



MULTI-WAN GATEWAY

Model X16-R

User's Guide

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1: Introduction

Congratulations on the purchase of your new MULTI-WAN GATEWAY. The MULTI-WAN GATEWAY not only provides a selection of 2~8 WAN ports – it also provides **Shared Broadband Internet Access** for all LAN users.

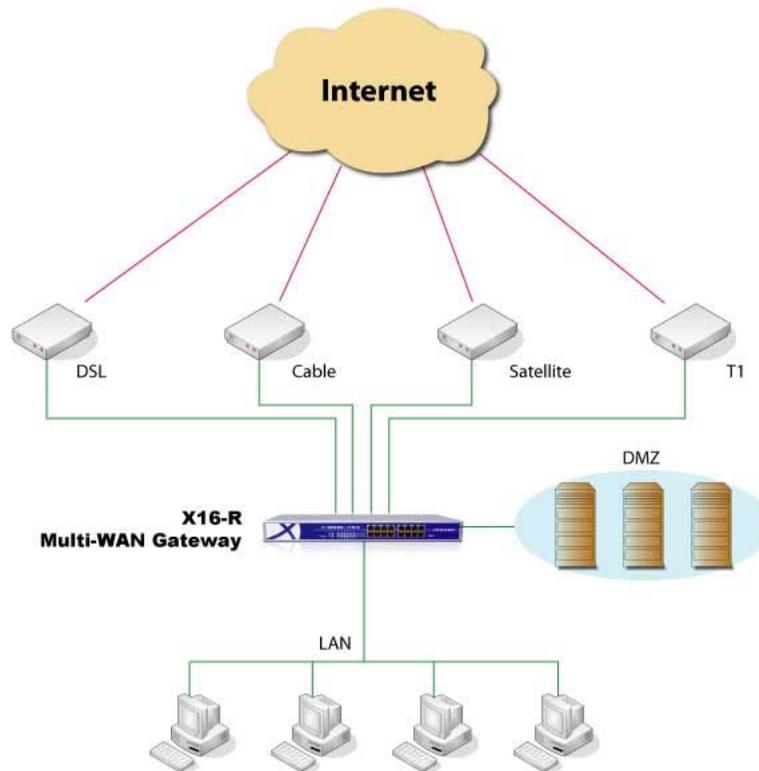


Figure 1-1: MULTI-WAN GATEWAY

Internet Features

- **Flexible use of WAN ports**

There are up to 8 WAN ports available for use on the MULTI-WAN GATEWAY. The user can decide how many WAN ports to use by changing settings in the web page setup area. (The default setting is 2 WAN ports). This gives increased flexibility for Internet bandwidth access. If all 8 WAN ports are not used, the remaining WAN ports will be available as LAN Ports, but by default, at least 2 of the ports will be used as WAN ports.

- **Shared Broadband Internet Access**

All LAN users can access the Internet through the MULTI-WAN GATEWAY by sharing from one (1) up to eight (8) Broadband modems and connections.

- **High-Performance multi ADSL Modem Support**

The MULTI-WAN GATEWAY has eight (8) WAN ports, allowing the connection of up to eight (8) Broadband modems at the same time.

This can provide a greater increase in bandwidth than is allowed by a single modem.

This flexible configuration allows each port to use a different type of modem and connection method. Also, the Internet traffic that is shared between the 8 modems can be pre-determined.

- **Support for all common Connection Methods**

All popular DSL, Cable Modems and connection methods are supported. These include - Fixed IP, Dynamic IP, PPPoE and PPTP.

- **Load Balancing and Failover**

There are a variety of load balancing methods that allow administrators to manage the traffic from LAN or WAN in order to maximize bandwidth - as well as smart health check methods to protect against connection failure for failover.

- **PPPoE Session Management**

Multiple PPPoE sessions are supported and you can choose "mapping" sessions to selected PCs if desired.

- **Multiple IP Address Support**

If your ISP allocates you multiple IP addresses, these are also supported and you can "map" IP addresses to selected PCs if desired.

- **Special Application**

This feature allows you to use some non-standard applications; for example, where the port number used for the response is different to the port number used by the sender.

- **Virtual Server**

This feature allows Internet users to access Internet servers on your LAN. For standard servers such as Web, FTP or E-Mail servers, only the IP address of the server PC is required. You can also define your own Server types if required.

- **Multiple DMZ**

A "DMZ" PC will receive incoming connection requests which would otherwise be blocked. For each IP address allocated by your ISP, a separate "DMZ" PC can be specified. So if your ISP has given you multiple IP addresses, you can have multiple "DMZ" PCs. With the MULTI-WAN GATEWAY, each "DMZ" PC has unrestricted 2-way Internet access, providing the ability to run programs that are otherwise normally incompatible with NAT routers.

- **Access Filter**

The network Administrator can use the Access Filter to gain fine control over the Internet access and applications available to LAN users. Five (5) user groups are available and each group can be assigned unique access rights.

- **Block URL**

This feature can be used by the Administrator to block access to undesirable Web sites by LAN users. You can even assign different settings for different groups of PCs.

- **Session Limit**

With the Session Limit feature, if the number of new sessions for the system exceeds the maximum allowance set by the Administrator in the sampling time, any new session in the system will be dropped.

- **System Filter Exception**

This feature ensures that every packet with an unrecognized port will be rejected so as to prevent access to port scanning programs from hackers. However, in some situations this may incur problems with some servers (e.g. SMTP server port 113) or WAN clients which require a response packet to verify the availability of their communication peers.

Other Features

- **16-Port Switching Hub**

The MULTI-WAN GATEWAY incorporates a 16-port 10 /100BaseT switching hub, making it easy to create or extend your LAN as needed.

- **DHCP Server Support**

Dynamic Host Configuration Protocol provides a dynamic IP address to PCs and other devices upon request. The MULTI-WAN GATEWAY can act as a **DHCP Server** for devices on your local LAN.

- **Multi Segment LAN Support**

LANs comprising of one or more segments or additional IPs are supported via the MULTI-WAN GATEWAY's built-in static routing table.

- **Easy Setup**

Setup and configuration is easily accomplished through your favorite WEB browser.

- **Remote Management**

The MULTI-WAN GATEWAY can be managed from any PC on your LAN. Also, if an Internet connection exists, it can (optionally) be configured via the Internet.

- **Password - protected Configuration**

Optional password protection is provided to prevent unauthorized users from modifying the configuration data and settings.

- **HTTP Firmware Upgrade and backup**

The web management feature allows you to use HTTP upgrade for new firmware and backup system configuration from a local or even remote site, as long as “Remote upgrade” and “Remote web-based setup” is enabled in the Advanced feature web page.

- **Email Alert**

The Email Alert will send a warning email message to the system administrator if any of the WAN ports become disconnected when more than two WAN ports are enabled or if there is excessive ping notification.

- **Syslog**

This is a very useful feature for monitoring the device in that it can generate real time system information on the web page or on a particular machine.

- **QoS Configuration.**

This function will allow higher priority pass-through for specified packets such as real-time applications like Internet phone, video conference, etc.

- **UPnP**

When UPnP (Universal Plug & Play), is set to “Enable” - the MULTI-WAN GATEWAY becomes a network device. This feature is useful for detecting and controlling network devices such as Internet gateways.

Package Contents

The following items are included in the MULTI-WAN GATEWAY package:

- MULTI-WAN GATEWAY Unit
- Power Cord
- Quick Installation Guide
- CD-ROM containing the on-line manual.

