer case. Plug in the network card into the PCI or ISA slot.
- 2. Switch on the computer and install the drivers for the network card.

# **Connect the Internet BroadBand Router**

Connect the Internet BroadBand Router with broadband modem (ADSL Modem or Cable Modem)

1. Plug in one end of the network cable to the WAN (Internet) port of the Internet BroadBand Router.



2. Plug in the other end of the network cable to the Ethernet port of the ADSL or Cable modem.



The control LEDs of the Internet Broadband Router are clearly visible and the status of the network link can be seen instantly:

- 1. With the power source on, once the device is connected to the broadband modem, the Power, Status, and WAN port link LEDs of the Internet BroadBand Router will light up indicating a normal status.
- 2. If the WAN Port Link does not light up then press the MDIX button located on the underside of the unit.

# **Connect the Internet BroadBand Router**

Connect one end of the network cable to the Ethernet port on the computer; the other end of the cable connects to the LAN port of the Internet BroadBand Router. Since the Internet BroadBand Router has five (or eight) ports, you can connect up to five (or eight) computers directly to the unit. There you do not have to buy a hub to connect these computers since one Internet BroadBand Router functions both as a connection-sharing unit and as a hub.

# [7 Port / 8 Port]







Connect to the Broadband's LAN Port with the network cable. One device can connect with 5 to 8  $\rm PCs$ 



## [4 Port]



Connect to the Broadband's LAN Port with the network cable. One device can connect with 1 to 4 PCs  $\,$ 

When the network connection is complete, you can check the connection status and speed by looking at the LAN port and Link LED status. When both LEDs of a port are on, the connection is 100 Mbps (depending on your network card or cable). If only the top LED is lighted, your network connection is only 10 Mbps. As long as the Link LED is on, then the connection is normal.

# CONFIGURATION

# Network TCP/IP Settings:

The network TCP/IP settings differ based on the computer's operating system (Win95/98/ME/NT/2000) and are as follows:

# Windows 95/98/ME

1. Click on the "Network neighborhood" icon found on the desktop. Right click the button then select "Properties".



2. In the Configuration window, select TCP/IP protocol then click Properties button to enter the TCP/IP setting screen

letwork	? ×
Configuration   Access Control	1
The following network components are installed:	
Client for Microsoft Networks NetBEUI CLIENT	
Add Remove Properties	
Primary Network Logon:	
Client for Microsoft Networks	-
Eile and Print Sharing	
Description TCP/IP is the protocol you use to connect to the Internet and wide-area networks.	
OK Ca	ancel

3. Choose the IP address tab, and then select Obtain an IP address automatically.

TCP/IP Properties ? 🔀
Bindings Advanced NetBIOS DNS Configuration Gateway WINS Configuration IP Address
An IP address can be automatically assigned to this computer. If your network does not automatically assign IP addresses, ask your network administrator for an address, and then type it in the space below.
Dbtain an IP address automatically
O Specity an IP address:
JP Address: 10 . 1 . 1 . 11
Subnet Mask: 255,255,255,0
OK Cancel

4. Choose the DNS Configuration tab, and then select Disable DNS.

CP/IP Properties	? >
Bindings Adv. DNS Configuration Gateway	anced NetBIOS WINS Configuration   IP Address
© Disable DNS	
C Enable DNS	
Host: xx	D <u>o</u> main:
DNS Server Search Order -	<u> </u>
	Add
168.95.192.1 203.66.99.251	<u>H</u> emove
Domain Suffix Search Order	
	Add
	Remove
	UK Cancel

# Windows 2000

Double click on the "**My computer**" icon on the desktop. When "**My computer**" window opens, open the "**Control panel**" and then open the "**Network and Dialup Connections**" applet. Double click on the "Local area network connection" icon. Select "Properties" to enter the TCP/IP setting window.

1. In the "Local area network status" window, click on "Properties." In the "Local area network connection" window, first select TCP/IP setting and then select "Properties."



2. Set both "IP address" and "DNS" to Automatic configuration.

HECWORK and	char up conne	actions -					فلك
File Edit Vi	ew Favorites	Tools Advance	d Help				
⇔Back → ⇒	- 🖻 🔍 S	earch 🔁 Folders	()History	h R X ≤			
ddress 🙆 Net	work and Dial-up	o Connections				1	- 6
Sec. 1	-	(income)	-0				
-B			ե <u>տ</u> ե				
		Make New	Local Area				
Network	and Dial-	Connection	Connection				
up conne	ctions	4	21 11				
ical Area Con	nection Status	2-			21		
General Loc	al Area Conne	ction Properties		? ×			
Conne G	eneral I	nternet Protocol (	TCP/IP) Prope	rties		? ×	
Statu	Connect usinc	General ]					
Dural	III Dulink I	1				1	
Spee		You can get IP se this capability 0th	ttings assigned a erwise, vou need	utomatically if you to ask your net-	ur network supp work administrato	orts or for	
- Activit		the appropriate IP	settings.				
	Components c	C 000000000		5. THE			
D. I	🗹 🔜 Client	Uptain an IP	audress automa	ically			
Pack	M 🛃 File ar		wing in address:				
-	✓ Ø NetBE	In address:		-	1.1.1.1		
Prope		Subnet mask:					
	Install	Default gatewa		+	11.11		
	- Description -			42.18			
	Transmissic	• U <u>b</u> tain DNS	server address a	utomatically			
	wide area r across dive	C Use the follo	wing DNS server	addresses:	-		
		Ereferred DNS	server:	-			
	Show icor	Alternate DNS	server:		10 - 14 - E		
					Adyanc	ed	
_					-		
					OK	Cancel	
niect(s)							

# Windows NT4.0

Click on the "Start" button located on the lower left corner of the menu bar.

Select "Settings" and then "Control panel."

In the "Control panel" window, select "Network" to enter the TCP/IP setting window.

- 1. Set "IP address" to "Obtain an IP address automatically."
- 2. Set "DNS" to "Disable DNS."

# Internet Broadband Router Configuration

Please first make sure that the network connections are functioning normally.

The Cable modem LAN port is connected to the broadband sharing device's WAN port with an RJ45 straight-through cable.

The LAN port of the Internet Broadband Router is also connected to the computer with an RJ 45 straight-through cable.

When the Internet Broadband Router is plugged in to a power source, the Link LED should light up. If the WAN Port Link LED does not light up, please press the MDIX button on the underside of the unit.



This Internet Broadband Router can be configured using Internet Explorer 4.0 or newer web browser versions.

- 1. Open Internet Explorer 4.0 or above Internet browser. In the network address source field, enter: <u>http://192.168.1.1</u> (the factory-default IP address setting).
- 2. When the username and password dialog prompts, enter "**admin**" in both the username and password blanks to enter the main configuration window.
- 3. For detailed and advanced setup, refer to the later chapter titled "Setting Up (Web Configuration)".

