Broadband Router

Shared Broadband Internet Access

CNIG904S

4-port Swtiching Hub

User's Guide

TABLE OF CONTENTS

P/N: 9560DN0001

Document Version: 1.0

Chapter 1
Introduction

1

This Chapter provides an overview of the Broadband Router's features and capabilities.

Congratulations on the purchase of your new Broadband Router. The Broadband Router is a multi-function device providing the following services:

4 Port Switching hub (10/100BaseT).

Shared Internet access via an DSL or Cable modem.

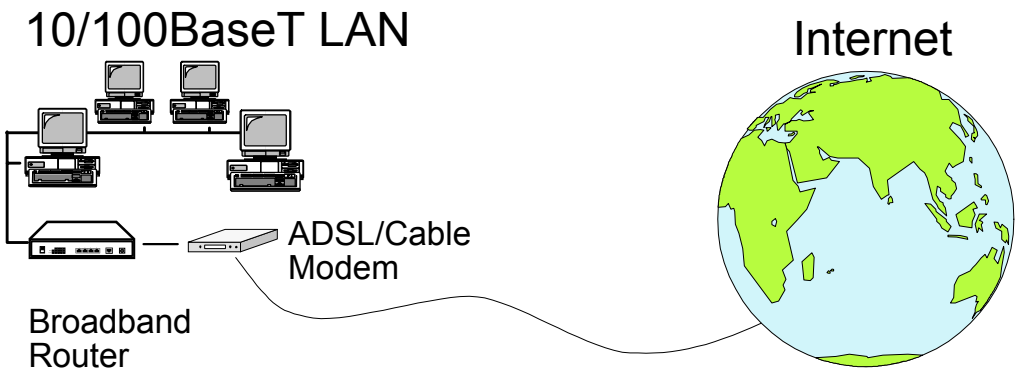

Figure 1: Broadband Router

The Broadband Router can also be used to connect your local LAN to a remote LAN or WAN, instead of providing shared Internet Access.

Broadband Router Features

The Broadband Router incorporates many advanced features, carefully designed to provide sophisticated functions while being easy to use.

LAN Features

10/100BaseT Hub. The Broadband Router includes a 4-port 10/100BaseT switching Hub, allow connection of up to 4 PCs. Both 10BaseT and 100BaseT connections can be used simultaneously.

DHCP Server Support. **D**ynamic **H**ost **C**onfiguration **P**rotocol provides a dynamic IP address to PCs and other devices upon request. The Broadband Router can act as a **DHCP Server** for devices on your local LAN.

DHCP Client Support. On the WAN port, the router can act as a **DHCP Client**. This allows the use of dynamic IP Addresses on the "External LAN" or WAN.

Multi Segment LAN Support. LANs containing one or more segments are supported, via the Broadband Router's built-in static routing table. If NAT (Network Address Translation) is disabled, the Broadband Router will function as a static router.

Internet Access Features

- ***Shared Internet Access.*** All users on the LAN can access the Internet through the Broadband Router, using only a single external IP Address. The local (invalid) IP Addresses are hidden from external sources. This process is called NAT (Network Address Translation).
- ***ADSL & Cable Modem Support.*** The Broadband Router has a 10BaseT Ethernet port for connecting an ADSL or Cable Modem. All popular ADSL and Cable Modems are supported.
- ***PPPoE Support.*** Connect to your ISP using PPPoE (PPP over Ethernet), if your ISP uses this method.
- ***Fixed or Dynamic IP Address.*** On the WAN connection, the Broadband Router supports both Dynamic IP Address (IP Address is allocated on connection) and Fixed IP Address.

Configuration & Management

- ***Easy Setup.*** Use your WEB browser from anywhere on the LAN for configuration.
- ***Remote Management.*** The Broadband Router can be managed from a workstation anywhere on the LAN, using a WEB browser.

Advanced Internet Functions

- ***Virtual Servers.*** This feature allows Internet users to access Internet servers on your LAN. The required setup is quick and easy.
- ***User-Defined Virtual Servers.*** Internet users can access non-standard Internet Servers on your LAN by using this feature.
- ***Special Internet Applications.*** Internet applications such as Internet Videoconferencing, Telephony, Games Servers, and other special-purpose Servers are supported.
- ***DMZ.*** One (1) PC on your local LAN can be configured to allow unrestricted 2-way communication with Servers or individual users on the Internet.

Security Features

- ***Configuration Data***. Optional password protection is provided to prevent unauthorized users from modifying the configuration.
- ***Access Control Features***. The LAN Administrator can limit Internet access by individual PCs.
- ***Firewall Protection.*** All incoming data packets are monitored and all incoming server requests are filtered, thus protecting your network from malicious attacks from external sources. (This protection is lost if NAT is disabled.)

NAT Firewall Protection

The firewall protection provided by the Broadband Router is an intrinsic side effect of NAT (Network Address Translation). All users on the LAN share a single external IP address. From the external viewpoint, there is no network, only a single device.

For internal users, the Broadband Router acts as a “transparent proxy server”, translating the multiple internal IP addresses into a single external IP address.

For external requests, any attempt to connect to local resources are blocked. The Broadband Router will not “reverse translate” from a global IP address to a local IP address.

This type of “natural” firewall provides an impregnable barrier against malicious attacks.

Package Contents

The following items should be included:

- The Broadband Router Unit
- Power Adapter
- Quick Installation Guide
- CD-ROM containing the on-line manual.

If any of the above items are damaged or missing, please contact your dealer as soon as possible.

Physical Details

Please take a few minutes to familiarize yourself with the Broadband Router.

Top - Mounted LEDs

There are 2 LEDs on the top of the unit. The "DATA STATUS LAN" LED has 2 colors - Green and Orange. Operation of these LEDs is as follows:

DATA STATUS LAN (Green/Orange)	On (Green) - Normal start up/power on sequence, or idle. The *Data/Status* LED will flash under the following conditions: • Flashing (Green) – The *Data/Status* LED will flash when data is transmitted or received through the *LAN* ports. • Flashing (Orange, Green, Orange,…) – Hardware error. Contact your dealer for technical support.
DATA WAN (Green)	On - Normal start up (power ON) sequence or idle. Flashing – The *Data* LED will flash when data is transmitted or received through the *WAN* port.

Rear Panel

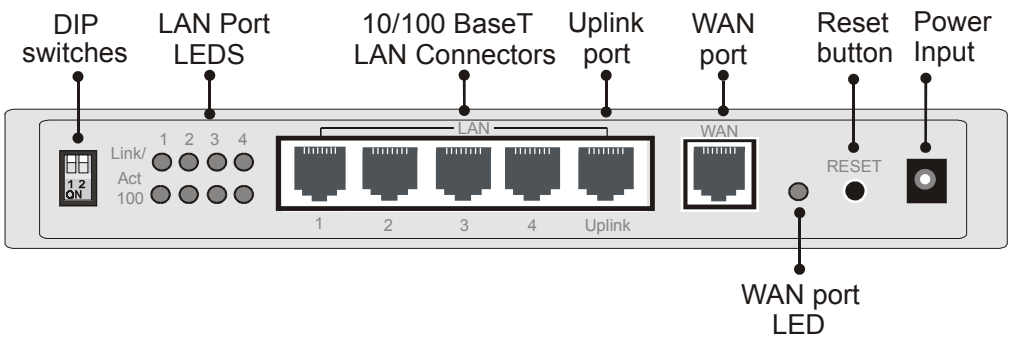

Figure 2: Rear Panel

DIP switches	Refer to the following table for DIP switch operation.
LAN Port LEDs - Link/Act	On - The Router is successfully connected to a device through the corresponding port (1, 2, 3, or 4). Flashing - Transmitting or receiving data over that port.
LAN Port LEDs - 100	On - LAN port connection is using a 100BaseT connection. Off - Port is unused or using 10BaseT connection.
10/100BaseT LAN Connectors	Use standard LAN cables (RJ45 connectors) to connect your PCs ot these ports. Both 10BaseT and 100BaseT connections can be used simultaneously. **If Port 4 is used, the "Uplink" port can NOT be used..**
Uplink Port	Use the "Uplink" port ONLY to connect (via a normal LAN cable) to a normal port on another hub. **If the "Uplink" port is used, Port 4 can NOT be used.**

WAN port (10BaseT)	Connect the ADSL or Cable Modem here. If your modem came with a cable, use the supplied cable. Otherwise, use a standard LAN cable.
WAN Port LED	Flashing - data is being transmitted or received via the WAN port.
	OFF - no data is being transferred.
Reset Button	When pressed and released, the Broadband Router will reboot (restart).
Power port (12V)	Connect the supplied power adapter here.

DIP Switches

DIP Switch Setting	Description
 1=off 2=off	Normal Operation
 1=off 2=on	DHCP Server function disabled.
 1=on 2=off	Used to restore Default IP Address and clear Password (See below)
 1=on 2=on	Normal Operation.

Restore Default IP Address and Clear Password

If the Broadband Router's IP Address or password is lost, the following procedure can be used to recover from this situation.

1. Turn the power to the Broadband Router OFF.
2. Set DIP switch 1 ON.
3. Turn the power to the Broadband Router ON.
4. Operate DIP switch 1 in the following sequence (you have 15 seconds to complete the sequence):
   - OFF
   - ON
   - OFF
5. The Broadband Router will now reset, and the Yellow Status LED flash. The following changes will have been made. (Other configuration data is unchanged.)
   - *IP Address* set to its default value of 192.168.0.1
   - *Network Mask* set to 255.255.255.0
   - *DHCP Server* is enabled, and will allocate IP Addresses in the range 192.168.0.2 to 192.168.0.51.
   - The password cleared (no password).
6. You can now connect to the Broadband Router and make any configuration changes required.

Chapter 2
Installation

This Chapter covers the physical installation of the Broadband Router.

Requirements

- Ethernet LAN (10/100BaseT) and the TCP/IP protocol.
- For Internet Access, a DSL or Cable modem, and an Internet Access account with an ISP.

Installation Procedure

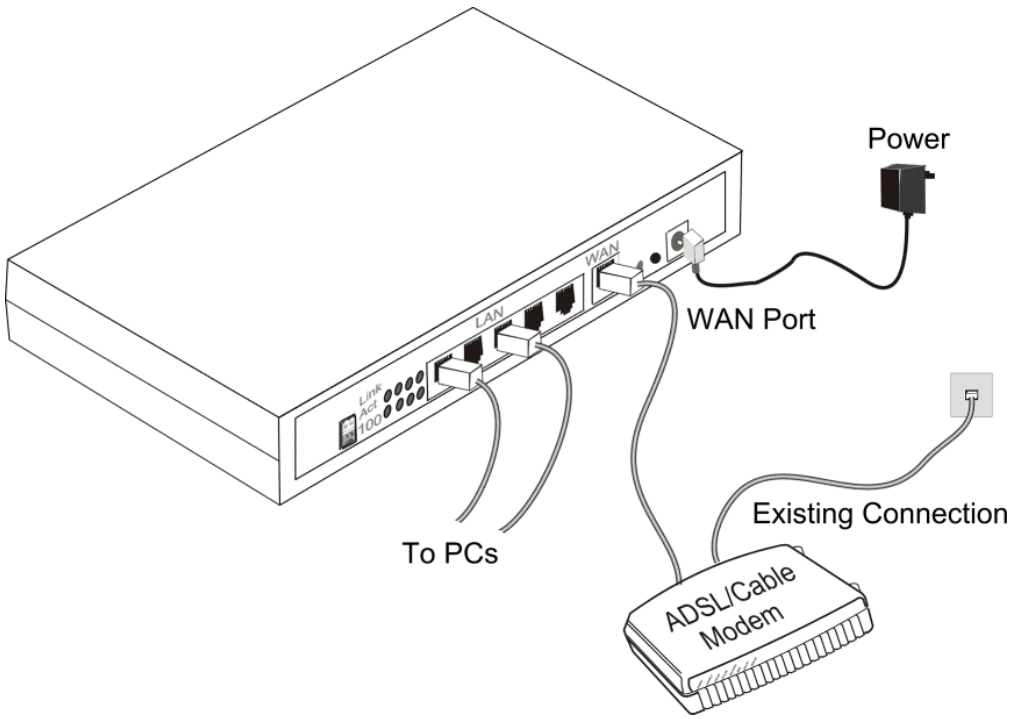

Figure 3 Installation Diagram

1. Choose an Installation Site

Select a suitable place on the network to install the Broadband Router. Ensure the Broadband Router and the Cable/DSL modem are powered OFF.