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

Physical Details

Front Panel

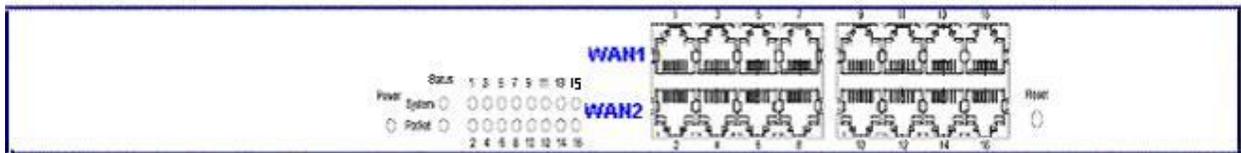


Figure 1-2: Front Panel

Front Panel LED indication is as follows:

Power	OFF – No Power ON – Normal Operation
Status	
System	Blinking – Normal Operation. ON/OFF – Error
Packets	Blinking – Packets Active ON/OFF – No Packet
Ethernet	Green ON – 100M Linked Yellow ON – 10M Linked Blinking – Data Transmit / Receive. OFF – No Linked

Ethernet Ports and Reset Button

Ethernet Ports	<p>WAN ports: 2 to 8 WAN ports (default is 2), using Port 1 to Port 8 for connecting to Modem(s).</p> <p>LAN ports: The remaining ports which are connected to PCs or a Hub.</p> <p>Note:</p> <p>Any port will automatically operate as an “Uplink” port if required. You can use a normal LAN cable to connect to a normal port on another hub.</p>
Reset Button	<p>When pressed and released, the MULTI-WAN GATEWAY will reboot (restart) within 1 second. It will reset to default when pushed and held for more than 3 seconds.</p>

Some Status and Error conditions are indicated by the combinations of LEDs, as shown below:

LED Action	Condition
Status – System & Packets flash alternatively.	Firmware Download in progress.
Status – System & Packets flash concurrently.	MAC address not assigned.
Status – System (Solid Off) & Packets (Solid On)	SDRAM error
Status – System (Solid On) & Packets (Solid On)	Timer/Interrupt error

Rear Panel



Figure 1-3: Rear Panel

AC 100V ~ 240V	Connects to AC100~240V / 50~60Hz with supplied AC power cord.
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Default Settings

When the MULTI-WAN GATEWAY has finished booting, all configuration settings will be set to the factory defaults, including:

- *IP Address* set to its default value of 192.168.1.1, with a *Network Mask* of 255.255.255.0
- *DHCP Server* is enabled
- *User Name: admin*
- Password cleared (no password)

TFTP Download

This setting should be used only if your MULTI-WAN GATEWAY becomes unusable and you are attempting to restore it by upgrading the firmware. Follow this procedure:

1. Power-On the MULTI-WAN GATEWAY.
2. Use the supplied Windows utility or a TFTP client program to apply the new firmware. If using the supplied Windows TFTP program, the screen will look like the following example:

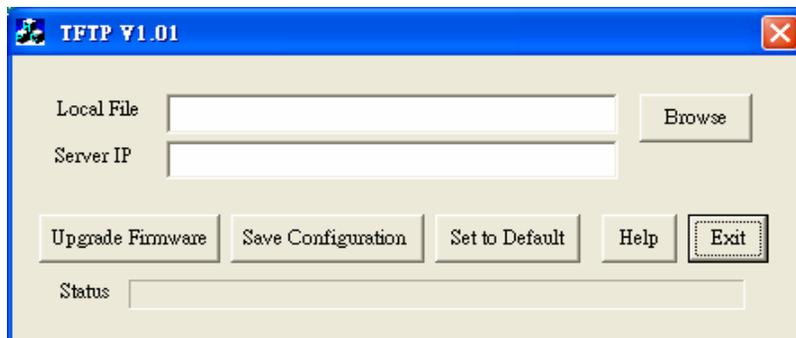


Figure 1-4: Windows TFTP utility

- Enter the name of the firmware upgrade file located on your PC, or click the "Browse" button to locate the file.
 - Enter the LAN IP address of the MULTI-WAN GATEWAY in the "Server IP" field.
 - Click "Upgrade Firmware" to send the file to the MULTI-WAN GATEWAY.
3. When the upgrade is finished, the MULTI-WAN GATEWAY should work normally. The factory default settings will be applied.

Note:

The supplied Windows TFTP utility also allows you to perform three (3) additional operations:

- Save the current configuration settings to your PC (use the "Save Configuration" button).
- Restore a previously saved configuration file to the MULTI-WAN GATEWAY (use the "Upgrade Firmware" button).
- Set the MULTI-WAN GATEWAY to its default values (use the "Set to Default" button).

2: Basic Setup

Overview

Basic Setup of your MULTI-WAN GATEWAY involves the following steps:

1. Attach the MULTI-WAN GATEWAY to a PC using any LAN port (3 to16) and configure it for your LAN.
2. Install your MULTI-WAN GATEWAY in your LAN and connect the Broadband Modem(s).
3. Configure your MULTI-WAN GATEWAY for Internet Access.
4. Configure PCs on your LAN to use the MULTI-WAN GATEWAY.

Requirements

- One (1) up to eight (8) DSL or Cable modems, each with an ISP Internet Access account.
- Network cables. Use standard 10/100BaseT network (UTP) cables with RJ45 connectors
- TCP/IP network protocol must be installed on all PCs.

Procedure

1: Configuring the MULTI-WAN GATEWAY for your LAN

1. Use a standard LAN cable to connect your PC to any LAN port (3 -16) on the MULTI-WAN GATEWAY. (Default is 2 WAN ports from Port 1 – 2)
2. Connect the power cord into the power outlet on the rear panel of the MULTI-WAN GATEWAY.
3. Power-on your PC. If your PC is already running, restart it. It will then obtain an IP address from the MULTI-WAN GATEWAY.
4. Open your WEB browser.
5. In the *Address* or *Location* box enter:
`HTTP://192.168.1.1`
6. You will be prompted for the User Name and password, as shown below:

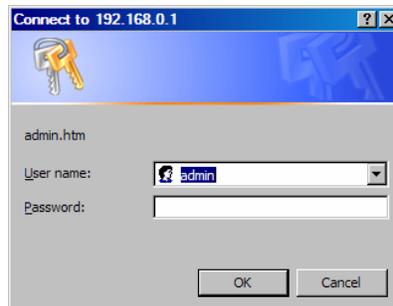


Figure 2-1: Password Dialog

7. Enter *admin* for the "User Name" and leave the "Password" field blank.
 - The "User Name" is always set as *admin*
 - For security, it is highly recommended that you set a password. You may do this using the **Admin Setup** screen.
8. After logging in, you will see the **Administrator Password** setup in the **Admin Setup** screen, as shown below.
Assign a password by entering it in the "Password" and "Verify Password" Fields.

Admin. Setup			
 Help			
Remote Access Configuration			
Remote Upgrade	Remote Setup	Access Port	Allowed Remote IP
<input type="checkbox"/> Enable	<input type="checkbox"/> Enable	8080	0.0.0.0 ~ 0.0.0.0
Administrator Password			
User Name	Password	Verify Password	
admin			
<input type="button" value="Submit"/>		<input type="button" value="Cancel"/>	

Figure 2-2: Home Screen (Admin. Setup)

9. Select **LAN & DHCP** from the menu. You will see a screen like in the example below.

LAN & DHCP			
 Help			
LAN IP Configuration			
IP Address		Subnet Mask	
192.168.1.1	(ex. 192.168.1.1)	255.255.255.0	(ex. 255.255.255.0)
Optional Configuration			
DHCP Server	LAN Any IP		
<input type="checkbox"/> Enable	<input type="checkbox"/> Enable		
DHCP Configuration			
Lease Time	DNS Server IP for Client		Offered IP Range
60 (min.)	1. 192.168.1.1	2. 192.168.1.1	192.168.1.110 ~ 192.168.1.150
<input type="button" value="Submit"/>		<input type="button" value="Cancel"/> <input type="button" value="View DHCP List"/>	

Figure 2-3: LAN & DHCP Setup

10. If your LAN already has a DHCP Server and you wish to continue using it, the following configuration is required:

- The DHCP Server function in the MULTI-WAN GATEWAY must be **disabled**. You will find this setting in the **LAN & DHCP** screen.
- Your DHCP Server must be configured to provide the MULTI-WAN GATEWAY's LAN IP Address as the "Default Gateway".
- Your DHCP Server must provide correct DNS addresses to any connected PCs.