# ADSL Dialup Configuration (ADSL PPPoE)

- 1. In the main web page, select "Quick Setup" and select "ADSL Dial-up User (PPPoE Enable)."
- 2. Enter your dialup account and password and then click the "**OK**" button.

Note that you should not run any PPPoE client software on the local workstations.



# Cable Modem Configuration

- 1. You do not have to setup the broadband sharing device. If you had changed the settings of the unit, select "Advanced Setup" and then on the "Administration" click on "Reset Factory Settings" to restore factory defaults.
- 2. Some two-way broadband vendors have permanently set the Ethernet card address (MAC address). In that case, enter the MAC address of the Ethernet card provided by your ISP vendor.

BroadBand Router	Quick Setup		
Quick Setup • Advanced Setup • Monitor	Step 1: WAN Interface C ADSL Dial-up User (PPPoE Enable) User Name : Password : C Cable Modem User (Get WAN IP Address autoriation IP Address : MAC Address : (Required by some ISPs) Host Name : (Required by some ISPs) C Leased Line User (Specify an IP Address ) IP Address : Netmask : Default Gateway : Domain Name Server 1 : Domain Name Server 2 : Step 2: LAN Interface IP Address : Netmask :	omatically) 0.0.0.0 0050BFI6EACE	
		Ok/Renew Cancel	

# ADSL Leased Line Configuration

- 1. In the main web page, select "Quick Setup" and then click on the "Leased Line User (Specify an IP Address)".
- 2. Enter the IP address, Netmask, Default Gateway, and DNS settings.
- 3. Click on "OK" when done.

BroadBand Router	Quick Setup			
Quick Setup Advanced Setup Monitor	Password : C Cable Modem User (Get WAN IP Address autor IP Address : MAC Address : (Required by some ISPs) Host Name : (Required by some ISPs) Domain Name (Required by some ISPs)	natically) 192.168.1.30 0050BP16EACE		
	<ul> <li>C Leased Line User (Specify an IP Address )</li> <li>IP Address :</li> <li>Netmask :</li> <li>Default Gateway :</li> <li>Domain Name Server 1 :</li> <li>Domain Name Server 2 :</li> </ul>	0.0.0.0 0.0.0.0 192.168.1.254 168.95.1.1		
	Step 2: LAN Interface IP Address : Netmask :	192.168.200.1 255.255.255.0		

The installation of your broadband sharing is now complete. You can now enjoy a broadband Internet connection shared with other people.

# Setting Up (Web Configuration)

Before you configure this device, note that when the BroadBand Router is configured through an Ethernet connection, make sure the host PC must be set on the **IP subnetwork** that can be accessed by the ADSL/Cable modem. For example, when the default network address of the ADSL/Cable modem Ethernet interface is 192.168.1.x, then the host PC should be set at 192.168.1.xxx (where xxx is a number between 2 and 254), and the default subnet mask is 255.255.255.0.

1. Enter IP address 192.168.1.1 to the URL web address location.

🚰 Cannot find server - Microsoft Internet Explorer	
Eile Edit View Favorites Iools Help	
🖕 Back 🔹 🔿 🖌 🙆 🚰 🥘 Search 🝙 Favorites 🔇 History 🛛 🛃 🖉 🖉 🖉 🚽	
Address Addres	▼ 🖓 Go 🛛 Links ≫

2. When the following dialog box appears,

Enter admin for User Name.

Enter admin for password.

Click OK.

Enter Netw	vork Password		?×
<b>?</b>	Please type y	our user name and password.	
<b>`</b>	Site:	192.168.1.1	
	Realm	configuration	
	<u>U</u> ser Name	admin	
	Password	skiklok	
	$\Box$ Save this p	assword in your password list	
		OK Cano	cel

- 3. In its home page, the left navigation pane where bookmarks are provided links you to the representative items to set up appropriate parameters. You can select Quick Setup, PPPoE Setup, Administration, DHCP Server, Static Route, Outgoing Policy, Incoming Policy, Virtual Server, Mapped IP, Special Application, DNS Proxy, Hacker Alert, Traffic Log, Statistics or Software Update to setup.
- 4. Click each field to expand in the navigation pane. The fields covered in this utility are described as follows.

# **Quick Setup**

# **WAN Interface**

Select one of the following conditions that fit your case.

# **OADSL Dial-up User (PPPoE Enable)**

Some DSL-based ISPs use PPPoE to establish communications with an end-user. If you are connected to the Internet through a DSL line, check with your ISP to see if they use PPPoE. If they do, you will have to select to enable it.

User Name: Enter User Name provided by your ISP.

Password: Enter Password provided by your ISP.

BroadBand	Quick Setup	
Quick Setup • Advanced Setup • Monitor	Step 1: WAN Interface © ADSL Dial-up User (PPPoE Enable) User Name : Person of the	84072371@hinet.net
	C Cable Modem User (Get WAN IP Address auto	matically)
	IP Address :	0.0.0.0
	MAC Address: (Required by some ISPS) Host Name:(Required by some ISPs)	UUSUBFIEBACE
	○ Leased Line User (Specify an IP Address )	
	IP Address :	
	Netmask : Default Gatewa∨ :	
	Domain Name Server 1 :	
	Domain Name Server 2 :	
	Step 2: LAN Interface	192.168.200.1
	Netmask :	255.255.255.0
		Ok/Renew Cancel

## OCable Modem User (Get WAN IP Address)

**IP** Address: If you are connected to the Internet through a Cable modern line with static IP address, enter the IP Address provided by your ISP.

MAC Address: (Required by some ISPs) Some ISP may require your MAC address of your PC for identification.

Host Name: (Required by some ISPs) Some ISP may require the host name of your PC for identification.

BroadBand Router	Quick Setup	)
Quick Setup • Advanced Setup • Monitor	Step 1: WAN Interface         • ADSL Dial-up User (PPPoE Enable)         User Name :         Password :         • Cable Modem User (Get WAN IP Address autories)         IP Address :         MAC Address : (Required by some ISPs)         Host Name : (Required by some ISPs)         O Leased Line User (Specify an IP Address )         IP Address :         Netmask :         Default Gateway :         Domain Name Server 1 :         Domain Name Server 2 :         Step 2: LAN Interface         IP Address :         Netmask :	omatic ally) 0.0.0.0 0050BF1&EACE
		Ok/Renew Cancel

## • Leased Line User (Specify an IP Address)

If you are a leased line user with a fixed IP address, fill out the following items with the information provided by your ISP.