2. Connect LAN Cables

Use standard LAN cables to connect PCs to the Switching Hub ports (LAN ports) on the Broadband Router. Both 10BaseT and 100BaseT connections can be used simultaneously.

If required, connect the Broadband Router's "Uplink" port to a standard port on another hub. A standard LAN cable should be used.

Note: If the "Uplink" port is used, Port 4 can NOT be used.

3. Connect ADSL or Cable Modem

Connect the ADSL or Cable modem to the WAN port on the Broadband Router. Use the cable supplied with your modem. If no cable was supplied, use a standard LAN cable.

4. Power Up

Connect the supplied power adapter and power up.
Use only the power adapter provided. Using a different one may cause hardware damage

5. Check the LEDs

When the Broadband Router is powered On, the *DATA STATUS LAN* LED should flash, then turn on. If it stays flashing (in Green and Orange), there is a hardware error.

For more information, refer to Top - Mounted LEDs in Chapter 1.

Chapter 3
Configuration

This Chapter provides details of the configuration process.

Overview

This chapter describes the procedure for:

- LAN setup
- WAN port configuration for Internet Access

PCs on your local LAN may also require configuration. For details, see *Chapter 4 - PC Configuration*.

Other configuration may also be required, depending on which features and functions of the Broadband Router you wish to use. Use the table below to locate detailed instructions for the required functions.

To Do this:	Refer to:
Configure PCs on your LAN.	Chapter 4: PC Configuration
Learn more about using DHCP on the internal LAN	Chapter 5: DHCP
Configure the Broadband Router and routers for a LAN which has 1 or more routers.	Chapter 6: Routing
Set a password for the Broadband Router, or disable NAT (Network Address Translation).	Chapter 7: Options
Use any of the following features: • Special Internet Applications • Virtual Servers • DMZ	Chapter 8: Advanced Internet Features
Limit Internet Access by individual PCs	Chapter 9: Access Control

Where use of a certain feature requires that PCs or other LAN devices be configured, this is also explained in the relevant chapter.

Configuration Program

The Broadband Router contains a HTTP server. This enables you to connect to it, and configure it, using your Web Browser.

Most Browsers should work, provided they support HTML tables and forms.

Preparation

Before attempting to configure the Broadband Router, please ensure that:

- Your PC can establish a physical connection to the Broadband Router. The PC and the Broadband Router must be directly connected (using one of the Switching Hub ports on the Broadband Router) or on the same LAN segment.
- The Broadband Router must be installed and powered ON.
- If the Broadband Router's default IP Address (192.168.0.1) is already used by another device, the other device must be turned OFF until the Broadband Router is allocated a new IP Address during configuration.

Connecting to the Broadband Router

To establish a connection from your PC to the device:

1. After installing the Broadband Router in your LAN, start your PC. If your PC is already running, restart it.
2. Start your WEB browser.
3. In the *Address* box, enter "HTTP://" and the IP Address of the Broadband Router, as in the following example, which uses the Broadband Router's default IP Address:

   ```
   HTTP://192.168.0.1
   ```

4. If you have assigned a password to the Broadband Router you will be prompted for the password, as shown below. (If no password has been set, this dialog will not appear.)
   - Leave the "User Name" blank.
   - Enter the password for this device, if one has been set.

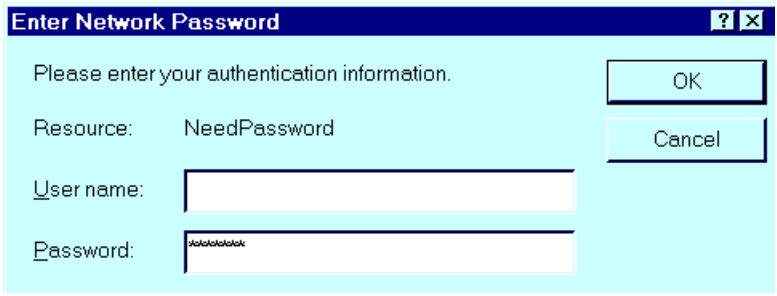

Figure 4: Password Dialog

5. You should then see the *LAN* screen.
   See the following section for the available options and configuration screens.

If you can't connect

If the Broadband Router does not respond, check the following:

- The Broadband Router is properly installed, LAN connection is OK, and it is powered ON.
- Ensure that your PC and the Broadband Router are on the same network segment. (If you don't have a router, this must be the case.)
- If your PC is using a fixed IP Address, its IP Address must be within the range 192.168.0.2 to 192.168.0.254 to be compatible with the Broadband Router's default IP Address of 192.168.0.1. Also, the *Network Mask* must be set to 255.255.255.0. See *Chapter 4 – PC Configuration* for details on checking your PC's TCP/IP settings.

Navigation & Data Input

- Use the menu bar on the left of the screen, and the "Back" button on your Browser, for navigation.
- Changing to another screen without clicking "Save" does NOT save any changes you may have made. You must "Save" before changing screens or your data will be ignored.

On each screen, clicking this icon will display help for that screen.

LAN Screen

The LAN screen, like the example below, will be displayed when you first connect.

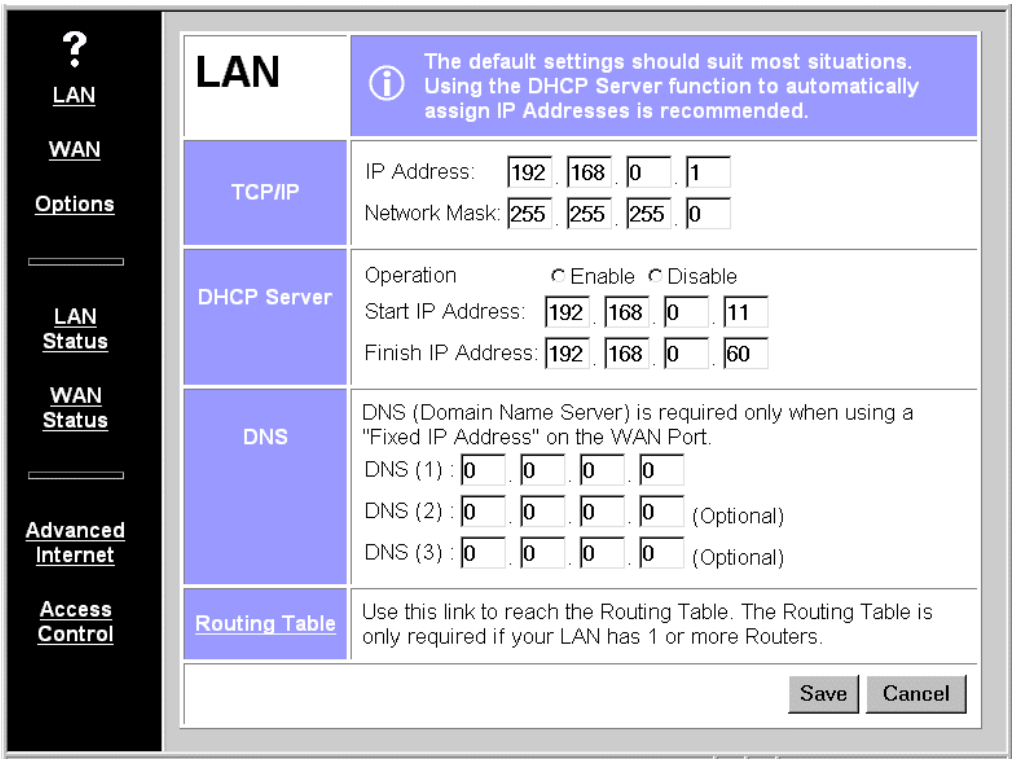

Figure 5: LAN Screen

LAN Configuration.

For most users, the default values for these fields should be satisfactory, and no changes will be required.

If your LAN contains an existing Router or Routers, refer to *Chapter 6 - Routing*.

Data – LAN Screen

TCP/IP	
IP Address	IP address for the Broadband Router. Use the default value of 192.168.0.1 unless the address is already in use or your LAN is using a different IP address range. In the latter case, enter an unused IP Address from within the range used by your LAN.
Network Mask	The default value 255.255.255.0 is standard for small (class "C") networks. For other networks, use the Network Mask for the LAN segment to which the Broadband Router is attached. i.e. the same value as the PCs on that LAN segment.

DHCP Server	
Operation	If Enabled, the Broadband Router will allocate IP Addresses to PCs on your LAN. The default and recommended value is Enabled. If you are already using a DHCP Server, this setting must be DISABLED, and the existing DHCP server must be re-configured. See Chapter 5 for further details.
Start IP Address **Finish IP Address**	The *IP Start Address* and *IP Finish Address* fields set the values used by the DHCP server. This range also determines the number of DHCP clients supported. (Maximum 253.)
DNS (Domain Name Server)	
DNS (Domain Name Server) IP Addresses	You do NOT need to enter DNS addresses UNLESS you are using a *Fixed IP Address* on the WAN port. (Your ISP has allocated you a fixed IP Address.) In this case, your ISP should recommend a DNS. You need to enter that address or addresses here. If using a *Dynamic IP Address (DHCP Client)*, on the WAN port, the DNS entries are optional. Multiple DNS entries should be entered in the order you want them accessed. (The first available DNS will be used.)
Routing Table	
Routing Table	If your LAN contains an existing Router or Routers, refer to *Chapter 6 - Routing*.

WAN Configuration

To configure the WAN port:

- Select ***WAN*** from the menu.
- Select the appropriate connection type (*Direct Connection* or *PPPoE*) on the screen below, then Click the “Configure” button.

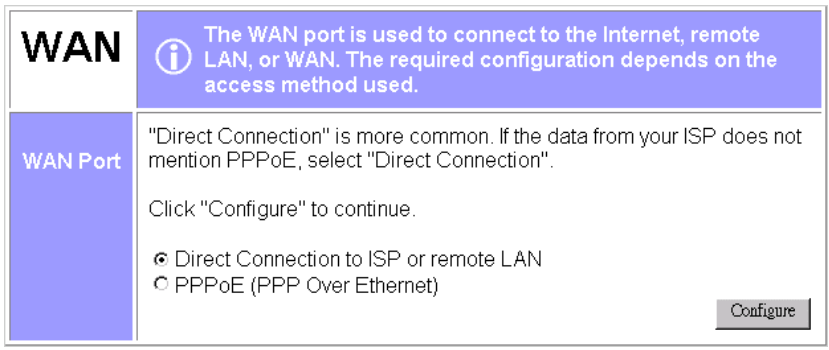

Figure 6: WAN Screen

Tip:

If your connection documentation does not refer to *PPPoE*, select ***Direct Connection***.