11. Ensure these settings are suitable for your LAN:

- See the following table for details of each setting. For most situations, the default settings will be suitable.

Settings – LAN & DHCP

LAN IP Configuration	<ul style="list-style-type: none"> • IP Address – IP address for the MULTI-WAN GATEWAY, as seen from the Local LAN. Use the default value unless the address is already in use or your LAN is using a different IP Address range. • Subnet Mask –The default value 255.255.255.0 is standard for small (class "C") networks. For other networks, use the Subnet Mask for the LAN segment to which the MULTI-WAN GATEWAY is attached. (The same value as the PCs on that LAN segment.)
Optional Configuration	<ul style="list-style-type: none"> • DHCP Server Setup – If set to “<i>Enable</i>”, the MULTI-WAN GATEWAY will assign IP Addresses to the PCs (DHCP clients) on your LAN when they start up. The default and recommended value is “Enable”. (Windows systems, by default, act as DHCP clients. This setting in the Windows Internet Protocol (TCP/IP) Properties is: <i>Obtain an IP address automatically.</i>) • LAN Any IP – By default this option is disabled. If you enable “LAN Any IP”, then no matter what, the static IP address is held on the client (your PC). The client does not need to change the IP address, even though it has a different IP segment than the LAN segment. It can still access the Internet through NAT.
DHCP Configuration	<ul style="list-style-type: none"> • Lease Time – This is a finite period of time for a DHCP server to lease an IP address to a client. • DNS Server IP for Client – An IP address of the default DNS server for the client requesting DNS service. • Offered IP Range – The fields set the values used by the DHCP server when allocating IP addresses to DHCP clients. This range also determines the number of DHCP clients supported.
View DHCP List	<p>This table shows the IP addresses which have been allocated by the DHCP Server. For each address which has been allocated, the following information is shown:</p> <ul style="list-style-type: none"> • Free Entry – Indicates how many IP addresses the DHCP server can allocate to DHCP clients. • Name – The "hostname" of the PC. In some cases, this may not be known. • MAC Address – The physical address (network adapter address) of the PC. • IP Address – The IP address that is allocated to this PC. • Type – Indicates whether the IP address is to be dynamic or static. • Status – If <i>Dynamic</i>, the IP address was allocated by this DHCP Server. If <i>Sniffed</i>, the IP address was detected by examining the LAN rather than allocated by the DHCP Server. In this case, the <i>Name</i> is usually not known. • Time Left – The time expired since the IP address was leased.

12. Save your data, then go to Step 2, Installing the MULTI-WAN GATEWAY in your LAN.

2. Installing the MULTI-WAN GATEWAY in your LAN

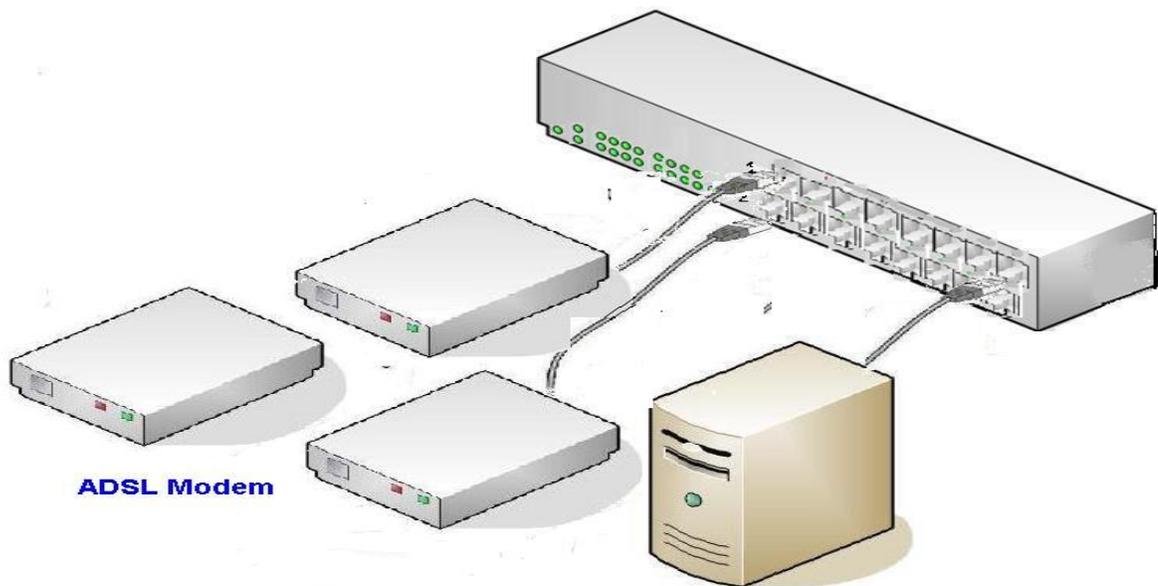


Figure 2-4: Installation Diagram

1. Ensure that the MULTI-WAN GATEWAY and any DSL/Cable modem(s) are powered-OFF. Leave the modem or modems connected to their data lines.
2. Connect the Broadband modem(s) to the MULTI-WAN GATEWAY.
 - If using only one (1) Broadband modem, connect it to port 1.
 - Use the cable supplied with your DSL/Cable modem. If no cable was supplied, use a standard cable.
3. Use standard LAN cables to connect PCs to the LAN ports on the MULTI-WAN GATEWAY.
 - Both 10BaseT and 100BaseT connections can be used simultaneously.
 - If you need to connect the MULTI-WAN GATEWAY to another Hub, just use a standard LAN cable to connect any LAN port on the MULTI-WAN GATEWAY to a standard port on another hub. Any LAN port on the MULTI-WAN GATEWAY will automatically act as an "Uplink" port when required.
 - If devices are connected to the 2 WAN ports (1 and 2), the remaining ports (3 to 16), are LAN ports.
4. Power-Up
 - Power-on the Cable or DSL modem(s).
 - Connect the supplied power cord to the MULTI-WAN GATEWAY and power-up.
5. Check the LEDs
 - The **Power** LED should be ON.

- The **Link/ACT** LED should be ON if the corresponding WAN port is connected to a broadband modem.
- For each PC connected to the LAN ports, the corresponding **LAN** LED (either **10/Yellow** or **100/Green**) should be ON.

3. Configuring the MULTI-WAN GATEWAY for Internet Access

To configure access to the Internet, first decide how many WAN ports you are going to use. The pull down menu on the **MAX WAN** web page (Figure 2-5) will let you setup the WAN port numbers. You can choose from two (2), up to eight (8) WAN ports. Once you have selected how many ports you are going to use, click on Submit. You may then proceed to the **Primary Setup** page.

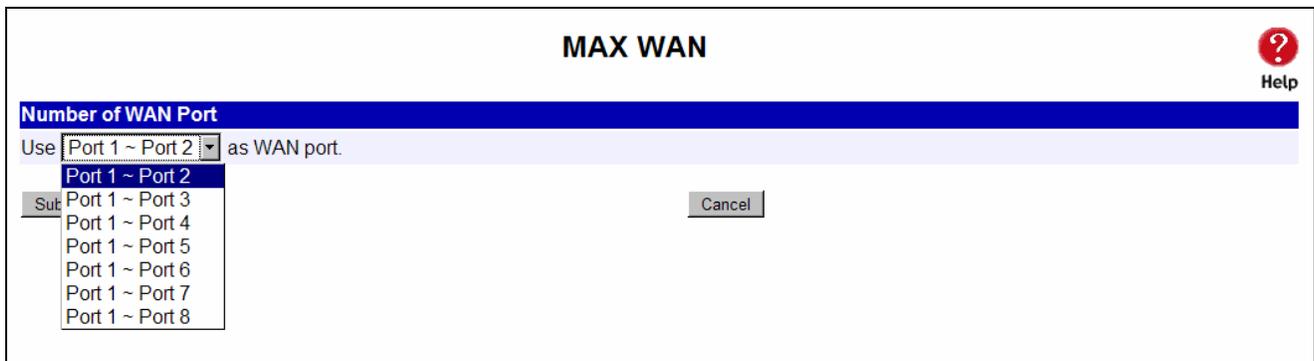


Figure 2-5: MAX WAN

Select **Primary Setup** from the menu. You will see a screen like in the example below.