IP Address: (check with your ISP)

Netmask: (check with your ISP)

Default Gateway: (check with your ISP)

Domain Name Server 1: (check with your ISP)

Domain Name Server 2: (check with your ISP)

BroadBand Router	Quick Setup	
Quick Setup	Step 1: WAN Interface	
+ Advanced Setup	○ ADSL Dial-up User (PPPoE Enable)	
+ Monitor	User Name :	
	Password :	
	○ Cable Modem User (Get WAN IP Address auto	matically)
	IP Address :	0.0.0.0
	MAC Address : (Required by some ISPs)	0050BF16EACE
	Host Name : (Required by some ISPs)	
	<ul> <li>Leased Line User (Specify an IP Address)</li> </ul>	
	IP Address :	211.22.93.139
	Netmask :	255.255.255.248
	Default Gateway :	211.22.93.137
	Domain Name Server 1 :	211.22.93.142
	Domain Name Server 2 :	1.56.95.1.2
	Step 2: LAN Interface	
	IP Address :	192.168.200.1
	Netmask :	255.255.255.0
		Ok/Renew Cano

# LAN Interface

**IP Address**: Enter the IP Address and Subnet Mask of internal LAN. The default value is 192.168.1.1 **Netmask**: Enter the Subnet Mask of internal LAN. The default Netmask is 255.255.255.0.

# **Advanced Setup**

# **PPPoE Setup**

Click PPPoE to enter the PPPoE provided by your ISP or check the current status.

ProadBand Router	PPPoE Setup
Quick Setup	Current Status : Disconnected
Advanced Setup PPPoE Setup	User Name : test123
Administration	Password : *******
DHCP Server	
Static Route	Service : (Required by some ISPs)
Outgoing Policy	IP Address provided
Incoming Policy	by ISP :
Virtual Server	C Finad
Mapped IP	Fixed
Special Application	✓ Service-On-Demand
DNS Proxy	
Hacker Alert	Auto-Disconnect if Idle (* minutes (0: means not disconnect)
Software Update	
Monitor	Connect/Save Disconnect

Current Status: Connected/Disconnected. (Read-only)

User name: Enter the user name provided by your ISP for PPPoE connection.

Password: Enter the password provided by your ISP for PPPoE connection.

Service: (Required by some ISPs): Enter the service name provided by your ISP.

**IP** Address provided by **ISP**: Select **O** Dynamic (allocated on connection) or **O** Fixed.

Service-On-Demand: Check this box and this device is configured to auto-connect whenever you log-on.

Auto-Disconnect if idle minutes: Enter a number as a predetermined period of time for auto-disconnection. This device can then be configured to auto-disconnect from the Internet when there's no activity on the line. To keep the line always connected, set the number to 0.

#### Administration

Click Administration, the current administration information will appear on the screen.

BroadBand	Administration			
Router				
Quick Setup Advanced Setup PPPoE Setup Administration DHCP Server Static Route Outgoing Policy	Reset Configurations Reset Factory Settings : Administrator Password User Name : New Password : Confirm Password :	C Yes C No admin		
Incoming Policy	Secondary Web Managemen	t Port of WAN Interface		
Mapped IP	Port Number : Ping to WAN Interface	80		
DNS Proxy	Enable WAN Interface System Time Settings	Ping		
Hacker Alert Software Update Monitor	Synchronize system time wi System time : Sat Jan 01 01:2	th this client 27:25 2000		
		Ok Cancel		

Reset Configurations: Reset this device to the factory default settings.

Administrator Password: Set the password for administration purpose. It is recommended that you set the password and leave it in a safe place.

Secondary Web Management Port of WAN Interface: Enter a new port number. For example, Port Number is 80. the administrator enters http://xxx.xxx.xxx.80 on the broswer when accessing from WAN.

#### Ping to WAN Interface:

**Ping**: Check this box to provide this device.

**System Time Settings**: The time that this device was set in factory may be different from your computer. However, you can synchronize this device and your computer for accurate management purpose.

□ Synchronize system time with this client: Check this box to set this system synchronized with your computer.

## **DHCP Server**

Click DHCP Server, and the following box appear on the screen.

If you setup this device as a DHCP Server, that will allow this BroadBand Router device to pass out dynamic IP addresses to your local clients.

**Enable DHCP Server Support:** You may check to enable the DHCP server support for your local client to obtain dynamic IP address.

BroadBand			DHCP Se	rver	
Chick Setup Advanced Setup PPPoE Setup Administration DHCP Server	Dynamic IP A Net: Gateway: ☞ Enable DHC Domain Name	ddress 192.168.1.0 192.168.1.1 CP Server Suppo	Netmask : Broadcast : ort	255.255.25 192.168.1.	55.0 255
Jandolog Policy Incoming Policy Virtual Server Mapped IP Special Application	Domain Name Client IP Rang Client IP Rang	Server : e 1: e 2: ress	192.168.1. 192.168.1. 0.0.0.0	1 2 To To	192.168.1.254 0.0.0.0
DNS Proxy Hacker Alert Software Update Monitor	No.         Ex           1         2	MAC Address : 0050bf1313e0	Fixed IP / Ex : 192.1	Address 168.1.100	Comment Ex : nat100
	3 4				

When you select to distribute IP address to your local clients, you enter the MAC addresses of the local computer and the IP addresses you assigned for them. Moreover, you can even add Comment to name your IP clients.

#### **Enable DHCP Server Support**

- 1. Click Enable DHCP Server Support.
- 2. Domain Name: Enter your domain name.
- 3. Domain Name Server 1: Your ISP will provide you with at least one DNS IP address. Enter the IP address of primary DNS.
- 4. **Domain Name Server 2**: Optional. Enter the IP address of primary DNS.
- 5. Client IP Address Range 1: Enter the first range of starting IP address and ending IP address, assigned to the LAN clients.
- 6. Client IP Address Range 2: Enter the second range of starting IP address and ending IP address, assigned to the LAN clients.
- 7. Static IP Address (Optional)

MAC Address: The MAC address of network interface card.

Fixed IP Address: The assigned IP address.

Comment: Explanation on the static IP address, ex. NAT100.

8. Click **Ok** to enable DHCP server support.

# **Static Route**

You can set a static route to manually administrate the network topology/traffic when dynamic routing is not effective enough.

roadBand Router		Static Route				
Quick Setup	Interface	Destination IP	Netmask	Gateway IP	Configuration	
PPPoE Setup						
Administration						
DHCP Server						
Static Route						
Outgoing Policy						
Incoming Policy						
Virtual Server						
Mapped IP						
Special Application						
DNS Proxy						
Hacker Alert					New Entry	

Interface: Internal LAN.

Destination IP: IP address of the destination network.

NetMask: Sub-netmask of the destination network.

Gateway IP: The Gateway IP address of the destination network.