WAN - Direct Connection

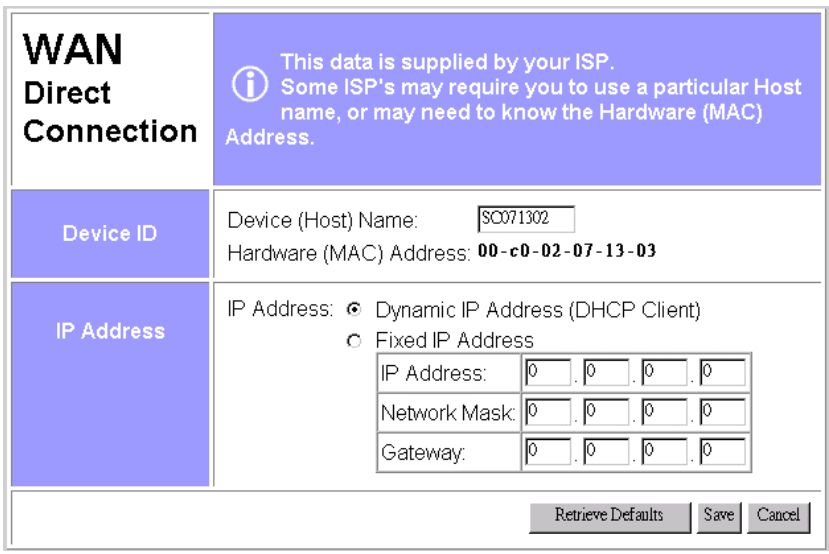

Figure 7: WAN - Direct Connection

If you selected *Direct Connection*, a screen like the example above will be shown.

Data - WAN (Direct Connection)

Device ID	
Device (Host) Name	Normally, there is no need to change the default name, but if your ISP requests that you use a particular “Hostname”, enter it here. This name will be provided to, and recorded by, the remote DHCP Server.

Hardware (MAC) Address	Also called *Network Adapter Address* or *Physical Address*. Provide this value to your ISP if requested. If you did not provide this value when first connected, there is no need to provide it now.
IP Address	
Dynamic IP Address (DHCP Client)	Leave this enabled if you want your ISP to allocate an IP Address to the Broadband Router upon connection.
Fixed IP Address	Select this if using a fixed IP Address. If this option is selected, the following data must be entered. • **IP Address**. If connecting to an ISP, this is the address allocated by the ISP. If connecting to another LAN, this must be a valid address on the external LAN. • **Network Mask** This must be compatible with the IP Address above • **Gateway IP Address** The address of the router or gateway, either on the external LAN, or supplied by your ISP. **DNS IP Address** At least 1 DNS IP Address is required, and should be provided by your ISP. DNS settings are on the LAN screen.
Buttons	
Retrieve Defaults	Get the default *Device Name* and clear the other items. No changes are made to the configuration until you click the *Save* button.
Save	Save any data you have entered on this screen. Remember to save before changing to another screen.
Cancel	Cancel any data you have entered since the last "Save" operation.

Note:

If using *Dynamic IP Address*, the IP Address, Network Mask, and Gateway fields may display the values obtained dynamically.

WAN - PPPoE

If you selected *PPPoE* on the *WAN* screen, the display will be like the following example.

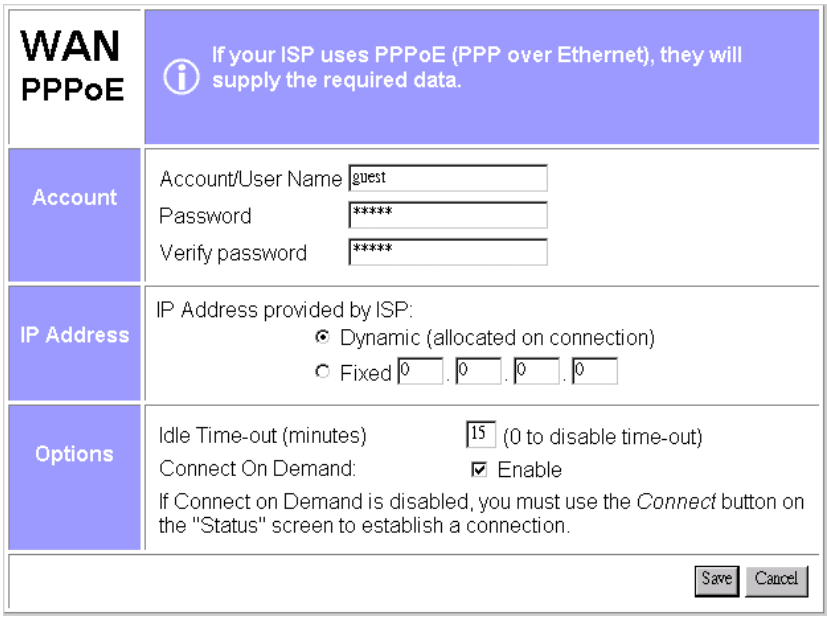

Figure 8: WAN Port - PPPoE

Data – WAN (PPPoE)

Account	
Account/User Name	The name of the Internet account provided by your ISP.
Password & Verify	Enter the password for the above account. Re-enter the password in the *Verify* field, to ensure it is correct.
IP Address	
IP Address provided by ISP	Normally, this is *Dynamic*; use this setting if your ISP did not provide an IP Address. If your ISP did provide an IP Address, select *Fixed* and enter the value they provided.
Options	
Idle Time-out	If an connection is inactive for longer than this time period, it will be terminated. If zero (0), then the connection will never be terminated.
Connect on Demand	Normally, this should be Enabled. If disabled, you must use the *Connect* button on the ***Status*** screen to establish a connection.
Buttons	
Save	Save any data you have entered on this screen. Remember to save before changing to another screen.
Cancel	Cancel any data you have entered since the last "Save" operation.

WAN Status

Clicking ***WAN Status*** on the menu bar will take you to the ***WAN Status*** screen. The screen shown will depend on whether you are using a **Direct Connection** or **PPPoE**.

WAN Status – Direct Connection

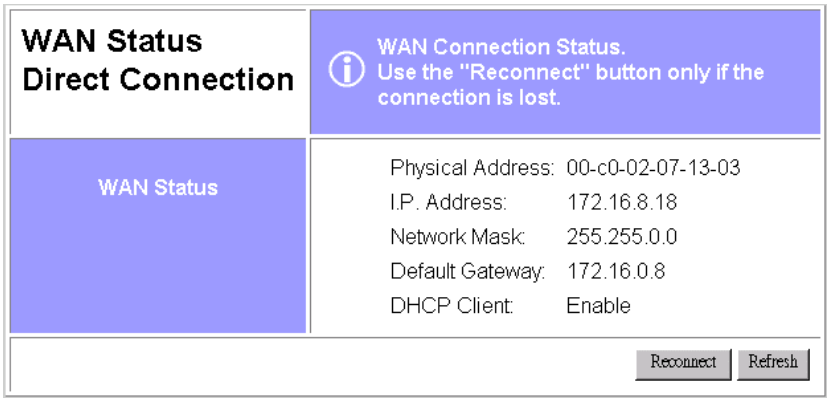

Figure 9: WAN Status – Direct Connection

Data

WAN Status	
Physical Address	The "Hardware" address of this device, as seen by other devices on the WAN.
IP Address	The IP Address of this device, as seen by devices on the WAN. (This device has 2 IP Addresses; one for the local LAN, and another for the WAN port.)
Network Mask	The Network Mask for the above IP Address.
Default Gateway	IP address of the Router/Gateway on the WAN port.
DHCP Client	Displays "Enabled" or "Disabled", indicating whether this device is acting as a DHCP client on the external LAN or WAN.
Buttons	
Reconnect	Use this button if the connection seems to have been lost, and no data is being transferred. (This button has no effect unless acting as a DHCP Client.)
Refresh	Update the data on screen.

WAN Status – PPPoE

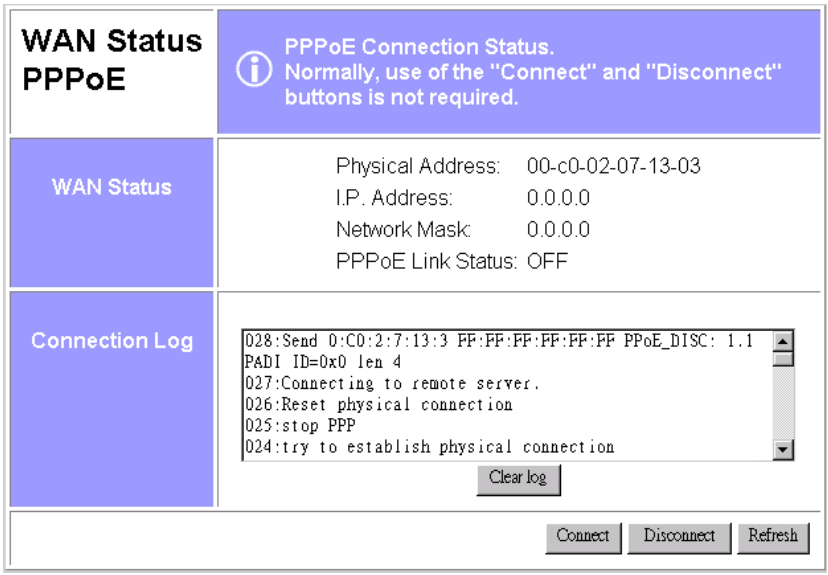

Figure 10: WAN Status – PPPoE

Status Data

WAN Status	
Physical Address	The "Hardware" address of this device, as seen by other devices on the WAN.
IP Address	The IP Address of this device, as seen by devices on the WAN. (This device has 2 IP Addresses; one for the local LAN, and another for the WAN port.)
Network Mask	The Network Mask (Subnet Mask) for the IP Address above.
PPPoE Link Status	This indicates whether or not the connection is currently established. If the connection does not exist, the ***Connect*** button can be used to establish a connection. If the connection currently exists, the ***Disconnect*** button can be used to break the connection.
Connection Log	
Log Data	The Connection Log shows status messages relating to the existing connection. The most common messages are listed in the following table.
Buttons	
Connect	If not connected, establish a connection to your ISP
Disconnect	If connected to your ISP, hang up the connection.
Clear Log	Delete all data currently in the Log. This will make it easier to read new messages.
Refresh	Contact this device and update the Log data.

Connection Log Messages

Message	Description
Connect on Demand	Connection attempt has been triggered by the "Connect on Demand" setting.
Manual connection	Connection attempt started by the "Connect" button.
Reset physical connection	Preparing line for connection attempt.
Connecting to remote server	Attempting to connect to the ISP's server.
Remote Server located	ISP's Server has responded to connection attempt.
Start PPP	Attempting to login to ISP's Server and establish a PPP connection.
PPP up successfully	Able to login to ISP's Server and establish a PPP connection.
Idle time-out reached	The connection has been idle for the time period specified in the "Idle Time-out" field. The connection will now be terminated.
Disconnecting	The current connection is being terminated, due to either the "Idle Time-out" above, or "Disconnect" button being clicked.
Error: Remote Server not found	ISP's Server did not respond. This could be a Server problem, or a problem with the link to the Server.
Error: PPP Connection failed	Unable to establish a PPP connection with the ISP's Server. This could be a login problem (name or password) or a Server problem.
Error: Connection to Server lost	The existing connection has been lost. This could be caused by a power failure, a link failure, or Server failure.
Error: Invalid or unknown packet type	The data received from the ISP's Server could not be processed. This could be caused by data corruption (from a bad link), or the Server using a protocol which is not supported by this device.