- Configure each WAN one by one through the **Interface** column pull-down menu.
- For any of the following situations, refer to **Chapter 3: Advanced Port Setup**, for any further configuration which may be required:
 - Using multiple WAN ports
 - Enabling multiple IP addresses on each WAN port
 - Enabling multiple PPPoE sessions
 - PPTP connection method

?
Help

Primary Setup

Connection

Interface	<input type="text" value="WAN 1"/>	
Connect Mode	Connect Type	PPTP Connection
<input type="radio"/> Disable <input checked="" type="radio"/> Enable	<input type="text" value="PPPoE"/>	<input type="checkbox"/> Enable

PPPoE Dialup

User Name	Password	PPPoE Host Name
<input type="text" value="wintl@qwest.net"/>	<input type="text" value="*****"/>	<input type="text"/>

DNS (Optional for dynamic IP)

Server 1	Server 2	Server 3
<input type="text" value="0.0.0.0"/>	<input type="text" value="0.0.0.0"/>	<input type="text" value="0.0.0.0"/>

Optional

Host Name	Domain Name	MAC Address
<input type="text" value="DBG00B3CC"/>	<input type="text"/>	<input type="text" value="00-09-A3-00-B3-CC"/>

Figure 2-6: Primary Setup

Settings – Primary Setup

Connection Mode	<ul style="list-style-type: none"> Interface – A pull down menu for each WAN port that you are going to connect to the Internet. Connect Mode – Enable – Select this if you have connected a broadband modem to this port. Disable – Select this if there is no broadband modem connected to this port.
Connection Type	<p>Check the data supplied by your ISP and select the appropriate option.</p> <ul style="list-style-type: none"> Static IP – Select this if your ISP has provided a Fixed or Static IP address. Enter the data into the <i>Address Info</i> fields. Dynamic IP – Select this if your ISP provides an IP address automatically when you connect. You can ignore the <i>Address Info</i> fields. PPPoE – Select this if your ISP uses this method. (Usually, your ISP will provide some PPPoE software; however, this software is not required and should not be used.) If this method is selected, you must complete the <i>PPPoE dialup</i> fields. <p>Note:</p> <p>If using the PPTP connection method (enable PPTP Connection), select <i>Static IP</i> or <i>Dynamic IP</i> as appropriate, according to the IP Address method used by your ISP.</p>

Address Information	<p>This is for <i>Static IP</i> users only. Enter the address information (IP Address, Subnet Mask, Gateway) provided by your ISP. If your ISP provides multiple IP address, you can use the Multi-DMZ screen to assign any additional IP addresses.</p>
PPPoE / PPTP Dialup	<p>This is for PPPoE or PPTP users only.</p> <ul style="list-style-type: none"> • Enter the Username and Password provided by your ISP. • If using PPTP, enable the PPTP Connection checkbox and enter the IP address of the PPTP server. • PPPoE Host name (Optional) – This field is used by a Host to uniquely associate an access concentrator with a particular Host request. <p>Note: There are additional PPPoE/PPTP options on the Port Options screen. To use multiple PPPoE sessions on either port, configure settings in the Advanced PPPoE screen.</p>
DNS	<p>If using a <i>Fixed IP</i> address, you MUST enter at least 1 DNS address. If using a <i>Dynamic IP</i>, <i>PPPoE</i> or <i>PPTP</i>; DNS information is optional.</p>
Optional	<ul style="list-style-type: none"> • Host name – This is required by some ISPs. If your ISP provided a Host Name, enter it here. Otherwise, you can use the default value. • Domain name – This is required by some ISPs. If your ISP provided a Domain Name, enter it here. Otherwise, you can use the default value. • MAC address – Some ISP records your MAC address (also called "Physical address" or "Network Adapter address"). If so, you can enter the MAC address expected by your ISP in this field. Otherwise, this should be left at the default value.

Setup of the MULTI-WAN GATEWAY is now complete. PCs on your LAN must now be configured. See the following section for details.

4: Configure PCs on your LAN

Overview

For each PC, the following settings may need to be configured:

- TCP/IP network settings
- Internet Access configuration

TCP/IP Settings

If using the default MULTI-WAN GATEWAY settings and the default Windows 95/98/ME/2000/XP TCP/IP settings, no changes need to be made. Just start (or restart) your PC.

- By default, the MULTI-WAN GATEWAY will act as a DHCP Server, automatically providing a suitable IP Address (and related information) to each PC when the PC boots.
- For all non-Server versions of Windows, the default TCP/IP setting is to act as a DHCP client. In Windows, this setting is: *Obtain an IP address automatically*. Just start (or restart) your PC and it will automatically obtain an IP address from the MULTI-WAN GATEWAY.
- If using fixed IP addresses on your LAN, or if you wish to check your TCP/IP settings, refer to **Appendix B – Windows TCP/IP Setup**.

Internet Access

To configure your PCs to use the MULTI-WAN GATEWAY for Internet access, follow this procedure:

For Windows 9x/2000

1. Select *Start Menu - Settings - Control Panel - Internet Options*.
2. Select the *Connection* tab and then 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 that 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.
Setup is now completed.

For Windows XP

1. Select *Start Menu - Control Panel - Network Connections*.
2. Select *Create a new connection*.
3. Click *Next* on the "New Connection Wizard" screen.

4. Select "*Connect to the Internet*" and click "Next".
5. Select "*Set up my connection manually*" and click "Next".
6. Check "**Connect using a broadband connection that is always on**" and click *Next*.
7. Click *Finish* to close the *New Connection Wizard*.
Setup is now completed.

Accessing AOL

To access AOL (America On Line) through the MULTI-WAN GATEWAY, 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 "MULTI-WAN GATEWAY".
- Click *Edit Location*. Select *TCP/IP* for the *Network* field. (Leave the *Phone Number* field blank.)
- Click *Save*, then *OK*.
Configuration is now complete.
- Before clicking "Sign On", always ensure that you are using the "MULTI-WAN GATEWAY" location.

Macintosh Clients

For Macintosh users, the procedure for accessing the Internet via the MULTI-WAN GATEWAY 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 required changes are:

- Set the *Router Address* field to the MULTI-WAN GATEWAY's IP Address.
- Ensure your *DNS* settings are correct.

Linux Clients

To access the Internet via the MULTI-WAN GATEWAY using Linux, it is only necessary to set the MULTI-WAN GATEWAY as the "Gateway" and ensure your *Name Server* settings are correct.

Ensure you are logged in as "root" before attempting any changes.

Fixed IP Address

By default, most Unix installations use a fixed IP Address. If you wish to continue using a fixed IP Address, make the following changes to your configuration.

- Set your *Default Gateway* to the IP Address of the MULTI-WAN GATEWAY.
- Ensure your *DNS* (Name server) settings are correct.

To act as a DHCP Client (recommended)

The procedure below may vary depending on your version of Linux and X -windows shell.

1. Start your X Windows client.
2. Select *Control Panel - Network*
3. Select the "Interface" entry for your Network card. Normally this will be called "eth0".
4. Click the *Edit* button, set the "protocol" to "DHCP" and save this data.
5. To apply your changes, use the "Deactivate" and "Activate" buttons if available. Otherwise, restart your system.