**Configuration**: Configure the static routing settings.

# Add New Static Route

roadBand Router	Static Route			
Quick Setup	Static	Route Setting		
PPPoE Setup	Destination IP :	102 168 168 0		
Administration	Destination II .	1921100.100.0		
DHCP Server				
Static Route	Netmask :	255.255.255.0		
Outgoing Policy				
Incoming Policy	Gateway IP :	192.168.101.254		
Virtual Server				
Mapped IP	Interface :	LAN 🕶		
Special Application				
DNS Proxy				
Hacker Alert		Ok Cancel		
Software Update		on on one		
Monitor				

- 1. Click Static Route then click New Entry.
- 2. Enter Destination IP Address, Netmask and Gateway IP Address.
- 3. Click **Ok** to add a new static route.

# **Outgoing Policy**

This BroadBand Router uses **Outgoing Policy** to filter outgoing packets. With Outgoing Policy, you can block specific internal users from accessing the Internet. You can set up a filter against the IP Addresses.

BroadBand Router	Outgoing Policy	Outgoing Policy			
Quick Setup	LAN IP Protocol Port Action Configure				
PPPoE Setup	192.168.101.2 TCP 80:80 DENY Pause Modify Dele	te			
Administration					
DHCP Server					
Static Route					
Outgoing Policy					
Incoming Policy					
Virtual Server					
Mapped IP					
Special Application					
DNS Proxy					
Hacker Alert	New Ent	rу			
Software Update					
Monitor					

The Outgoing Policy settings are:

LAN IP: Source IP address of LAN port.

Protocol: Protocol type.

- ANY: Any protocol including TCP, UDP and ICMP.
- **TCP**: Transmission Control Protocol, corresponds to OSI layers 4 and 5, transport and session. TCP is a complete and reliable data transmission control protocol and thus should be error free. Thus, during transmission, TCP has added error-checking mechanisms to ensure data integrity. Compared to UDP, TCP is a connection-oriented, and end-to-end protocol, it provides reliable, sequenced, and unduplicated delivery of bytes to a remote or local user.
- **UDP**: User Datagram Protocol. UDP is a transport layer, connectionless mode protocol, providing a (potentially unreliable, un-sequenced, and/or duplicated) datagram mode of communication delivery of packets to a remote or local user. UDP transmission packets are sometimes lost and are not necessarily retransmitted. Applications using UDP protocol normally count on simplicity and efficiency of network transmission and thus do not require the complexity of TCP transmission to exchange data.

Port: Port number mapping to the internal IP address.

Action: Deny (block) or permit (forward).

Configure: You can select to modify or delete this filter.

## **Add Outgoing Policy**

1. Click Outgoing Policy then click New Entry.

roadBand Router	Outgoing Policy
Quick Setup Advanced Setup	LAN IP 192 168 101 2
PPPoE Setup	Netmask 255 255 255 255
Administration DHCP Server	
Static Route	Protocol TCP
Outgoing Policy	Port = 80 = 80
Incoming Policy	From 150 To 150
Virtual Server	DENV.
Mapped IP	Action
Special Application	
DNS Proxy	
Hacker Alert	UK Cancel
Software Update	
Monitor	

- 2. LAN IP: Enter IP address of the local computer.
- 3. Netmask: Select a specify Service port.

- 4. **Protocol**: Click the down arrow  $(\checkmark)$  to select the appropriate protocol.
- 5. **Port**: Enter the range of the LAN user.
- 6. Action: Select DENY or ACCEPT to drop or forward packets from the specified IP address.
- 7. Click **Ok** to add a new Outgoing Policy.

# **Incoming Policy**

This BroadBand Router uses Incoming Policy to filter incoming packets. You can set up a filter against the IP Addresses.



The Incoming Policy settings are:

Source IP: source IP address of WAN port.

Destination IP: IP address of the destination network (LAN port).

**Protocol**: protocol type.

- ANY: any protocol including TCP, UDP and ICMP.
- **TCP**: Transmission Control Protocol, corresponds to OSI layers 4 and 5, transport and session. TCP is a complete and reliable data transmission control protocol and thus should be error free. Thus, during transmission, TCP has added error-checking mechanisms to ensure data integrity. Compared to UDP, TCP is a connection-oriented, and end-to-end protocol, it provides reliable, sequenced, and unduplicated delivery of bytes to a remote or local user.
- **UDP**: User Datagram Protocol. UDP is a transport layer, connectionless mode protocol, providing a (potentially unreliable, un-sequenced, and/or duplicated) datagram mode of communication delivery of packets to a remote or local user. UDP transmission packets are sometimes lost and are not necessarily retransmitted. Applications using UDP protocol normally count on simplicity and efficiency of network transmission and thus do not require the complexity of TCP transmission to exchange data.

Port: port number mapping to the internal IP address.

Action: Deny (block) or permit (forward).

Configure: you can select to modify or delete this filter.

## **Add Incoming Policy**

1. Click Incoming Policy then click New Entry.

roadBand Router	Incoming Policy		
Quick Setup	Source IP	211 . 22 . 93 . 0	
PPPoE Setup	Netmask	255 255 255 0	
Administration			
Static Route	Destination IP	192.168.1.30	
Outgoing Policy	Protocol	TTCP -	
Incoming Policy	FICCOL		
Virtual Server Mapped IP	Port	From 80 To	
Special Application			
DNS Proxy	Action	DENY	
Hacker Alert			
Software Update			
Monitor		UK Cancel	

- 2. Source IP: Enter IP address of the local computer.
- 3. Netmask: Select a specify Service port.
- 4. **Destination IP**: Enter IP address of the destination network
- 5. **Protocol**: click the down arrow  $(\bullet)$  to select the appropriate protocol.
- 6. **Port**: Enter the range of the LAN user.
- 7. Action: Select DENY or ACCEPT to drop or forward packets from the specified IP address.
- 8. Click **Ok** to add a new Incoming Policy.

## **Virtual Server**

"Natural firewall" allows requests for Internet access from the Local network; however, requests from the Internet to the local network are blocked. By setting Virtual Server, computers outside the Intranet are allowed to access specific ports.

roadBane Router	<u>d</u>		Virtua	l Server	-	
Quick Setup		Name Counter Strike	Internal IP	Service Port	Configu Modify D	re elete
PPPoF Setup		oounter_ounte	132.100.1.00	27000 27010	inouny D	erece
Administration						
DHCP Server						
Static Route						
Outgoing Policy						
Incoming Policy						
Virtual Server						
Mapped IP				_		
Special Application					New Entry	1
DNS Proxy						
Hacker Alert						
Software Update						
Monitor	L					

Internal IP Address: The internal IP address for mapping to the service port.

Service Port: The range of the port number assigned for virtual server.

Configure: you can select to modify or delete this virtual server.