LAN/Device Status

The ***LAN Status*** link on the menu will result in a screen like the example below.

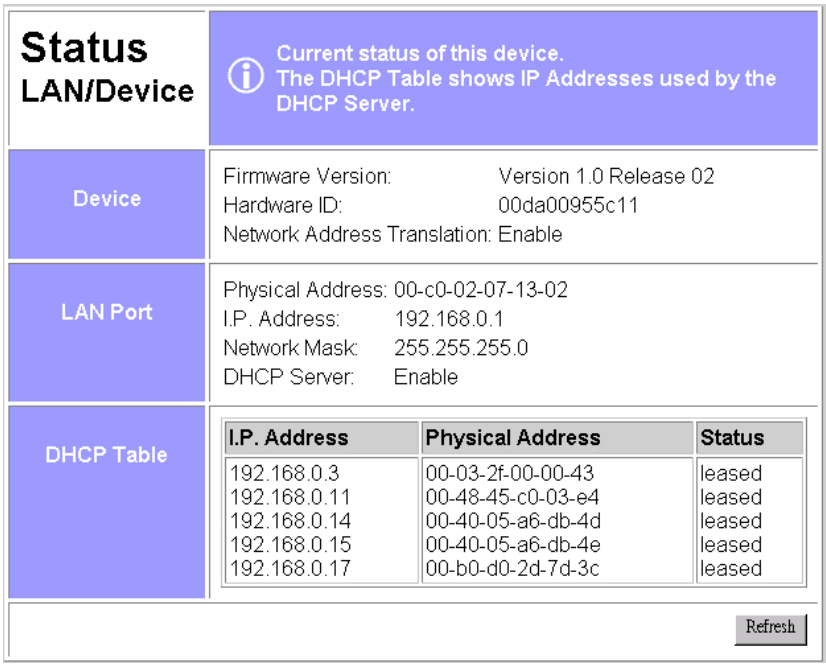

Figure 11: Status Screen

Data – LAN/Device Status

Device	
Firmware Version	Version of the firmware (embedded software, including this program) which is currently installed.
Hardware ID	The hardware ID of this device, used by the manufacturer.
Network Address Translation	This will display "Enabled" (NAT is On) or "Disabled" (NAT is Off)
LAN Port	
Physical Address	The "Hardware" address of this device, as seen by other devices on the Internal LAN.
IP Address	The IP Address of this device, as seen by other devices on the Internal LAN.
Network Mask	The Network Mask (Subnet Mask) for the IP Address above.
DHCP Server	This shows the status of the DHCP Server function. The value will be "Enabled" or "Disabled".
DHCP Table	
IP Address	The IP Address which has been allocated by the DHCP server to the other device.
Physical Address	The Physical Address (Hardware Address) of the device which has been allocated a IP Address.

Status	Possible Status values are "Leased" (the IP Address is allocated to the device shown) or "Reserved" (the IP Address is not available).

Note:

The DHCP table will be empty unless the DHCP Server function is being used. If not empty, this table lists the devices on the LAN which have been allocated IP Addresses by the DHCP server function.

Chapter 4
PC Configuration

This Chapter details the PC Configuration required on the local ("Internal") LAN.

Overview

For each PC, the following may to be configured:

- TCP/IP network settings
- Internet Access configuration

TCP/IP Settings

If using the default Broadband Router settings, and the default Windows 95/98 TCP/IP settings, no changes need to be made.

- By default, the Broadband Router will act as a DHCP Server, automatically providing a suitable IP Address to each PC when the PC boots.
- The default Windows 95/98 TCP/IP setting is to act as a DHCP client.

To check your PC's TCP/IP Settings:

1. Select *Control Panel - Network*. You should see a screen like the following:

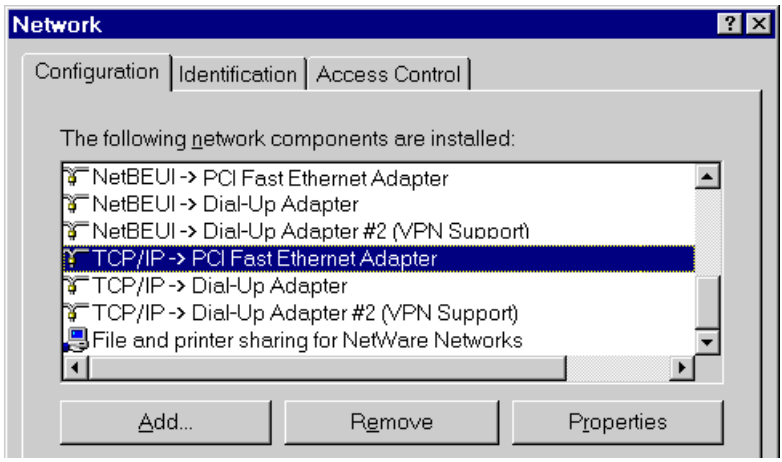

Figure 12: Network Configuration

2. Select the *TCP/IP* protocol for your network card.
3. Click on the *Properties* button. You should then see a screen like the following.

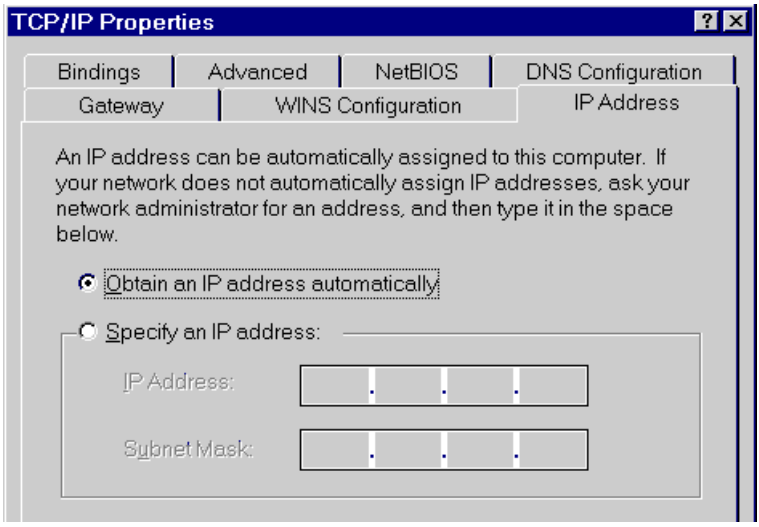

Figure 13: IP Address (Win 95)

Ensure your TCP/IP settings are correct, as follows:

Using DHCP

To use DHCP, select the radio button *Obtain an IP Address automatically*. This is the default Windows settings.

Restart your PC to ensure it obtains an IP Address from the Broadband Router.

Using "Specify an IP Address"

- If your PC is already configured, do NOT change the settings on the IP Address tab shown in Figure 13 above.
- On the *Gateway* tab, enter the Broadband Router's IP address in the *New Gateway* field and click *Add*. Your LAN administrator can advise you of the IP Address they assigned to the Broadband Router.

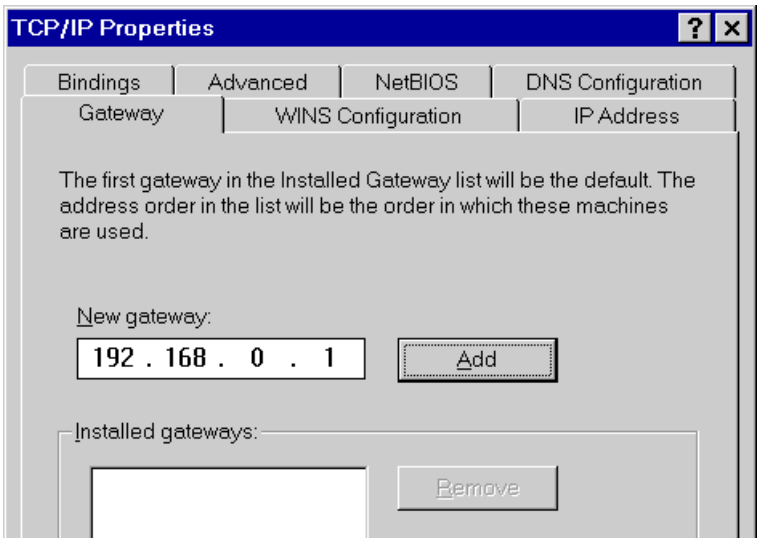

Figure 14: Gateway Tab (Win 95/98)

- On the *DNS Configuration* tab, ensure *Enable DNS* is selected. If the *DNS Server Search Order* list is empty, enter the DNS address provided by your ISP in the fields beside the *Add* button, then click *Add*.

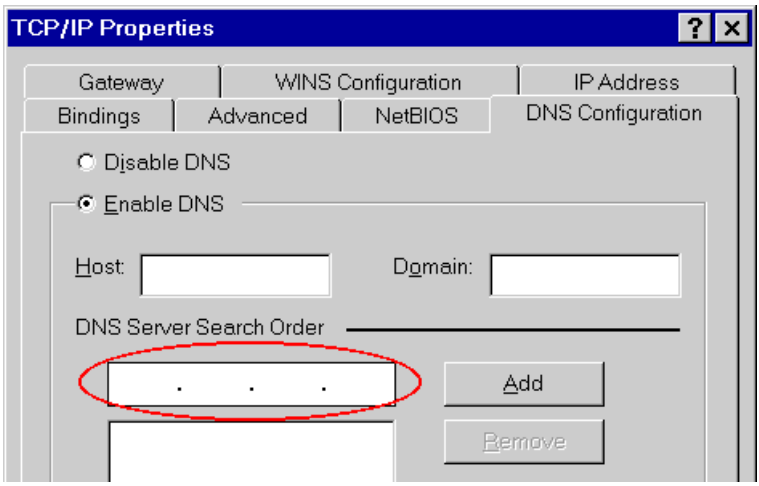

Figure 15: DNS Tab (Win 95/98)

If your LAN has a Router, the LAN Administrator must re-configure the Router itself. Refer to *Chapter 6 - Routing* for details.

Internet Access Configuration

If you are using the Broadband Router for Internet access:

- Ensure that the DSL modem, Cable modem, or other permanent connection is functional.
- Use the following procedure to configure your Browser to access the Internet via the LAN, rather than by a Dial-up connection.

1. Select *Start Menu - Settings - Control Panel - Internet Options*.
2. Select the *Connection* tab, and click the *Setup* button.
3. Select "I want to set up my Internet connection manually, or I want to connect through a local area network (LAN)" and click "Next".
4. Select "I connect through a local area network (LAN)" and click "Next".
5. Ensure all of the boxes on the following *Local area network Internet Configuration* screen are **unchecked**.
6. Check the "No" option when prompted “Do you want to set up an Internet mail account now?”.
7. Click "Finish" to close the Internet Connection Wizard.
8. Then simply use your Browser, FTP client, or other Internet client to connect to the desired Internet site.

Accessing AOL

To access AOL (America On Line) through the Broadband Router, the *AOL for Windows* software must be configured to use TCP/IP network access, rather than a dial-up connection. The configuration process is as follows:

- Start the *AOL for Windows* communication software. Ensure that it is Version 2.5, 3.0 or later. This procedure will not work with earlier versions.
- Click the *Setup* button.
- Select *Create Location*, and change the location name from "New Locality" to "Broadband Router".
- Click *Edit Location*. Select *TCP/IP* for the *Network* field. (Leave the *Phone Number* blank.)
- Click *Save*, then *OK*.
  Configuration is now complete.
- Before clicking "Sign On", always ensure that you are using the "Broadband Router" location.

Macintosh Configuration

You can access the Internet via the Broadband Router. The procedure is as follows.