3: Advanced Port

Overview

- **Port Options** contains some options which can be set on any WAN port. For most situations, the default values are satisfactory.
- **Load Balance** is only functional if you are using multiple WAN ports. It allows you to determine the proportion of WAN traffic sent through each port.
- **Advanced PPPoE** setup is required if you wish to use multiple sessions on each WAN port. It can also be used to manually connect or disconnect a PPPoE session. Otherwise, this screen can be ignored.
- **Advanced PPTP** setup is required if using the PPTP connection method.

Port Options

Port Options

 Help

Interface

WAN Port WAN 1 MTU 1500 Bytes

Connection Health Check

Method			Interval	Alive Indicator
ICMP	HTTP	Traffic		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	60 sec.	

Transparent Bridge Option

Bridge Mode	NetBIOS Broadcast
<input type="checkbox"/> Enable	<input type="checkbox"/> Enable

Transparent Bridge Options (For all interfaces)

Traffic Management	<input checked="" type="radio"/> Strict Binding	<input type="radio"/> Loose Binding	<input type="radio"/> Load Balancing
	<input checked="" type="checkbox"/> No IP Translation		

ARP Tables Size	<input style="width: 40px;" type="text" value="32"/> Entries	<input type="button" value="Clear ARP Tables"/>	<input type="button" value="View ARP Tables.."/>
-----------------	--	---	--

Figure 3-1: Port Options

Settings – Port Options

Interface	<ul style="list-style-type: none"> • WAN Port – Select a particular WAN port from the pull-down menu to setup WAN port configuration. • MTU – The Maximum Transmission Unit for the Ethernet data. This is used to determine the packet size to be used on the WAN interface. Normally, this does not need to be changed but if your ISP advises you to use a particular MTU, enter it here. The default MTU value is 1500 Bytes.
Connection Health Check	<ul style="list-style-type: none"> • Method – There are three methods available for checking if a WAN port is alive or not. Multiple choices can be selected when using it. • <i>Disable</i> will not perform an Alive Indicator Check. By default, Health Check is set to <i>Enable</i>. If the “Alive Indicator” input box is left blank, Health Check performs an ICMP echo packet request to the specific destination. This could be either a URL or an IP Address specified by users in the “Alive Indicator” input box or WAN interface gateway. • Interval – The interval time for device health check. The default interval time is 60 seconds. • Alive Indicator – This is the IP address used to check if the WAN connection is operating. The MULTI-WAN GATEWAY will contact this system to check if the WAN connection is working or not. You may change this address if you wish. Default is the gateway IP. Note: This is not used for PPPoE connections.
Transparent Bridge Option	<ul style="list-style-type: none"> • Bridge Mode – If set to <i>Enable</i>, this WAN port doesn’t use NAT & Load Balance function when the LAN/WAN IP have the real IP addresses on the same network segment. • NetBIOS Broadcast – If you enable the NetBIOS Broadcast, this will allow you to access files through the Microsoft network neighborhood.

Transparent Bridge Options (For all interfaces)

- **Traffic Management –**
Strict Binding: Traffic from bridge hosts (eg. transparent to WAN1) can only go through the specified WAN interface (eg. WAN1).
Loose Binding: This acts as a failover mechanism for transparent bridge mode. Traffic from bridge hosts (eg. transparent to WAN1) can go through any WAN interface (eg. WAN2 or other) when bind interface (eg. WAN1) is down.
Load Balancing: This acts as a load balancing mechanism for transparent bridge mode. Traffic from bridge hosts (eg. transparent to WAN1) can go through any WAN interface (eg. WAN1, 2 or other) based on the loading mechanism specified in the load balance section.
- **ARP Table –** The ARP Table is used by the device to determine the bridge hosts' location (e.g. inside/outside WAN and which WAN). Its size can be adjusted if needed. **View ARP Tables** displays ON/OFF selection of bridge mode on each WAN port. **Clear ARP Tables** disables bridge mode on all WAN ports.

Load Balance

This screen is only operational if using Internet connections on multiple WAN ports

Load Balancing

?
Help

Load Balancing Configuration

Enable

Load Balancing Base on IP Addresses

Loading Share	WAN 1	WAN 2
	<input style="width: 40px;" type="text" value="50"/> %	<input style="width: 40px;" type="text" value="50"/> %

NAT Statistics

Interface	Status	Loading Share		Current Loading			Current Bandwidth	
		Default	Current	Session	Byte	Packet	Download	Upload
WAN 1	Disconnected	50 %	50 %	1	1	1	0 bytes/sec	0 bytes/sec
WAN 2	Disconnected	50 %	50 %	1	1	1	0 bytes/sec	0 bytes/sec

Interface Statistics

Interface	Loading Share	Overall Statistics		
		Received	Transmitted	Total
WAN 1	65 %	4 KB	1 KB	5 KB
WAN 2	34 %	2 KB	0 KB	2 KB

DU Meter x

Figure 3-2: Load Balance

Only functional when using two (2) or more WAN ports - these settings determine the proportion of traffic sent over each port.

Settings – Load Balance

Load Balance Configuration	<ul style="list-style-type: none"> • Enable – This enables your Load Balance setting options and must be checked for other settings on this screen to be effective. • Balance Type – You can select the Balance types based on: <ul style="list-style-type: none"> • Bytes Tx + Rx – Traffic is measured by Bytes. (Least load) • Packets Tx + Rx – Traffic is measured by Packets. (Least load) • Sessions established – Traffic is measured by Sessions. (Least load) • IP Address – Traffic is measured by IP address. (Least load) • Auto Learning – The largest unused upload/outgoing bandwidth. • Fastest – The largest upload bandwidth. • Priority – The highest priority. • Round Robin – Continuously repeating sequence. • Weight Round Robin – In sequence with weight placed accordingly. • Loading Share – Enter the percentage (%) of traffic to be sent over each WAN port. If one WAN port connection has a greater bandwidth than another, the one with the greater bandwidth is given a higher percentage of traffic than the other. <p>Click the "submit" button to save your changes.</p>
NAT Statistics	<p>This section displays the current data about any WAN port. You can use this information to help you "fine-tune" the settings above.</p>
Interface Statistics	<p>This section displays cumulative statistics. Use the "Restart Counters" button to restart the counters when required.</p>
Buttons	<ul style="list-style-type: none"> • Refresh – Update the data entered on the screen. • Restart Counters – Restart the counters used in the "Interface Statistics" section.

Advanced PPPoE

The Advanced PPPoE screen is required in order to use multiple PPPoE sessions on the same WAN port.

It can also be used to manually connect or disconnect a PPPoE session.

Advanced PPPoE ? Help

Select WAN Port & Session

WAN Port: ▼

PPPoE Session: ▼

PPPoE Session MTU: Bytes

WAN IP Account

User Name:

Password:

Verify Password:

Options

Specified Fix IP Address: (ex. xxx.xxx.xxx.xxx)

Assigned Host Name:

PPPoE Auto Dialup

Auto Dialup Connect-on-demand	Disconnect After Idle	Echo Time	Echo Retry
<input checked="" type="checkbox"/> Enable	<input type="text" value="-1"/> minutes(-1:Always-on)	<input type="text" value="30"/> seconds	<input type="text" value="3"/> times

Connection Status

WAN	Session	WAN IP Addr.	Host Name	PPPoE MTU	Status
WAN 1	Session 1	0.0.0.0		1492 (1492)	Disconnected
WAN 2	Session 1	0.0.0.0		1492 (1492)	Disconnected

Figure 3-3: Advanced PPPoE

Settings – Advanced PPPoE

Select WAN Port & Session	<p>WAN Port – Selected WAN port only using PPPoE connection</p> <p>PPPoE Session – ISPs can usually provide multiple floating real IPs for PPPoE. Each WAN port can have up to eight (8) PPPoE sessions, each with a different IP address if your WAN port is using PPPoE connectivity.</p> <p>PPPoE Session MTU – The Maximum Transfer Unit for PPPoE packet data. Leave it as default unless the ISP provides a different PPPoE packet data size. The default MTU value is 1492 bytes.</p>
--------------------------------------	---