#### Add new Virtual Server

1. Click Virtual Server then click New Entry.

BroadBand Router	Vi	irtual Server
Quick Setup	Service Name :	HTTP
PPPoE Setup	Internal IP Address :	192 168 101 3
DHCP Server		
Static Route		Ummas
Outgoing Policy	Pre-set Application	HTTP
Incoming Policy		
Virtual Server	Service Port :	From 80 To 80
Mapped IP		
Special Application		OK Cancel
DNS Proxy		Childer
Hacker Alert		
Software Update		
Monitor		

- 2. Service Name: Name the service appropriately for easy identification, for example, HTTP.
- 3. Internal IP Address: Enter the internal IP address for mapping to the service port.
- 4. **Pre-set Application**: click the down arrow (▼) to select the pre-set application that you want to be accessed through virtual server.
- 5. Service port: The system will generate the range of the port number automatically based on the pre-set application selected.

# Mapped IP

Mapped IP allows an internal computer to be exposed to unrestricted 2-way communication with other Internet users.

oadBand		Mapped	<i>IP</i>
Router			
Juick Setup	WAN IP	LAN IP	Configure
Advanced Setup			
PPoE Setup			
dministration			
HCP Server			
tatic Route			
utgoing Policy			
coming Policy			
irtual Server			
lapped IP			
pecial Application			
NS Proxy			
acker Alert			New Entry
offware Update			

WAN IP: IP address of the WAN port.

LAN IP: IP address of the LAN port.

Configure: You can select to modify or delete the Mapped IP setting.

#### Add a Mapped IP

1. Click Mapped IP then click New Entry.

roadBand Router	Mapped IP
Quick Setup	WAN IP 192.168.1.30
Advanced Setup	
PPoE Setup	LAN IP 192 168 1 2
Administration	
HCP Server	
Static Route	Ok Cancel
Dutgoing Policy	
ncoming Policy	
firtual Server	
Napped IP	
Special Application	
ONS Proxy	
lacker Alert	
Software Update	
Monitor	

- 2. **WAN IP**: IP address of the WAN port. (read-only)
- 3. LAN IP: Enter the local IP address mapping to the client computer.
- 4. Click **Ok** to add a new Mapped IP.

## **Special Application**

NAT (Network Address Translation) function prohibits some applications, e.g. Internet games, Video conferencing, Internet telephony, to work when multiple connections are required. Special Application, however, enables these applications to work in this device. If Special Application is not enough for multiple applications to work correctly, try Mapped IP function as described in the previous section.

BroadBand Router	Special Application			
Quick Setup	Name	Outgoing	Incoming	Configure
dvanced Setup				
dministration				
HCP Server				
static Route				
Dutgoing Policy				
ncoming Policy				
Virtual Server				
Mapped IP				
Special Application				New Entry
DNS Proxy				
Hacker Alert				
Software Update				
Monitor				

#### Note: At any time, only one PC can use one Special Application tunnel.

Name: Name the application appropriately for easy identification. Or you may skip this field to next for a Pre-set Application.

Outgoing: The range of the outgoing packet's specified port numbers mapping to the pre-set application.

Incoming: The range of the incoming packet's specified port numbers mapping to the pre-set application.

Configure: You can select to modify or delete the special application setting.

#### Add a Special Application

1. Click Special Application then click New Entry.

BroadBand Router	Specia	al Application
Quick Setup - Advanced Setup	Application Name :	Baldurs_Gate_II
PPPoE Setup	Pre-set Application	Baldurs_Cate_II 💌
DHCP Server		,
Static Route	Outgoing Destination Port :	From 47624 To 47624
Outgoing Policy		
Incoming Policy Virtual Senser	Incoming Destination Port :	From 2300 To 2400
Mapped IP		
Special Application		OK Cancer
DNS Proxy		
Hacker Alert		
Software Update		
+ Monitor		

- 2. **Application Name**: Name the application appropriately for easy identification. Or you may skip this field to next for a Pre-set Application.
- 3. **Pre-set Application**: click the down arrow (**v**) to select a pre-set application that you want to be accessed on the Internet.
- 4. Outgoing Destination Port: Enter the range of the outgoing packet's specified port numbers mapping to the pre-set application.
- 5. Incoming Destination Port: Enter the range of the incoming packet's specified port numbers allowed to pass this device.
- 6. When finished, click **Ok** to add a new special application.

# **DNS Proxy**

The DNS Proxy caches some of the frequent used material from popular Web sites, saving access time, it also establish the domain name and its corresponding IP address.

BroadBand		<b>DNS Proxy</b>	
Router			
A 17 A			
Quick Setup	LAN IP Address	Domain Name	Configuration
Advanced Selup			
PPPOE Setup			
Administration			
DHCP Server			
Static Route			
Outgoing Policy			
Incoming Policy			
Virtual Server			
Mapped IP			
Special Application			New Entry
DNS Proxy			
Hacker Alert			
Software Update			
+ Monitor			

LAN IP Address: a specific IP address on LAN.

Domain Name: A specific computer name on LAN referred to the above IP address.

Configuration: Modify: click this to modify the DNS Proxy configuration.

Delete: click this to delete DNS service.

#### NOTE

- 1. To use the **DNS Proxy** service, the client computer's **Domain Name Server 1** configuration must direct to this broadband router.
- 2. For Cable Modem Users with static IP address or for ADSL Leased Line Users, to connect to the Internet, you should enter the external DNS server's IP address manually in Quick Setup page's Domain Name Server.
- 3. In **DHCP Server** page's **Domain Name Server**, you need to set up the same IP address referred to the broadband router.

## Add a DNS Proxy

Click DNS Proxy then click New Entry.

BroadBand Router		DNS Proxy
Quick Setup		DNS Proxy Setting
PPPoE Setup	LAN IP Address :	192.168.1.53
Administration		
DHCP Server	Domain Name :	www.myhost.com.tw
Static Route		
Outgoing Policy		
Incoming Policy		OF
Virtual Server		40
Mapped IP		
Special Application		
DNS Proxy		
Hacker Alert		
Software Update		
Monitor		

LAN IP Address: Enter an IP address on LAN for this DNS Proxy.

Domain Name: Enter a computer name referred to the above IP address.

Note: You must enter a Domain Name with the standard format, for example: abc.ipsharing.xyz.tw or abc.ipsharing.xyz.