1. Open the TCP/IP Control Panel.
2. Select *Ethernet* from the *Connect via* pop-up menu.
3. Select *Using DHCP Server* from the *Configure* pop-up menu. The DHCP Client ID field can be left blank.
4. Close the TCP/IP panel, saving your settings.

Note:

If using manually assigned IP addresses instead of DHCP, the only change required is to set the *Router Address* field to the Broadband Router's IP Address.

Chapter 5
DHCP

This Chapter covers the use of DHCP, using either an existing DHCP Server or the Broadband Router's DHCP Server function.

Overview

If your LAN does not use DHCP, and you do not wish to use DHCP, you can ignore this chapter.

What DHCP Does

A DHCP (Dynamic Host Configuration Protocol) **server** allocates a valid IP address to a DHCP **client** (PC or device) upon request.

- The client request is made when the client device boots.
- The DHCP Server provides the *Gateway* and *DNS* addresses to the client, as well as allocating an IP Address.
- Windows 95/98/ME include all the software required to act as a DHCP **client**. This is the default Windows setting for TCP/IP.
- The Broadband Router can act as a **DHCP server**.

Using the Broadband Router's DHCP Server

This is the default setting. The DHCP Server settings are on the ***LAN*** screen. On this screen, you can:

- Enable or Disable the Broadband Router's *DHCP Server* function.
- Set the range of IP Addresses allocated to PCs by the DHCP Server function.

You can assign Fixed IP Addresses to some devices while using DHCP, provided that the Fixed IP Addresses are NOT within the range used by the DHCP Server.

Using another DHCP Server

You can only use one (1) DHCP Server. If you wish to use another DHCP Server, rather than the Broadband Router's, the following procedure is required.

1. Disable the DHCP Server feature in the Broadband Router. This setting is on the LAN screen.
2. Configure the DHCP Server to provide the Broadband Router's IP Address as the *Default Gateway*.

To Configure your PCs to use DHCP

This is the default setting for TCP/IP under Windows 95/98/ME.

In Windows, the DHCP Client setting is called "Obtain an IP Address Automatically".

See *Chapter 4 – PC Configuration* for the procedure to check these settings.

Chapter 6
Routing

6

This Chapter explains the Routing features of the Broadband Router.

Overview

While the Broadband Router includes a standard (static) routing table, this feature can be completely ignored if you do not have a router in your LAN.

If you DO have a router, it is necessary to configure BOTH the Router and the Routing table in the Broadband Router correctly, as described in the following sections.

See *Routing Example* later in this Chapter for an example of configuring both the Broadband Router and the Router.

Broadband Router Configuration

The routing table is accessed by the *Routing* link on the Home screen. An example screen is shown below.

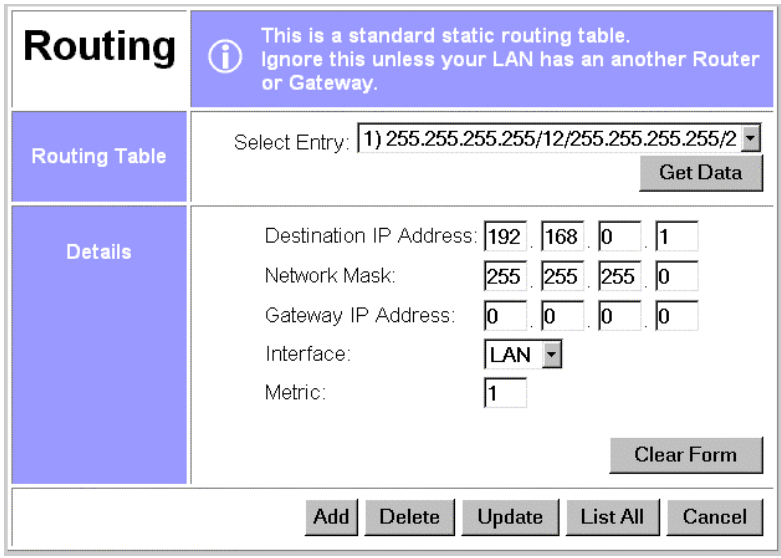

Figure 16: Routing Screen

Using this Screen

- Any existing entries are listed.
- To view and edit the details of an existing entry, select it, and click "Get Data". After making any changes, click the "Update" button to save your changes.
- To add a new entry, click "Clear Form", enter your data, then click the "Add" button.

Routing Table Data

An entry in the routing table is required for each LAN segment on your Network, other than the segment to which this device is attached. The data in the Routing Table is as follows.

Destination IP Address	The network address of the remote LAN segment. For standard class "C" LANs, the network address is the first 3 fields of this *Destination IP Address*. The 4th (last) field can be left at 0.
Network Mask	The Network Mask used on the remote LAN segment. For class "C" networks, the standard Network Mask is 255.255.255.0
Gateway IP Address	The IP Address of the Router on the LAN segment to which this device is attached. (NOT the router on the remote LAN segment.)
Interface	Select the appropriate interface - LAN (Internal LAN) or WAN (External LAN or WAN) from the drop-down list.
Metric	The number of routers which must be traversed to reach the remote LAN segment. The default value is 1.

Router Configuration

It is essential that all IP packets for devices not on the local LAN be passed to the Broadband Router, so that they can be forwarded to the external LAN, WAN, or Internet. To achieve this, the local LAN must be configured to use the Broadband Router as the *Default Route* or *Default Gateway*.

Local Router

The local router is the Router installed on the same LAN segment as the Broadband Router. This router requires that the *Default Route* is the Broadband Router itself. Typically, routers have a special entry for the *Default Route*. It should be configured as follows.

Destination IP Address	Normally 0.0.0.0, but check your router documentation.
Network Mask	Normally 0.0.0.0, but check your router documentation.
Gateway IP Address	The IP Address of the Broadband Router.
Metric	1

Other Routers on the Local LAN

Other routers on the local LAN must use the Broadband Router's *Local Router* as the *Default Route*. The entries will be the same as the Broadband Router's local router, with the exception of the *Gateway IP Address*.

- For a router with a direct connection to the Broadband Router's local Router, the *Gateway IP Address* is the address of the Broadband Router's local router.
- For routers which must forward packets to another router before reaching the Broadband Router's local router, the *Gateway IP Address* is the address of the intermediate router.

Routing Example

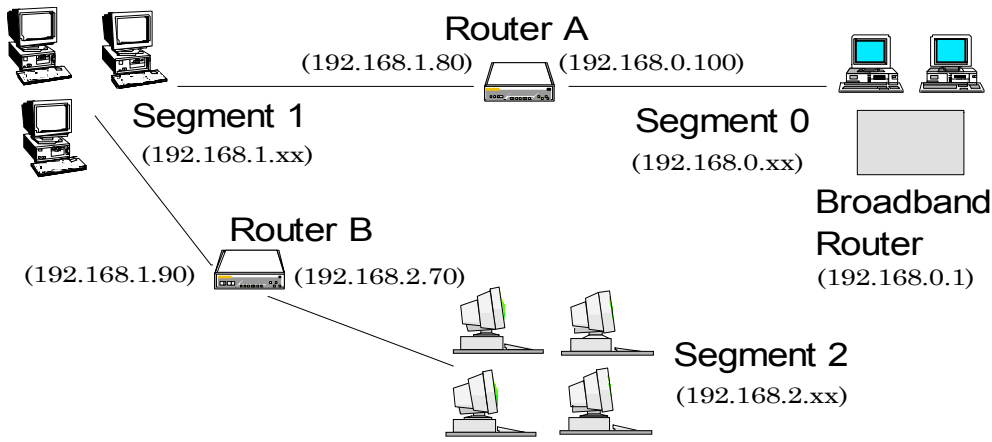

Figure 17: Routing Example

For the LAN shown above, with 2 routers and 3 LAN segments, the required entries would be as follows.

For the Broadband Router's Routing Table

The Broadband Router requires 2 entries as follows.

Entry 1 (Segment 1)	
Destination IP Address	192.168.1.0
Network Mask	255.255.255.0 (Standard Class C)
Gateway IP Address	192.168.0.100 (Broadband Router's local Router)
Interface	LAN
Metric	1
Entry 2 (Segment 2)	
Destination IP Address	192.168.2.0
Network Mask	255.255.255.0
Gateway IP Address	192.168.0.100
Interface	LAN
Metric	2

For Router A's Default Route

Destination IP Address	0.0.0.0
Network Mask	0.0.0.0
Gateway IP Address	192.168.0.1 (Broadband Router's IP Address)

For Router B's Default Route

Destination IP Address	0.0.0.0
Network Mask	0.0.0.0
Gateway IP Address	192.168.1.80 (Broadband Router's local router)

Chapter 7
Device Options

This Chapter details the options available on the Broadband Router's "Options" screen.

Overview

An example Options screen is shown below.

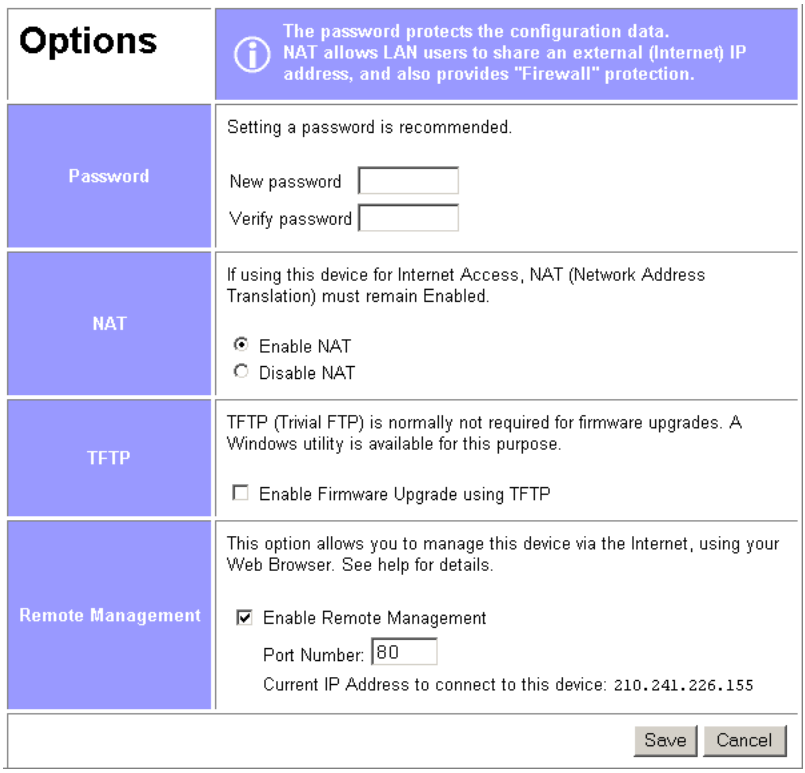

Figure 18: Options Screen

Password

Once a password is entered, it is required in order to change the device configuration. Passwords are case sensitive and can be up to 8 alphanumeric characters (no spaces or punctuation).

To create or change the password, enter the required password in both the *New Password* and *Verify Password* input fields.

When prompted for the password, leave the "User Name" blank.

NAT (Network Address Translation)

NAT allows PCs on your LAN to share a single external (Internet) IP Address. This IP Address is supplied by your ISP. Use the following to determine whether or nor you need NAT.

- For Internet access, NAT **must be left On** unless all PCs on your LAN have valid external IP Addresses.
- If this device is not being used to provide shared Internet access, NAT is not normally required. With NAT disabled, the Broadband Router will act as a static router.
- If NAT is disabled, the Firewall protection provided by the Broadband Router is lost, and the *Advanced Internet* features (Virtual Servers, Special Applications, and DMZ) are no longer available.