WAN IP Account	<ul style="list-style-type: none"> • User Name – Enter the PPPoE user name assigned by your ISP. • Password – Enter the PPPoE password assigned by your ISP. • Verify Password – Re-enter the PPPoE password assigned by your ISP.
Options	<ul style="list-style-type: none"> • Specified Fix IP Address – If you have a fixed IP address, enter if here. Otherwise, this field should be left at 0.0.0.0. • Assigned Host Name – This field is used by a Host to uniquely associate an access concentrator with a particular Host request.
PPPoE Auto Dialup	<ul style="list-style-type: none"> • Auto Dialup (connect-on-demand) – If set to <i>Enable</i>, a connection will be established whenever outgoing WAN traffic is detected. If not enabled, you must establish a connection manually. • Disconnect after Idle – This determines when an idle connection will be terminated. Enter the required time period. (-1: Always on) • Echo Time – This determines how often an Echo request is sent to the PPPoE server. The Echo request is used to determine if the connection is still alive. Normally, there is no need to change the default value. • Echo Retry – The number of times the Echo request will be sent, if there is no response to the first request. Normally, there is no need to change the default value.
Connection Status	This displays the current connection status for each session.

Advanced PPTP

This Advanced PPTP screen is only useful if using the PPTP connection method.

Advanced PPTP ?
Help

WAN Port					
PPTP MTU	<input type="text"/> Bytes				
WAN IP Account					
User Name	<input type="text"/>				
Password	<input type="password"/>				
Verify Password	<input type="password"/>				
Server IP Address	<input type="text" value="0.0.0.0"/> (ex. xxx.xxx.xxx.xxx)				
<input type="checkbox"/> Use Static IP Address					
Static IP Address	<input type="text" value="0.0.0.0"/>				
Subnet Mask	<input type="text" value="0.0.0.0"/>				
Default Gateway	<input type="text" value="0.0.0.0"/>				
PPTP Auto Dialup					
Auto Dialup Connect-on-demand	Disconnect After Idle	Echo Time	Echo Retry		
<input type="checkbox"/> Enable	<input type="text"/> minutes(-1:Always-on)	<input type="text"/> seconds	<input type="text"/> times		
<input type="button" value="Update"/>		<input type="button" value="Cancel"/>			
<input type="button" value="Connect"/>					
Connection Status					
WAN	WAN IP Addr.	PPTP IP Address	PPTP Server	PPTP MTU	Status

Figure 3-4: Advanced PPTP

Settings – Advanced PPTP

WAN Port	<p>Select the desired WAN port (click desired WAN on Connection Status). The data of the selected port will then be displayed in the <i>WAN IP Account</i> section.</p> <p>PPTP MTU – Maximum transfer unit for PPTP. The default value is 1460</p>
WAN IP Account	<ul style="list-style-type: none"> • User Name – The PPTP user name (login name) assigned by your ISP. • Password – The PPTP password associated with the <i>User Name</i> above. This is assigned by your ISP, and used to login to the PPTP Server. • Verify Password – Re-enter the PPTP password assigned by your ISP. • Server IP Address – Enter the IP address of the PPTP Server, as provided by your ISP. • Static IP Address – If you have a fixed IP address, enter it here. Otherwise, this field should be left at 0.0.0.0.
PPTP Auto Dialup	<ul style="list-style-type: none"> • Auto Dialup (connect-on-demand) – If set to <i>Enable</i>, a connection will be established whenever outgoing WAN traffic is detected. If not enabled, you must establish a connection manually. • Disconnect after Idle – This determines when an idle connection will be terminated. Enter the required time period. (-1: Always on) • Echo Time – This determines how often an Echo request is sent to the PPTP server. The Echo request is used to determine if the connection is still alive. Normally, there is no need to change the default value. • Echo Retry – The number of times the Echo request will be sent, if there is no response to the first request. Normally, there is no need to change the default value.
Connection Status	<p>This displays the current PPTP connection status.</p>

4: Advanced Setup

Overview

The following features are provided in Advanced Setup:

- Host IP
- Routing
- Virtual Server
- Special Application
- Dynamic DNS
- Multi DMZ
- UPnP Setup
- NAT Setup
- Advanced Feature

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

Host IP

This feature is used in the following situations:

- You have Multi-Session PPPoE and wish to bind each session to a particular PC on your LAN.
- You wish to use the **Access Filter** feature. This requires that each PC is identified by using the **Host IP** screen.
- You wish to have different **Block URL** settings for different PCs. This requires that each PC is identified by using the **Host IP** screen. (You do not have to use the Host IP feature to apply the same **Block URL** settings to all PCs.)
- You wish to reserve a particular (LAN) IP address for a particular PC on your LAN. This allows the PC to use DHCP (In Windows this setting is configured as: "*Obtain an IP address automatically*") while gaining the benefits of a fixed IP address. The PC's IP address will never change, allowing it to be provided to other users and applications.

Host IP



Help

Host Network Identity								
Host Name	<input type="text"/>							
MAC Address	<input type="text" value="00-00-00-00-00-00"/>							
Select Group	<input type="text" value="Default"/>							
Reserve in DHCP	<input type="checkbox"/> Enable							
Reserved IP Address	<input type="text" value="0.0.0.0"/>							
Host Network Binding								
Binding WAN Port / Session	<input type="checkbox"/> Enable							
Binding method	<input type="radio"/> Strict Binding <input checked="" type="radio"/> Loose Binding							
Select WAN Port	<input type="text" value="WAN 1"/>							
Select PPPoE Session	<input type="text" value="Session 1"/>							
<input type="button" value="Add"/> <input type="button" value="Delete"/> <input type="button" value="Update"/> <input type="button" value="Cancel"/>								
Host & Group List								
Name	MAC Address	Group	Reserve IP in DHCP		Port/Session(PPPoE) Binding			
			Status	IP Address	Status	Method	Port	Sess.

Figure 4-1: Host IP

Settings – Host IP

Host Network Identity	<p>This section identifies each Host (PC)</p> <ul style="list-style-type: none"> Host name – Enter a suitable name. Generally, you should use the "Hostname" (computer name) as defined on the Host itself. MAC Address – Also called <i>Physical Address</i> or <i>Network Adapter Address</i>. Enter the MAC address of this Host. Select Group – Select the group you wish this Host to be included in. Reserve in DHCP – Select <i>Enable</i> to reserve a particular (LAN) IP address for a particular PC on your LAN. This allows the PC to use DHCP (In Windows this setting is configured as: "Obtain an IP address automatically") while retaining an IP address that never changes. Reserved IP Address – Enter the IP address you wish to reserve, if the setting above (Reserve in DHCP) is set to <i>Enable</i>. Otherwise, ignore this field.
------------------------------	---

Host Network Binding	<ul style="list-style-type: none"> • Binding WAN Port / Session – Select <i>Enable</i> if you wish to associate this PC with a particular PPPoE session. All traffic for that PC will then use the selected PPPoE port and session. • Binding Method – Suppose your PC is bound to WAN1 port and you select “Strict Binding.” If WAN1 port is disconnected, your packets cannot go through another WAN port, if it is still alive. If you select “Loose Binding” then if WAN1 port becomes disconnected, your packets will automatically go to another WAN port, if it is alive. • Select WAN Port / Select PPPoE session – If the Binding Method setting above is set to <i>Enable</i>, select the desired Port and Session. Otherwise, ignore these settings. <p>Note: Multiple PPPoE sessions are defined on the Advanced PPPoE screen.</p>
Buttons	<ul style="list-style-type: none"> • Add – Use this to add a new entry to the database, using the data shown on screen. • Delete – Click this to delete the selected entry. • Update – After making the desired changes, use this to update the selected entry • Reset – Reverse any changes you have made since loading the data from the MULTI-WAN GATEWAY.
Host & Group List	<p>This table shows the current bindings.</p>

Routing

This section is only relevant if your LAN has other Routers or Gateways.