#### **Hacker Alert**

Hacker Alert provides you with the opportunity to maintain regular checks against hacking attacks.

roadBand Router	Ha	acker Alert	
Quick Setup	Intrusion Detect		-
Advanced Setup	Detect SYN Attack	SYN Flood Threshold	Pkts/Sec
PPPoE Setup	Detect ICMP Flood	ICMP Flood Threshold	Pkts/Sec
Administration DHCP Server	Detect UDP Flood	UDP Flood Threshold	Pkts/Sec
Static Route	Detect Ping Of Death Attack		
Outgoing Policy	Detect Port Scan Attack		
Incoming Policy	E-mail Alert		
Mapped IP	SMTP Server		
Special Application	E-mail Address		
DNS Proxy			
Hacker Alert		Ok	Cancel
Software Update		OK	CLINCOI
Software Update Monitor			

**Detect SYN Attack**: To detect whenever a hacker intends to overwhelm an Internet server with connection requests that cannot be completed. By sending the host a high volume of SYN (synchronization) packets, it causes the server to become so busy attempting to respond to the attack that it ignores legitimate requests for connections. Check this box to set the number of SYN Flood packets that are allowed to pass the firewall.

**Detect ICMP Flood**: To detect whenever a hacker sends packets of PING continuously to each port of LAN by broadcasting. Check this box to set the number of ICMP Flood packets that are allowed to pass the firewall.

**Detect UDP Flood**: To detect whenever a hacker sends packets of PING continuously to each port of LAN by broadcasting. Check this box to set the number of UDP Flood packets that are allowed to pass the firewall.

Detect Ping Of Death Attack: To detect whenever a hacker sends a packet that is substantially larger than the usual 64 bytes over the Internet via the ping protocol to a remote computer. The size of the packet causes the computer to crash or reboot.

**Detect Port Scan Attack**: To detect whenever a hacker intends to attack a Port ID that is sensitive to the Port Scan attack.

**E-mail Alert** 

SNMP Server: Set the SNMP Server.

E-mail Address: Set the e-mail address.

# Software Update

BroadBand Router	Software Update					
Quick Satup = Advanced Satup PPPoE Setup Administration DHCP Server	Software Version : v1.53 Software Update : Browse					
Static Route Outgoing Policy Incoming Policy Virtual Server Mapped IP Special Application DNS Proxy	Ok Cancel					
Hacker Alert Software Update Monitor						

- 1. First you can obtain the version number of current software from Software Version.
- 2. Ask your local distributor to get the newest software's updated version.

Download and store the updated program into the server's hard disk.

- 3. Click **Browse** button under **Software Update** to enter the **Selecting File** window and choose the most updated software version.
- 4. Click **Ok** on the bottom of the screen to update the software.

Warning: If you set [Reset Factory Settings] to Yes and click [Ok], you will clear all of the device settings. Do not reset to the factory settings unless you have some problems with this device. Once the BroadBand Router is reset, you will have to re-enter your configuration information.

# Monitor

## **Connection Log**

Select Connection Log to view the connection status of PPPoE or DHCP Client.

BroadBand Router	oadBand Connection L Router				
Quick Setup	Time	Connection Log			
+ Advanced Setup - Monitor	Jan 01 00:00:14	broadcasting DHCP_DISCOVER			
Connection Log	Jan 01 00:00:14	broadcasting second DHCP_DISCOVER			
Per User Statistics	Jan 01 00:00:14	DHCP_OFFER received from (192.168.1.254)			
Statistics Status	Jan 01 00:00:14	broadcasting DHCP_REQUEST for 192.168.1.30			
-	Jan 01 00:00:14	DHCP_ACK received from (192.168.1.254)			
	Jan 01 00:00:21	sending DHCP_REQUEST for 192.168.1.30 to 192.168.1.254			
	Jan 01 00:00:21	DHCP_ACK received from (192.168.1.254)			
	Jan 01 02:24:23	sending DHCP_REQUEST for 192.168.1.30 to 192.168.1.254			

**Time**: The starting time for the connection.

Connection Log: The source IP address and port number.

# **Traffic Log**

BroadBand Traffic Log

Select Traffic Log to view traffic history of incoming and outgoing packet.

ick Setup	Time		Destination	Duration	Service
vanced Setup	Jan 01 02:34:42	20.0.0.253:427	224.0.1.22:427	1	UDP:427
nitor	Jan 01 02:34:41	211.21.176.129:520	211.21.176.135:520	1	RIP
	Jan 01 02:34:11	211.21.176.129:520	211.21.176.135:520	1	RIP
nection Log	Jan 01 02:33:41	211.21.176.129:520	211.21.176.135:520	1	RIP
fic Log	Jan 01 02:33:11	211.21.176.129:520	211.21.176.135:520	1	RIP
User Statistics	Jan 01 02:32:41	211.21.176.129:520	211.21.176.135:520	1	RIP
istics	Jan 01 02:32:11	211.21.176.129:520	211.21.176.135:520	1	RIP
110	Jan 01 02:31:43	211.162.73.73:4761	211.21.176.135:80	3	HTTP
45	Jan 01 02:31:41	211.21.176.129:520	211.21.176.135:520	1	RIP
	Jan 01 02:31:11	211.21.176.129:520	211.21.176.135:520	1	RIP
	Jan 01 02:30:41	211.21.176.129:520	211.21.176.135:520	1	RIP
	Jan 01 02:30:11	211.21.176.129:520	211.21.176.135:520	1	RIP
	Jan 01 02:29:41	211.21.176.129:520	211.21.176.135:520	1	RIP
	Jan 01 02:29:11	211.21.176.129:520	211.21.176.135:520	1	RIP
	Jan 01 02:28:41	211.21.176.129:520	211.21.176.135:520	1	RIP
	Jan 01 02:28:37	192.168.1.109:10	224.0.0.2:0	3	PING

Time: The starting time for the connection. Source: The source IP address and port number.

Destination: The destination IP addresses.

Duration: The time slot for the connection.

Services: The content of the connection.

# **Per User Statistics**

Select Per User Statistics to view the total packets transmitted and received by the local ports and ranked it by the number of packets.

BroadBand Router			Per	Use	r Sta	tistics	
Quick Setup + Advanced Setup			2000 <i>/</i> 0 02:29	01/01 9:36	~ 200	00/01/01 2:35:30	
Monitor	No.	LAN IP	Тх	Rx	Total	Average(/sec)	Utilization
Connection Log	1	192.168.1.1	36.3K	0	36.3K	102	76.8%
Traffic Log	2	192.168.1.171	9.9K	0	9.9K	28	21.0%
Per User Statistics	3	192.168.1.254	984	0	984	2	2.0%
Statistics						-	
Status							Refresh

LAN IP: IP address of the LAN port.

Tx: The number of packets transmitted on this port.

Rx: The number of packets received on this port.

Total: The amount of packets transmitted and received on this port.

Average (/sec): The average value of packets transmitted and received.

Utilization: The percentage of current bandwidth used on this port.