TFTP

TFTP (Trivial FTP) can be used to upgrade the firmware in the Broadband Router. However, this is not normally required; there is a Windows utility available for this purpose.

Remote Management

This feature allows you to manage the Broadband Router via the Internet.

Enable Remote Management	Enable to allow management via the Internet. If Disabled, this device will ignore management connection attempts from the WAN port.
Port Number	Enter a port number between 1024 and 65535 (8080 is recommended). This port number must be specified when you connect (see below). **Note:** The default port number for HTTP (Web) connections is port 80, but using port 80 here will prevent the use of a Web "Virtual Server" on your LAN. (See *Advanced Internet - Virtual Servers*)
Current WAN Port IP Address	You must use this IP Address to connect (see below). This IP Address is allocated by your ISP. But if using a Dynamic IP Address, this value can change each time you connect to your ISP. So it is better if your ISP allocates you a Fixed IP Address.

To connect from a remote PC via the Internet

1. Ensure your Internet connection is established, and start your Web Browser.
2. In the "Address" bar, enter "HTTP://" followed by the WAN IP Address of the Broadband Router. If the port number is not 80, the port number is also required. (After the IP Address, enter ":" followed by the port number.)
   e.g.
   `HTTP://123.123.123.123:8080`
   This example assumes the WAN IP Address is 123.123.123.123, and the port number is 8080.

Chapter 8
Advanced Internet

This Chapter explains how to use the "Advanced Internet" features.

Overview

For situations where the Broadband Router is being used to provide shared Internet access, the following advanced features are provided.

- Special Internet Applications
- Virtual Servers
- DMZ

This chapter contains details of the configuration and use of each of these features.

Advanced Internet Screen

This screen provides access to the advanced Internet features, and provides a convenient overview and control center. An example screen is shown below.

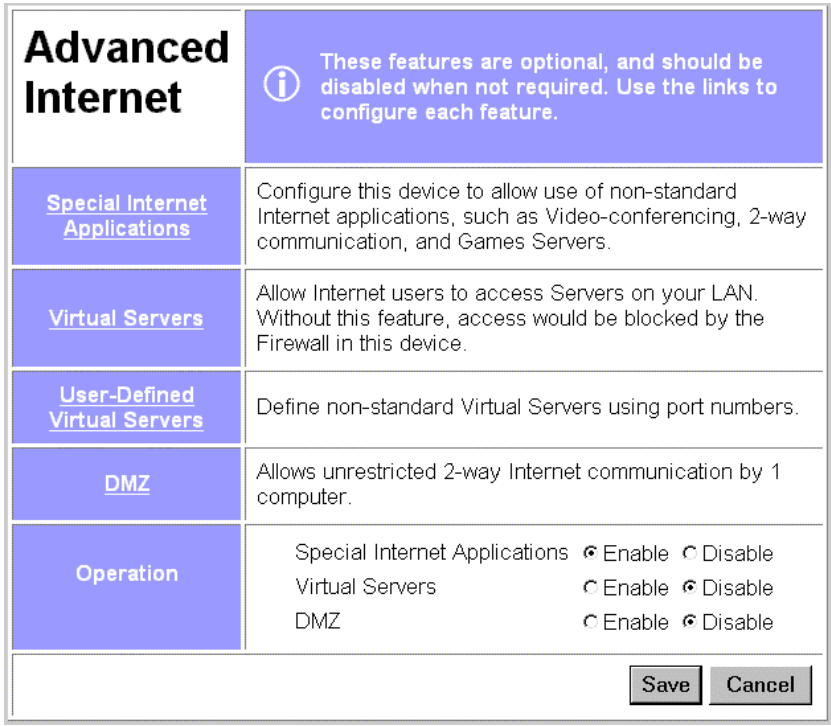

Figure 19: Advanced Internet Screen

On this screen, you can enable any required feature. By default, all features are disabled.

Special Internet Applications

This feature is only required if you wish to use Internet applications which require 2-way communication, multiple connections, or combined TCP/UDP connections.

Examples of such applications are Internet Videoconferencing, Telephony, Games Servers, and other special-purpose Servers.

Generally, you will become aware of the need for this feature when an Internet application is unable to function correctly.

Note!

At any time, only one (1) PC can use each Special Application.

Special Applications Screen

This screen can be reached by selecting *Special Internet Applications*. An example screen is shown below.

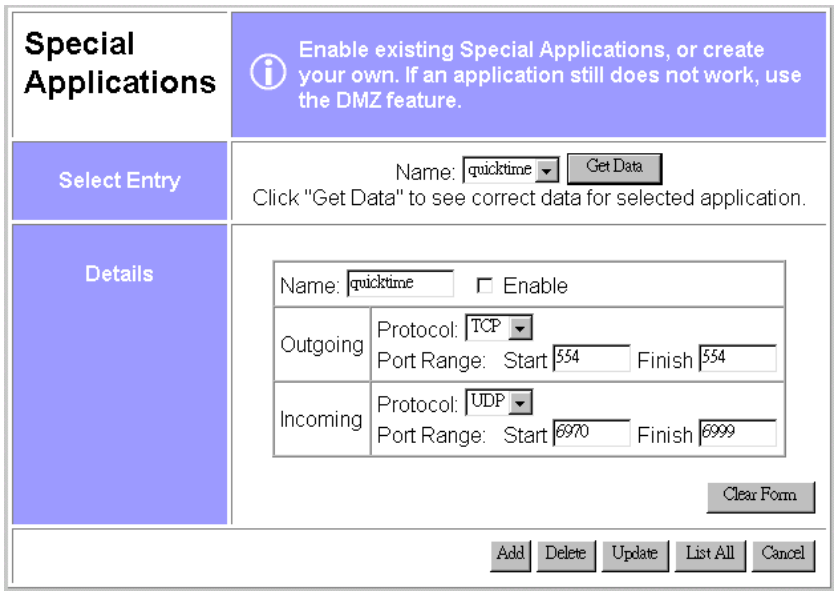

Figure 20: Special Applications Screen

Using a Special Application

- Ensure that *Special Applications* has been enabled on the *Advanced Internet* screen.
- Configure the *Special Applications* screen as required.

Note!

Configuration data must be obtained from the Service/Application provider.

If an application still cannot function correctly, try using the "DMZ" feature.

Some Special Applications have been defined not enabled.

- **To Enable a defined Application**
  - Select it from the drop-down list
  - Click "Get Data"
  - Check the *Enable* checkbox
  - Click "Update"
- **To Disable a defined Application**
  - As above, but uncheck the *Enable* checkbox.
- **To Delete a defined Application**
  - Select it from the drop-down list,
  - Click "Delete"
- **To Modify (Edit) a defined Application**
  - Select it from the drop-down list,
  - Click "Get Data"
  - Make any desired changes
  - Click "Update"
- **To Create a new Application**
  - Click "Clear Form"
  - Enter the required data, as described below
  - Click "Add"
- **To List all Applications**
  - Click "List All"

Configuration Data (from Service Provider)

This data must be obtained from the service provider.

Name	Enter a descriptive name to identify this application entry.
Enable	Use this to Enable or Disable support for this application, as required.
Outgoing	
Protocol	The protocol (TCP or UDP) used when you connect to the special application service.
Port Range: Start	The beginning of the range of port numbers used by the application server, for data you send to it. If the application uses a single port number, enter it in both the "Start" and "Finish" fields.
Port Range: Finish	The end of the range of port numbers used by the application server, for data you send.
Incoming	
Protocol	The protocol (TCP or UDP) used when the application or service sends data to you.
Port Range: Start	The start of the range of port numbers used by the application server when data is sent to you. If using only one port number, enter it in both the "Start" and "Finish" fields.
Port Range: Finish	The end of the range of port numbers used by the application server, when data is sent to you.

Virtual Servers

This feature allows you to make Servers on your LAN accessible to Internet users. Normally, Internet users would not be able to access a server on your LAN because:

- Your Server does not have a valid external IP Address.
- Attempts to connect to devices on your LAN are blocked by the firewall in this device.

The "Virtual Server" feature solves these problems and allows Internet users to connect to your servers, as illustrated below.

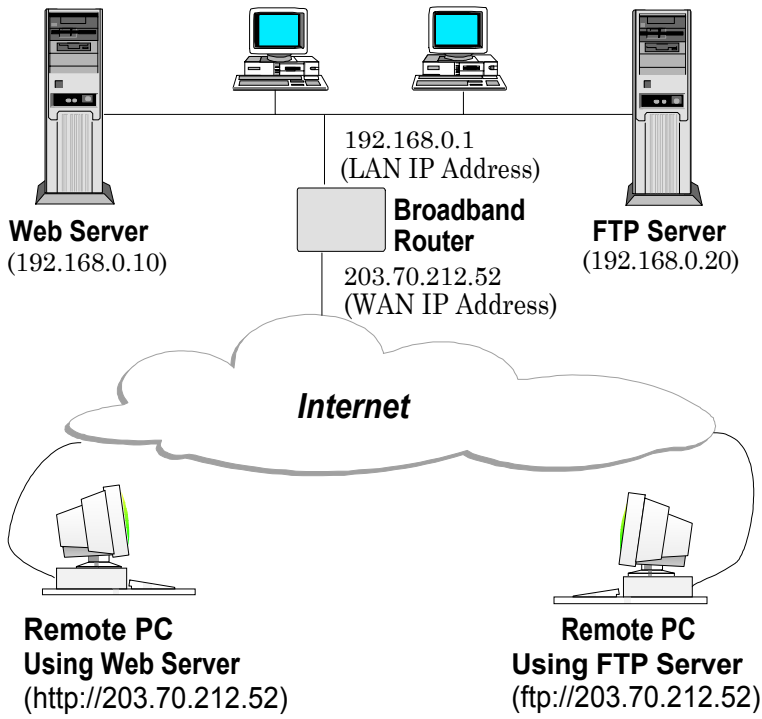

Figure 21: Virtual Servers

IP Address seen by Internet Users

Note that, in this illustration, both Internet users are connecting to the same IP Address, but using different protocols.

To Internet users, all virtual Servers on your LAN have the same IP Address. This IP Address is allocated by your ISP.

This address should be static, rather than dynamic, to make it easier for Internet users to connect to your Servers. If using a Static IP Address, it is entered on the "WAN" screen.

Types of Virtual Servers

The Broadband Router supports two (2) types of Virtual Servers:

- **Pre-defined** - Standard server types. The only data required is the IP Address of the server on your LAN.
- **User-defined** - Non-standard servers. You must provide additional information about the server.

Note: The TOTAL number of Virtual Servers which can be used at any time is 10.

Virtual Server Configuration

The *Virtual Servers* screen is reached by the *Advanced Internet - Virtual Servers* link. An example screen is shown below.