- If you don't have other Routers or Gateways on your LAN, you can ignore the **Static Routing** page completely.
- If your LAN has other Gateways and Routers, you must configure the Static Routing screen as described below. You also need to configure the other Routers.

? Help

Routing

Dynamic Routing

RIP v2	<input type="checkbox"/> Enable
Interface	<input type="checkbox"/> LAN <input type="checkbox"/> WAN 1 <input type="checkbox"/> WAN 2

Static Routing

Network Address	Subnet Mask	Gateway	Interface	Metric
<input type="text" value="0.0.0.0"/>	<input type="text" value="255.255.255.0"/>	<input type="text" value="0.0.0.0"/>	LAN ▾	<input type="text" value=""/> (2~15)

Routing List

Destination IP	Subnet Mask	Gateway	Interface	Metric	Type

Figure 4-2: Routing

Note:

If there is an entry or entries in the Routing table with an Index of zero (0), these are System entries. You cannot modify or delete these entries.

Settings – Routing

Dynamic Routing	<ul style="list-style-type: none"> RIP v2 – This acts as a “master” switch. If enabled, the selected WAN or LAN will run RIPv1/v2, otherwise RIP function will not be available. Interface – If LAN or other WAN are enabled, the specified WAN or LAN can execute RIP function.
Static Routing	<ul style="list-style-type: none"> Network Address – The network address of the remote LAN segment. For standard class "C" LANs, the network address is the first 3 fields of the Destination IP Address. The 4th (last) field can be left at 0. Netmask –The Network Mask for the remote LAN segment. For class "C" networks, the default mask is 255.255.255.0 Gateway – The IP Address of the Gateway or Router that the MULTI-WAN GATEWAY must use to communicate with the destination IP address entered above. (NOT the router attached to the remote segment.) Interface – Select the correct interface - usually "LAN". The "WAN" interface is only available if NAT (Network Address Translation) is disabled. Metric – The number of "hops" (routers) to pass through to reach the remote LAN segment. The shortest path will be used.
Routing List	This shows the current routing table set by the user.

Configuring Other Routers on your LAN

All traffic for devices not on the local LAN must be forwarded to the MULTI-WAN GATEWAY so that it can be forwarded to the Internet. This is done by configuring other Routers to use the MULTI-WAN GATEWAY as the *Default Route* or *Default Gateway*, as illustrated by the example below.

Static Routing - Example

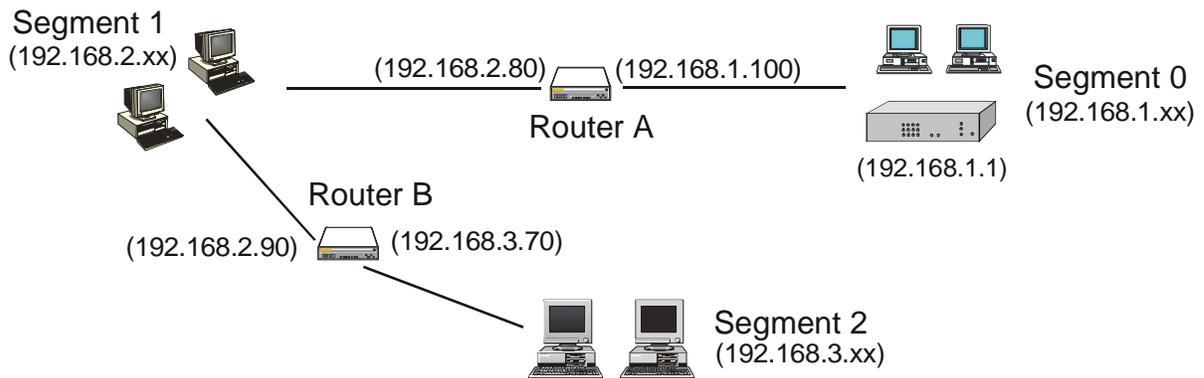


Figure 4-3: Routing Example

For the MULTI-WAN GATEWAY Gateway's Routing Table

For the LAN shown above, with 2 routers and 3 LAN segments - the MULTI-WAN GATEWAY requires 2 entries as follows:

Entry 1 (Segment 1)	
Destination IP Address	192.168.2.0
Network Mask	255.255.255.0
Gateway IP Address	192.168.1.100
Interface	LAN
Metric	2
Entry 2 (Segment 2)	
Destination IP	192.168.3.0

Address	
Network Mask	255.255.255.0 (Standard Class C)
Gateway IP Address	192.168.1.100
Interface	LAN
Metric	3

For Router A's Default Route

Destination IP Address	0.0.0.0
Network Mask	0.0.0.0
Gateway IP Address	192.168.1.1
Metric	2

For Router B's Default Route

Destination IP Address	0.0.0.0
Network Mask	0.0.0.0
Gateway IP Address	192.168.2.80
Interface	LAN
Metric	3

Virtual Server

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's IP address is only valid on your LAN, not on the Internet.
- Attempts to connect to devices on your LAN are blocked by the firewall in the MULTI-WAN GATEWAY.

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

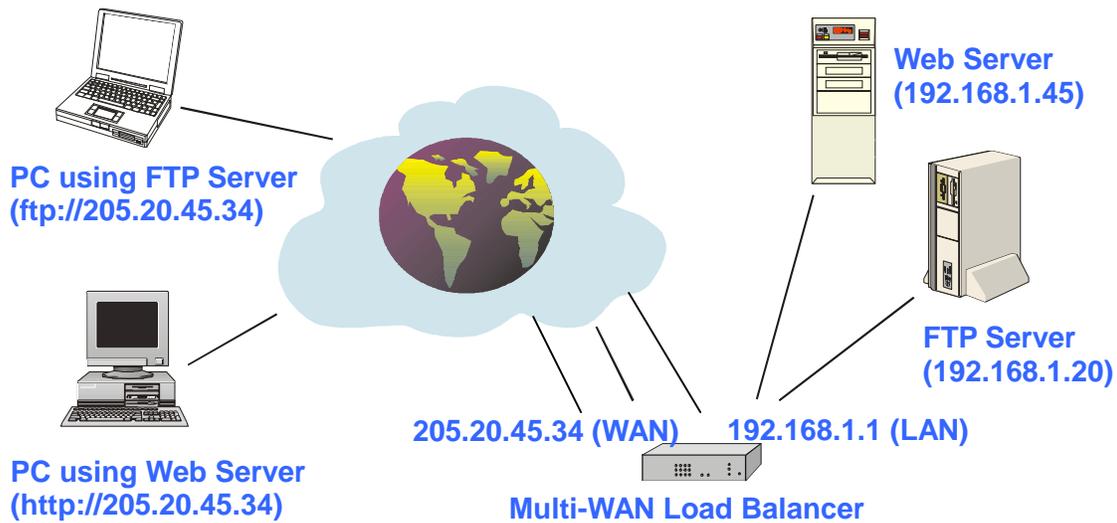


Figure 4-4: Virtual Server

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

Connecting to the Virtual Server

Once configured, anyone on the Internet can connect to your Virtual Servers. They must use the MULTI-WAN GATEWAY's Internet IP Address (the IP Address allocated by your ISP).

e.g.

`http://205.20.45.34`

`ftp://205.20.45.34`

- 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. However, you can use the *Dynamic DNS* feature (explained later in this chapter)

to allow users to connect to your Virtual Servers using a URL, instead of an IP Address.
e.g.

http://my_domain_name.dyndns.org

ftp://my_domain_name.dyndns.org

This screen allows you to define your own Server types.