# **Statistics**

 
 BroadBand Router
 Statistics

 Quick Setup
 •

 • Advanced Setup
 •

 • Monitor
 735

 Connection Log
 735

 Traffic Log
 735

 Per User Statistics
 367

 Status
 367

 Status
 367

Press **Statistics** to view the traffic flow for the past 24 hours.

X-axis: traffic statistics (Kbytes/Sec)

Y-axis: time (hour).

# Status

Display the current status of the Broadband Router. (Read-only)

BroadBand Boutor	Status				
INCICILIEU					
Quick Setup	Software Version :	v1.53			
+ Advanced Setup	LAN				
= Monitor	MAC Address :	22:22:22:22:22:28			
Connection Log	IP Address :	192.168.1.1			
Traffic Log	Netmask :	255.255.255.0			
Per User Statistics	DHCP Server :	Enable			
Statistics					
Status	WAN (Cable Modem User)	WAN (Cable Modem User)			
-	MAC Address :	22:22:22:22:22:29			
	IP Address :	192.168.1.30			
	Netmask :	255.255.255.0			
	Default Gateway :	192.168.1.254			
	Domain Name Server 1 :	192.168.1.254			
	Domain Name Server 2 :	168.95.1.1			
	DHCP Clients Table				
	MAC Address	IP Address			
	00:e0:98:8f:77:0c	192.168.1.3			
	00:c1:26:02:c6:2e	192.168.1.4			
	00:80:c8:76:e9:17	192.168.1.5			
	00:10:b5:54:e2:48	192.168.1.6			

Software Version: The Software version of this Broadband Router.

LAN

MAC Address: The MAC address of network interface card.

IP Address: IP address of the LAN port.

Netmask: The Subnet Mask of the LAN port.

**DHCP Server**: The DHCP status of the port.

# WAN

MAC Address: the MAC address of network interface card.

IP Address: IP address of the WAN port.

Netmask: The Subnet Mask of the WAN port.

Default Gateway: The default IP address of the gateway.
Domain Name Server 1: IP address of the primary DNS server.
Domain Name Server 2: IP address of the secondary DNS server.
DHCP Client Table

MAC Address: The MAC address of network interface card.

IP Address: IP address assigned to DHCP client.

# FAQ

Q1: Why can't I still connect to the network when I have already installed and connected all the equipment?

- 1. Make sure that the Cable/xDSL Router is properly connected to the Internet BroadBand Router, the power is switched on, and all networking equipments are installed as instructed in the manual.
- 2. Verify that your computer and the Internet BroadBand Router have the same network address. If you are not sure about this, set your PC's IP address to "automatically configure IP address" so that it can obtain an IP address from the DHCP server.
- 3. Check that your PC's network settings are set correctly—including default gateway (192.168.1.1), DNS, IP address, and others. Your PC's IP address has to be within the internal network's range of addresses (192.168.1.2 to 192.168.1.254).
- 4. If you were originally using a dial-up connection, you have to reset your IE properties. Perform the following steps.
  - a. Go to Desktop, right-click Internet Explorer, click **properties Connections Setup**.
  - b. In the Internet Connection Wizard, select "I want to set up my Internet connection manually, or I want to connect through a local area network (LAN)."
  - c. Click Next.
  - d. Select "I connect through a local area network. (LAN)
  - e. Follow the on-screen instruction to proceed. When done, select "Finish" to complete.

Internet Properties	Internet Connection Wizard	×	Internet Connection Wizard		×	Internet Connection Wizard	×
Unitary Exception         Careford         Program         Advanced           Served Scaudy Conner Connections         Program         Advanced           Served Scaudy Conner Connect your         Served         Served           Served Scaudy Connect your         Add.         Benome           Served Scaudy Connection         Add.         Benome           Connection         Served Scaudy Connection         Add.	Internet Connections Would	Welcome to the Internet Connection Wizard      The time Connection will offer you correct you compare methy time account.     The strength of the social strength of the social strength time social to the you connect you the social to the C I must to state the social strength of the social to the C I must to state the social strength of the social strength of the C I must to state the social strength of the social strength of the C I must to strength of the social strength of the social strength of the social of the social strength of the socia	Informet Connection Wand Setting up you Infernet It you have an Infernet to connect to it. If you connect to it is connect to be infernet or access to the infernet or Access to the infernet or How do you connect to it	unnection while provide account, you can use you pleve line and a model product account of to a local area refered. EARS you can pair the local he internet? ghow line and a modern	d a modern can gain	Internet Connections Wisted	Completing the Internet Connection Wave the accessibly completed the Internet Connection wave the accessibly completed to connect to the second. Alter poor leads the internet connect to the begins into any sub dealing.
Anape dar no data deprestance no parte la construcción de la cons		connect frough is local and network (234) To keen your herenet setting unchanged, click Curceal To keen nore about the herenet, click Tubuid. Lassed CEDEX Base 1 Cancel	ି (connect through e)	cal ana memode (LAN) (Spack (Space)) C			To close the velocid, clob Freeh

- 5. Check the settings of your Internet BroadBand Router. If the information entered is different than that provided by your ISP or the interface settings are wrong, please enter the correct settings.
- 6. Read the installation manual.
- 7. If after following the above steps you are still unable to connect to the network, please call your vendor's customer service.

Q2: Why can't I automatically connect to the network when I open my browser?

- 1. Check your network connection and make sure that the power is on, the status LEDs are normal, and the Web LED blinks.
- 2. Verify the settings of the Internet BroadBand Router. Check the settings of the external network interface.
- 3. Deactivate the proxy server settings in your browser.
- 4. If after following the above steps a connection is not automatically established when your browser, please call your vendor's customer service.
- Q3: Can I use ICQ with the Internet BroadBand Router? Do I have to change any settings?

You can use ICQ without having to specially configure the Internet BroadBand Router.

## Q4: Why is it that when my PC's network card is connected to the Internet BroadBand Router, only the Link LED is lit?

The "10/100" Link LED is lit only with a 100Mbps transmission rate. If only the Link LED is lit, this means that your network card is connected at 10Mbps.

#### Q5: What's a MAC address?

Each network interface card has a unique address (a hexadecimal value). The first three bytes are the manufacturer's code while the last three bytes are the network card's number. In a connected network, each network has its own addressing scheme to facilitate routing and to allow setting of different networks.

#### *Q6: What is a subnet mask?*

A subnet mask, or netmask, is like an IP address. When the subnet mask is used with the IP address, your PC's network domain can be identified. The IP address can be divided into Classes and is different from the network mask. (See Table below)

IP address Classes Network Mask

Class A

Class B

Class C

255.0.0.0 255.255.0.0 255.255.255.0

#### *Q7*: *What's the difference between TCP and UDP?*

TCP is a complete and reliable data transmission control protocol and thus should be error free. Thus, during transmission, TCP has added error-checking mechanisms to ensure data integrity. UDP on the other hand, is much simpler. UDP transmission packets are sometimes lost and are not necessarily retransmitted. Applications using UDP protocol normally count on simplicity and efficiency of network transmission and thus do not require the complexity of TCP transmission to exchange data.