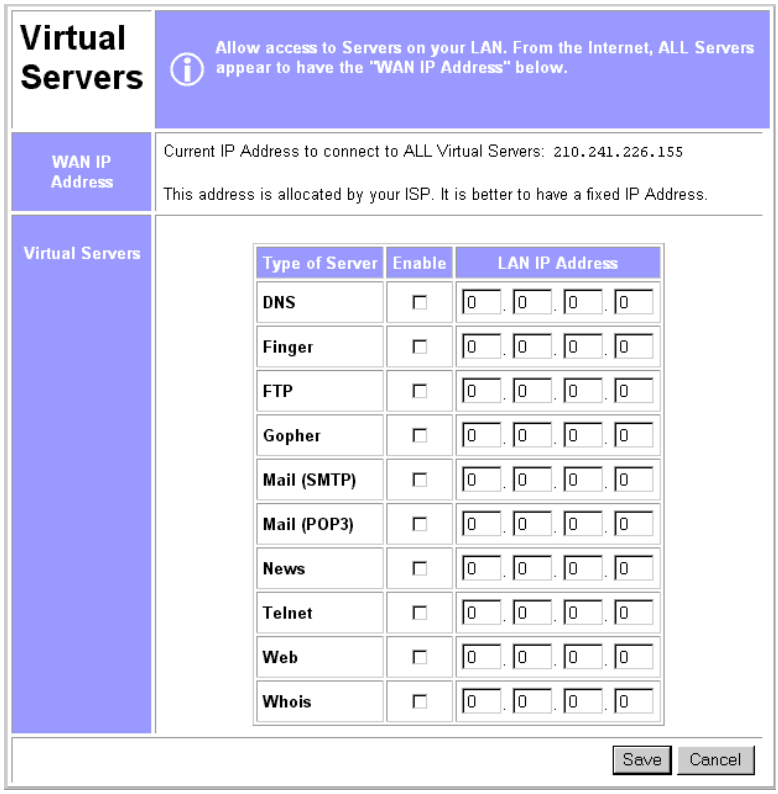

Figure 22: Virtual Server Screen

Data

WAN IP Address	• This shows the IP Address which Internet users must use to connect to any of your Virtual Servers. • To Internet Users, ALL your Virtual Servers have the same IP Address. • This IP Address is allocated by your ISP. It is better to have a fixed IP Address.
Type	Select the type of Server you wish to use.
Enable	Check to enable this Server.

LAN IP Address	• Enter the IP Address of a PC on your LAN.
	• You must install and configure the appropriate Server software on the PC entered here.
	• If using DHCP, the LAN IP Address of a PC may change. To solve this problem, use either of these methods:
	  • Assign a fixed IP Address to the Server PC, ensuring that its IP Address is NOT within the address range allocated by the DHCP Server.
	  • Reserve an IP Address for the Server PC in the DHCP Server, using the *Access Control - PC* screen.

User Defined Virtual Servers

If the type of Server you wish to use is not listed on the *Virtual Servers* screen, you can define it using this feature.

Select *Advanced Internet* - *User Defined Virtual Servers* to see a screen like the example below.

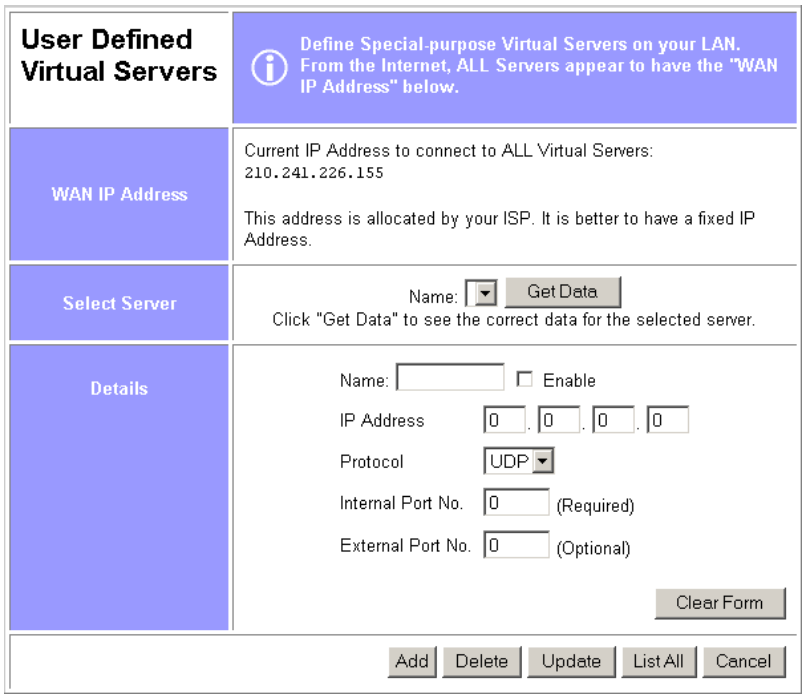

Figure 23: User Defined Virtual Servers

- **To Create a new Server**
  - Click "Clear Form"
  - Enter the required data (See next section)
  - Click "Add"
- **To Modify (Edit) a defined Server**
  - Select it from the drop-down list,
  - Click "Get Data"
  - Make any desired changes. Note that you can "Enable" and "Disable" a Server using this process.
  - Click "Update"
- **To Delete a defined Server**
  - Select it from the drop-down list,
  - Click "Delete"
- **To List all Servers**
  - Click "List All"

Data

WAN IP Address	• This shows the IP Address which Internet users must use to connect to any of your Virtual Servers. • To Internet Users, ALL your Virtual Servers have the same IP Address. • This IP Address is allocated by your ISP. It is better to have a fixed IP Address.
Select Server	This lists any Servers you have defined. Click the "Get Data" button to view the correct data for the selected Server.
Details	
Name	Enter a descriptive name to identify this Server entry.
Enable	Use this to Enable or Disable support for this Server, as required.
IP Address	The IP Address of the PC on your LAN which is running the Server software.
Protocol	Select the protocol (TCP or UDP) used by the Server.
Internal Port Number	Enter the port number used by the Server to connect to clients.
External Port Number	The port number used by clients when connecting to the Server. This is normally the same as the *Internal Port Number*. If it is different, this device will perform a "mapping" or "translation" function, allowing the server to use one port address, while clients use a different port address.

From the Internet, ALL Virtual Servers have the IP Address allocated by your ISP, as shown by the "WAN IP Address".

Connecting to the Virtual Servers

Once configured, anyone on the Internet can connect to your Virtual Servers. They must use the WAN Port IP Address (the IP Address allocated to this device by your ISP).

e.g.

```
http://203.70.212.52
ftp://203.70.212.52
```

It is more convenient if you are using a Fixed IP Address from your ISP, rather than Dynamic. If using a Fixed IP Address, it is entered on the *WAN* screen.

DMZ

This feature, if enabled, allows one (1) computer on your LAN to be exposed to all users on the Internet, allowing unrestricted 2-way communication between the "DMZ" PC and other Internet users or Servers.

This allows connection to special-purpose servers, which require proprietary client software, or 2-way user connections such as Video-conferencing, which requires both users to run special software.

To allow unrestricted access, the Firewall in this device is disabled, creating a security risk.

You should use this feature only if the "Special Applications" feature is insufficient to allow an application to function correctly. This feature should be turned ON only when needed, and left OFF the rest of the time.

Configuring the DMZ

Select *Advanced Internet* from the navigation bar, then *DMZ*. You will see a screen like the following:

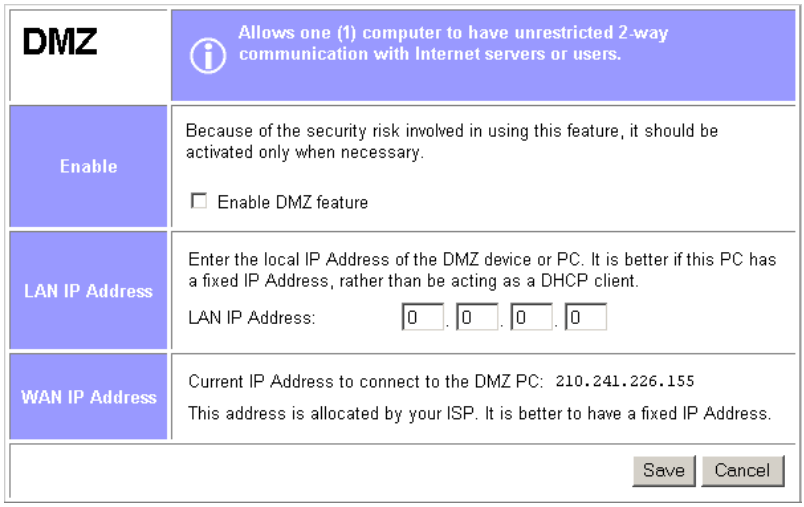

Figure 24: DMZ Screen

Data

Enable	
Enable DMZ Feature	Use this to Enable or Disable the DMZ feature. The DMZ feature should be disabled when not required.
LAN IP Address	
LAN IP Address	Enter the IP Address of the PC on your LAN which will become the "DMZ" PC. If using DHCP, the LAN IP Address of a PC may change. To solve this problem, you can use either of these methods: • Assign a fixed IP Address to the DMZ PC, ensuring that its IP Address is NOT within the address range allocated by the DHCP Server. • Reserve an IP Address for the DMZ PC in the DHCP Server, using the *Access Control - PC* screen.
WAN IP Address	
WAN IP Address	This is the IP Address Internet users must use to connect to the "DMZ" PC. This IP Address is allocated by your ISP. It is better if you are using a fixed IP Address, so that it never changes. This will make it easier for Internet users to connect to you. If using a Static IP Address, it is entered on the "WAN" screen.

To Internet users, the IP Address of the DMZ computer is the IP Address allocated by your ISP, as shown by the "WAN IP Address" value.

Chapter 9
Access Control

9

This Chapter explains how to configure and use the Broadband Router's "Access Control" feature.

Overview

The Access Control feature allows administrators to restrict Internet Access by individual PCs. The process uses "Packet Filtering" to block or discard data packets. By default, no packets are blocked or discarded.

To use this feature:

- Set the desired restrictions on the "Everyone" group.
  - All PCs are in the "Everyone" group unless explicitly moved to another group, using the *PC* screen.
  - Generally, access rights are managed by making the "Everyone" group the **most restrictive** group. Additional access rights then have to be explicitly granted by assigning a user to a less restrictive group.
    However, if you wish to restrict only a small number of users, it may be more convenient to reverse this, and make the "Everyone" group the **least restrictive** group. Only users requiring restrictions need to be assigned to a more restrictive group.
- Set the desired restrictions on the other groups ("Group 1", "Group 2", etc) as needed.
- For each PC you wish to move from the "Everyone" group, enter their details on the *PCs* screen, and assign them to the desired group

You can limit Internet access for ALL PCs without entering ANY PC data. Simply apply the desired restrictions to the "Everyone" group.

It is also possible to define your own packet filters, and use these filters in addition to the predefined filters. Defining your own filters is optional.

Security Groups

The *Security Groups* screen is reached from the *Access Control* link on the navigation bar. An example screen is shown below.

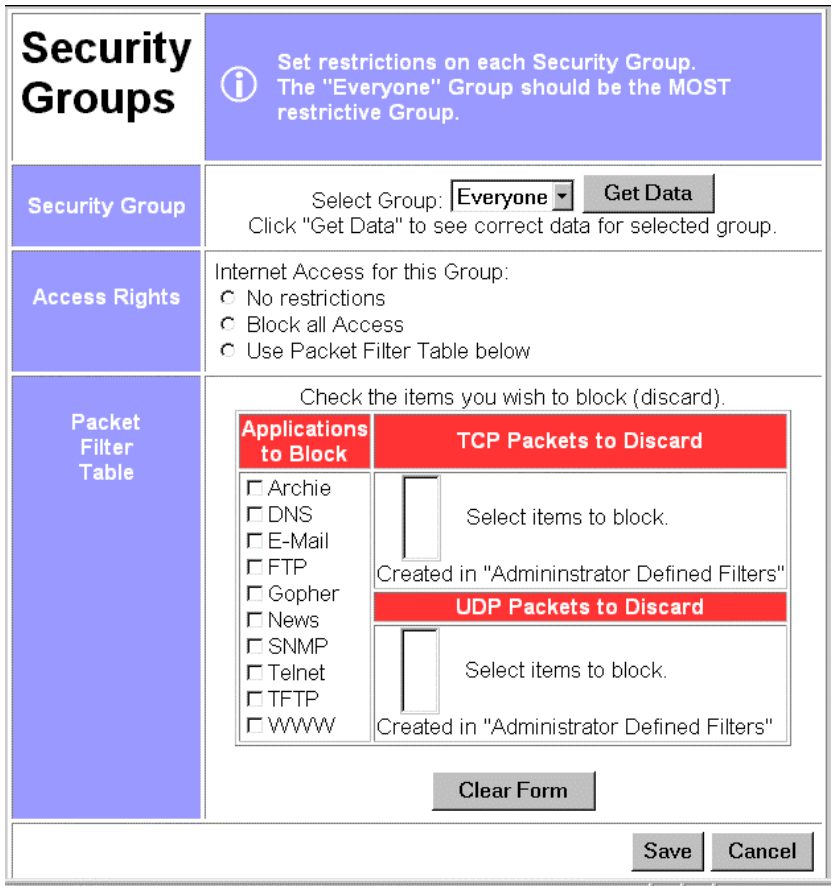

Figure 25: Security Groups Screen

Note that the Security groups are pre-named "Everyone", "Group 1", "Group 2", "Group 3", and "Group 4".

Operations

- **To Define a Security Group:**
  Select the group from the drop-down box, then enter the required data. If necessary, click *Clear Form* to remove the existing information shown on screen.
  Click the *Save* button when finished.
- **To Change Access for an Existing Group**:
  Select the group from the drop-down box, click *Get Data* to view their information, then change any fields you wish.
  Click *Save* when finished.
- **To Assign PCs to a Security Group**
  All PCs are initially in the "Everyone" group. Use the *PCs* screen to move individual PCs to other groups as required.

Data

The following data is required.

Access Rights: Internet Access for this Group	
No restrictions	No packets are blocked. Use this to create an "Unlimited Access" group, or to temporarily remove restrictions.
Block all Access	Group members cannot access the Internet at all. Use this to create the most restrictive group.
Use Packet Filter Table below	Use this to define intermediate levels of access. Using the Packet Filter table gives you fine control over Internet access. Simply select the items you wish to block. You can choose from the pre-defined filters in the *Applications to Block* column, or your own filters in the *TCP Packets to Discard* and *UPD Packets to Discard* column.
Packet Filter Table	
Applications to Block	Any items checked will be blocked. Users will not be able to use the application.
TCP Packets to Discard	This lists any TCP filters you have defined on the *Filters* screen. If no filters have been defined, this is empty. Multiple items can be selected (or deselected) by holding down the Ctrl key while selecting items. Selected items can NOT be accessed by members of this group.
UDP Packets to Discard	This lists any UDP filters you have defined on the *Filters* screen. If no filters have been defined, this is empty. Multiple items can be selected (or deselected) by holding down the Ctrl key while selecting items. Selected items can NOT be accessed by members of this group.

If you have not defined your own filters, but wish to do so, refer to "Filters" on page 47.

PCs

The *PCs* screen is reached from the *Access Control* link on the navigation bar. An example screen is shown below.

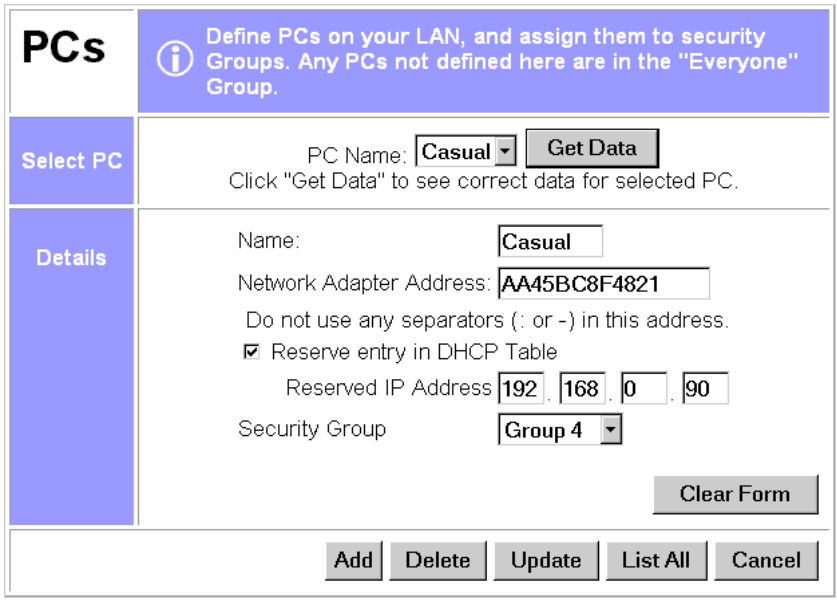

Figure 26: PCs Screen

Note that the drop-down box lists all PCs previously entered. If none have been entered, this box will be empty.

Operations

- **To Add a New PC**:
  Ignore the drop-down box, click the *Clear Form* button, and enter the PC details in the fields provided.
  Click *Add* when finished.
- **To Delete an Existing PC:**
  Select the PC from the drop-down box, click *Get Data* to view the information and confirm that this is the correct PC, then click the *Delete* button.
- **To Change an Existing PC's Details**:
  Select the PC from the drop-down box, click *Get Data* to view their information, then change any fields you wish.
  Click *Update* when finished.
- **To Generate a List of all PCs:**
  Just click on the *List All* button.

Data

PC Name	Enter a name to identify this PC.
Network Adapter Address	Hardware address for this PC. You can use the Windows "Winipcfg" program or your LAN management program to find this address.
Reserve entry in DHCP Table	Check this if you wish to reserve an IP address for this PC. This is useful if you have to provide the IP Address for other programs or users. If this is left unchecked, the following entry can be ignored.
Reserved IP Address	This relates to the entry above. Enter the reserved address here. This MUST be within the range used by the DHCP server (set on the *Device – Internal LAN Port* screen).
Security Group	Select the security group for this PC. If you only wish to reserve an IP Address, and are not using the security (access control) features, simply leave this at "Everyone".

Filters

The *Filters* screen is reached from the *Access Control* link on the navigation bar. An example screen is shown below.

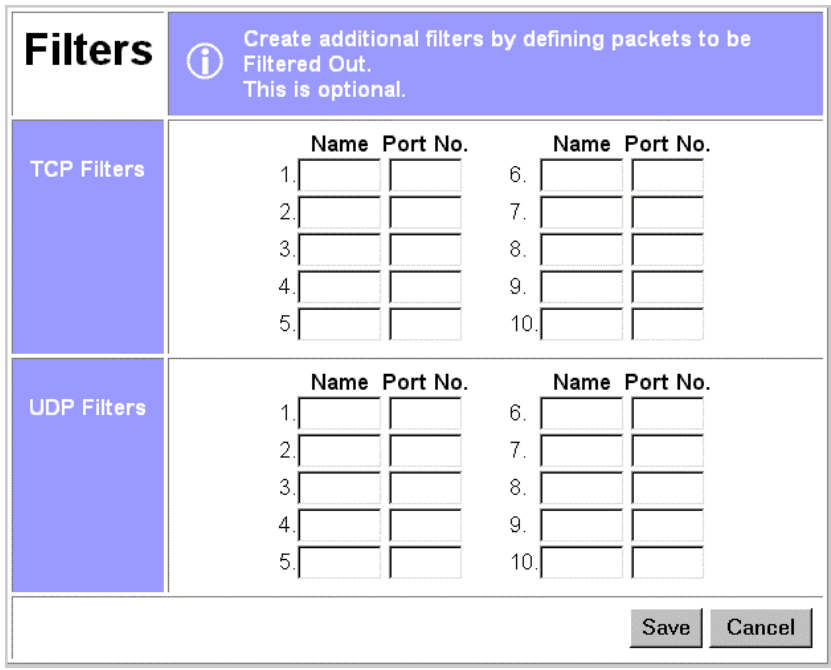

Figure 27: Filters Screen

This screen allows you to define packet filters. When you define security groups, on the "Security Groups" screen, you can select from any filters defined here, as well as the pre-defined filters.

Data

TCP Packets

Define the packets you wish to be filtered out, by entering the following data.

TCP Filters	
Name	Enter a descriptive name for this entry.
Port No.	Enter an integer representing the Port Number for this type of packet. This information can normally be provided by the service provider. Otherwise, a Network Analyzer or Packet Sniffer can be used to determine the correct port number.
UDP Filters	
Name	Enter a descriptive name for this entry.
Port No.	Enter an integer representing the Port Number for this type of packet. This information can normally be provided by the service provider. Otherwise, a Network Analyzer or Packet Sniffer can be used to determine the correct port number.

Appendix A
Troubleshooting

This Appendix covers the most likely problems and their solutions.

Overview

This chapter covers some common problems that may be encountered while using the Broadband Router and some possible solutions to them. If you follow the suggested steps and the Broadband Router still does not function properly, contact your dealer for further advice.

General Problems

Problem 1: **Can't connect to the Broadband Router to configure it.**

Solution 1: Check the following:

- The Broadband Router is properly installed, LAN connections are OK, and it is powered ON.
- Ensure that your PC and the Broadband Router are on the same network segment. (If you don't have a router, this must be the case.)
- Ensure that your PC is using an IP Address within the range 192.168.0.2 to 192.168.0.254 and thus compatible with the Broadband Router's default IP Address of 192.168.0.1.
  Also, the Network Mask should be set to 255.255.255.0 to match the Broadband Router.
  In Windows, you can check these settings by using *Control Panel-Network* to check the *Properties* for the TCP/IP protocol.

Internet Access

Problem 1: **When I enter an URL or IP address I get a time out error.**

Solution 1: A number of things could be causing this. Try the following troubleshooting steps.

- Check if other PCs work. If they do, ensure that your PCs IP settings are correct (IP address, Network Mask, Default gateway and DNS).
- If the PCs are configured correctly, but still not working, check the Broadband Router. Ensure that it is connected and ON. Connect to it and check its settings and status. (If you can't connect to it, check the LAN and power connections.)
- If the Broadband Router is configured correctly, check your Internet connection (DSL/Cable modem etc) to see that it is working correctly.

Problem 2: **Some applications do not run properly when using the Broadband Router.**

Solution 2: The Broadband Router processes the data passing through it, so it is not transparent.

Use the *Special Applications* feature to allow the use of Internet applications which do not function correctly.

If this does solve the problem you can use the *DMZ* function. This should work with almost every application, but:

- It is a security risk, since the firewall is disabled.
- Only one (1) PC can use this feature.
- When the *DMZ* feature is being used, the *Special Applications* and *Virtual Server* features should be disabled.

Appendix B
Specifications

Broadband Router

Model	Broadband Router
Dimensions	204mm(L) * 127mm(W) * 29mm(H)
Operating Temperature	0° C to 40° C
Storage Temperature	-10° C to 70° C
Network Protocol:	TCP/IP
Network Interface:	6 Ethernet: 4 * 10/100BaseT (RJ45) auto-Switching Hub ports for LAN devices 1 * 10/100BaseT (RJ45) "Uplink" port 1 * 10BaseT (RJ45) for WAN
LEDs	11 LEDs 1 * WAN Link (Green) 4 * LAN Link/Act (Green) 4 * LAN 100 (Green) 1 * WAN Data (Green) 1 * Data/Status/LAN (Green/Orange)
External Power Adapter	12 V DC, 1.5A

FCC Statement:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference.

(2) This device must accept any interference received, including interference that may cause undesired operation.

CE Marking Warning

This is a Class B product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.