#### *Q8: What is DHCP? Do I have to enable DHCP?*

- 1. For networks using a fixed IP address, the network administrator has to know and set every IP address for each user. This method may result in duplication of IP addresses. Moreover, the network administrator has to manually set the IP address of every machine on the network. The Dynamic Host Configuration Protocol (DHCP) service is provided by a DHCP server to store, manage, and dynamically allocate IP address. Users can thus automatically get their IP addresses without having to manually set it.
- 2. It is not necessary to enable DHCP. Based on the explanation above, however, you must be careful in setting IP addresses manually. IP address duplication, if not prevented, can lead to networking errors.

#### *Q9: What's the difference between a virtual computer and a virtual server?*

A virtual server is a computer that can receive specific packets. Functionally, this means that an internal network can have a special computer functioning as a web, FTP, DNS, or mail server. A virtual computer offers complete IP functionality—this computer can provide network services. In other words, a virtual server has only some special communication ports open while a virtual computer has all its ports open.

#### Q10: If I reset to factory defaults, do I lose all my changes?

Yes. All changes that you had made will be replaced by the factory defaults.

# Q11: When the LAN ports are used up, how can I connect more computers to the Internet BroadBand Router?

You can use a hub or a switch to connect with the LAN port. A switch can be stacked with additional switches.

# Q12: What's the difference between the Internet BroadBand Router and an ordinary hub/switch?

An ordinary hub only transmits packets but the Internet BroadBand Router not only functions as a hub but also as a switch and has a NAT function that allows one external IP address to be shared by several computers—a multi-functional box.

#### Q13: Can I use one Internet BroadBand Router to play online games?

Yes. Several users can play online games simultaneously.

Q14: Aside from MS Windows operating systems, can I also connect computers running other operating systems (Unix, Linux, etc.) to the Internet BroadBand Router?

Yes. The Internet BroadBand Router can be used by any operating system that supports TCP/IP protocols.

#### Q15: Does the Internet BroadBand Router have other functions?

Aside from the basic NAT IP share function, the Internet BroadBand Router has other functions to help in network management such as DHCP service, fixed routing, control rules, virtual sever, virtual computer, packet log, and transmission rate statistics. Your Internet BroadBand Router is not just a bandwidth-sharing device—it is a multi-functional and easy-to-use firewall.

#### Q16: How do I check if my computer uses a static or dynamic IP address?

Open an MS-DOS console window and enter the following command "C:>ipconfig /all" to see if your computer is using a DHCP server. If the display shows that such a server is being used, then you have a dynamically assigned IP address, otherwise, your IP address is static.

#### Q17: How many computers can be connected to the Internet BroadBand Router?

The Internet BroadBand Router supports a Class B addresses. If the DHCP server is not used (with a maximum of 253 IP addresses) and network restrictions are lifted, then theoretically, up to 64,514 ( $255 \times 253 - 1$ ) IP addresses can be used if set manually. This number is also the maximum number of computers that can be connected.

#### Q18: I can't successfully install the Internet BroadBand Router, what should I do?

Installation failure can be due to many things—narrow down the possibilities to either a software or a hardware problem. If it's a hardware problem, then check if all equipment has been installed according to the installation manual. If the LEDs for the WAN and Link ports of the Internet BroadBand Router are not lit, please press the MDIX button on the underside of the unit. If the LEDs appear normal, check your network settings; for example, the connected computer should be set to an automatically assigned IP address. If the problem persists, please contact your vendor's customer service.

#### Q19: Can I use the Internet BroadBand Router to set up my own server?

You can. You first have to make sure that you have a valid static IP address. All the "Virtual server" services provided by the Internet BroadBand Router such as web, DNS, Mail, FTP, and others can be accessed through the network.

#### Q20: How much memory does the Internet BroadBand Router have?

The Internet BroadBand Router has 8 MB of onboard memory and a 2 MB flash memory.

# Q21: Can I use the Internet BroadBand Router with firewalls from other vendors?

To avoid unnecessary network conflicts, the Internet BroadBand Router is normally installed behind a firewall and will take up one IP address from the firewall. This IP address will be used by the Internet BroadBand Router for computers connected to it—a single IP shared by many users.

# Q22: What's the difference between a LAN and a WAN?

A LAN is an internal network interface that can reach transmission rates of up to 100 Mbps. A WAN is an external interface to the Internet whose speed depends on the connection provided by your Internet service provider (ISP).

#### Q23: Can I check the address of my network interface card?

There are two ways. One way, if you're using a dynamic IP address, is to open the Internet BroadBand Router's configuration page and in the "Statistics" field, select "system status" to check the binding of your computer's IP address to the network card's MAC address. Another way is to open an MS-DOS console and then run the command "C:\>ipconfig /all" to check the MAC address.

#### *Q24: What network cables should be used to connect to the Internet BroadBand Router?*

Please use Ethernet UTP RJ-45 cables to connect to the Internet BroadBand Router.

#### Q25: Can I use the Internet BroadBand Router to connect with other computers in my private network?

You can. You have to connect the WAN port to the hub or switch and then, using the configuration interface, set the Internet BroadBand Router's "external network interface" to manually set IP addresses (If your external network has a DHCP server, you can set this to "cable modem user" to automatically get an IP address). Finally, make sure that the "LAN interface" has a different subnetmask address from the "external network interface" to avoid network conflicts.

#### Q26: What is the Special Application function?

Some online games cannot be used through the Internet BroadBand Router without having to set first the "Special Application" function of the Router. Mapping for UDP Port/TCP Port to the Local Port of the virtual IP address lets your computer look up online game partners or allows others to join in locally sponsored games—you can play right after properly setting up the ports. If there are some game settings that we have not included, please use the "Traffic Log" function to look at what ports your online game uses and then set the ports in the "Special Application" setting.

#### Q27: What's the use of the RESET button at the rear panel of the Internet BroadBand Router?

If for any reason, e.g. unexpected problem or inappropriate manual operation that cause the Internet BroadBand Router to malfunction, you have to reset this device to factory default settings. While executing this function, be careful the current settings will be lost. Please also note that if you reset to default settings, the user's name and password will be reset to **admin**.

## Q28: What's the use of the MDIX button at the rear panel of the Internet BroadBand Router?

After connected to an ADSL/Cable modem or a Hub/Switch, the LINK LED corresponding to the WAN Port will be lit to show a successful connection. If it fails to lit, press the **MDIX** button, the connection will then be successful.