Virtual Server

? Help

Virtual Server Configuration

Enable	Server_Name	Protocol	IP Address		Port Range	Allowed Remote IP
<input type="checkbox"/>	DNS	TCP	LAN	0.0.0.0	53 ~ 53	From 0.0.0.0
			WAN	ALL	53 ~ 53	To 0.0.0.0

Virtual Server List

State	Server_Name	Protocol	Server IP	WAN Port Range	Interface Binding
Disable	DNS	TCP, UDP	0.0.0.0	53-53	ALL
Disable	FINGER	UDP	0.0.0.0	79-79	ALL
Disable	FTP	TCP	0.0.0.0	21-21	ALL
Disable	GOPHER	TCP	0.0.0.0	70-70	ALL
Disable	IPSEC	UDP	0.0.0.0	500-500	ALL
Disable	POP3	TCP	0.0.0.0	110-110	ALL
Disable	SMTP	TCP	0.0.0.0	25-25	ALL
Disable	NNTP	TCP	0.0.0.0	119-119	ALL
Disable	PPTP	TCP	0.0.0.0	1723-1723	ALL
Disable	TELNET	TCP	0.0.0.0	23-23	ALL
Disable	HTTP	TCP	0.0.0.0	80-80	ALL
Disable	WHOIS	TCP	0.0.0.0	6677-6677	ALL

Figure 4-5: Virtual Server

Settings – Virtual Server

Virtual Server Configuration	<ul style="list-style-type: none"> Enable – The enable checkbox is to Enable or Disable each Virtual server as required. Server Name – Enter a suitable name for this server. (By default, 12 well-known virtual servers have been listed on the Custom Virtual Server List) Protocol – Select the network protocol (TCP/UDP) used by this sever. IP Address – LAN, Enter the IP address of the server on your LAN which is running the required Server software. Each Host (server) should have a fixed IP address, or have a reserved IP address. (See the Host IP section earlier in this Chapter for details on reserving an IP address.)
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	<p>Each Host (server) must be running the appropriate Server software</p> <p>WAN – This selection allows this server to bind to any WAN port (1-8), or even bind to all WAN ports together.</p> <ul style="list-style-type: none"> • LAN Port Range – Enter the range of port number used for outgoing traffic from this Server. If only a single port is required, enter it in both fields. • WAN Port Range – Enter the range of port numbers used for incoming traffic to this Server. If only a single port is required, enter it in both fields • Allowed Remote IP – It allows only a range of remote side IP addresses to access the virtual servers. The default entry 0.0.0.0 ~ 0.0.0.0, means all remote side IP address can access it.
Buttons	<ul style="list-style-type: none"> • Add – Create a new Virtual Server entry. • Delete – Delete the selected entry. • Update – Save any changes you have made to the current entry. • Cancel – Cancel any changes you have made since the last saved operation.
Virtual Server List	<p>This table shows the details of all Custom Virtual Servers configuration data which have been defined. You can modify their configuration data by selecting and clicking on a row.</p>

Special Application

If you use Internet applications which have non-standard connections or port numbers, you may find that they do not function correctly because they are blocked by the firewall in the MULTI-WAN GATEWAY. In this case, you can define the application as a "Special Application" in order to make it work.

Note that the terms "Incoming" and "Outgoing" on this screen refer to traffic from the client (PC) viewpoint

Special Application

 Help

Special Application Configuration

Enable	Name	Outgoing Protocol	Outgoing Port Range	Incoming Protocol	Incoming Port Range
<input type="checkbox"/>	<input style="width: 80%;" type="text"/>	TCP ▾	<input style="width: 40%;" type="text"/> ~ <input style="width: 40%;" type="text"/>	TCP ▾	<input style="width: 40%;" type="text"/> ~ <input style="width: 40%;" type="text"/>

Add
Delete
Update
Cancel

Special Application List

State	Name	Outgoing Protocol	Outgoing Port Range	Incoming Protocol	Incoming Port Range

Figure 4-6: Special Application

Settings – Special Application

Special Application Configuration	<ul style="list-style-type: none"> Enable – Use this to Enable or Disable the Special Application as required Name – Enter a descriptive name to identify the Special Application. Outgoing Protocol – Select the protocol used by the application when sending data to the remote server or PC. Outgoing Port Range – Enter the beginning and end of the range of port numbers used by the application server for data you send. If the application uses a single port number, enter it in both fields. Incoming Protocol – Select the protocol used by the application when receiving data from the remote server or PC. Incoming Port Range – Enter the beginning and end of the range of port numbers used by the application server for data you receive. If the application uses a single port number, enter it in both fields.
--	---

Buttons	<ul style="list-style-type: none">• Add – Create a new Special Application entry.• Delete – Delete the selected entry.• Update – Save any changes you have made to the current entry.• Cancel – Cancel any changes you have made since the last saved operation.
Special Application List	This shows the details of all Special Applications which are currently defined. You can modify its configuration data by selecting and clicking on a row.

Using a Special Application on your PC

- Once the *Special Applications* screen is configured correctly, you can use the application on your PC normally. Remember that only one (1) PC can use each Special application at any time.
- Also, when 1 PC is finished using a particular Special Application, there may need to be a "Time-out" period before another PC can use the same Special Application.
- If an application still cannot function correctly, try using the "DMZ" feature, if possible.

Dynamic DNS

Dynamic DNS is very useful when combined with the *Virtual Server* feature. It allows Internet users to connect to your Virtual Servers using a URL, rather than an IP Address.

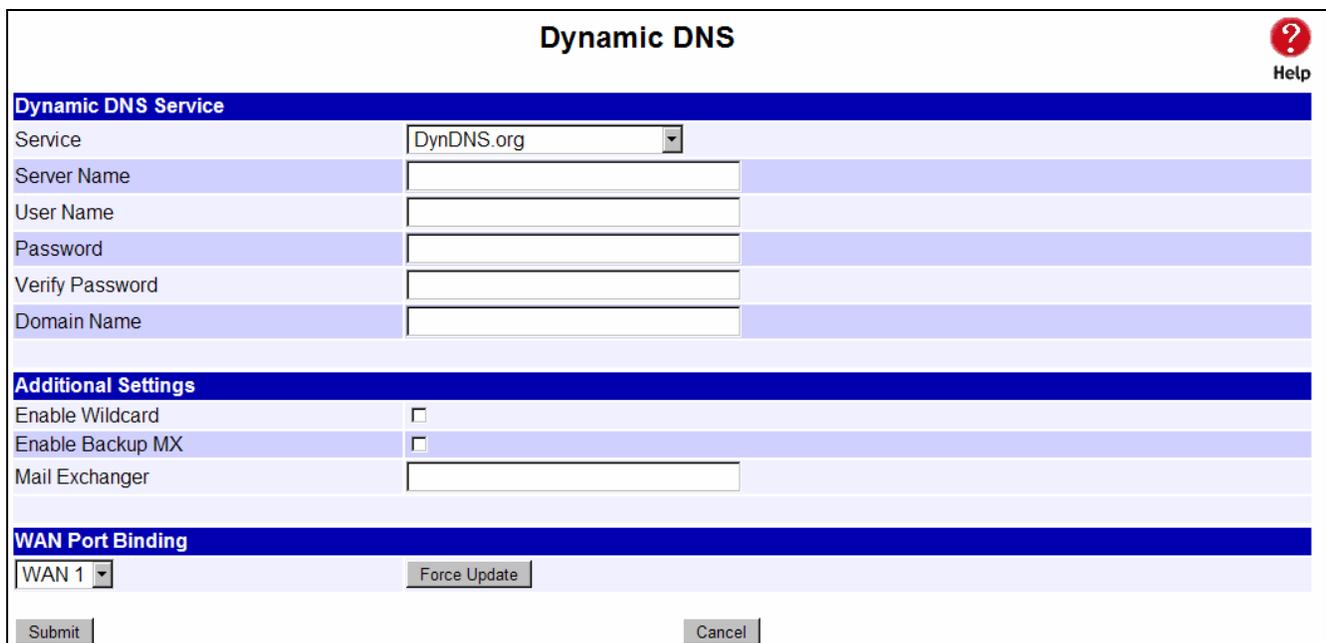
This also solves the problem of having a dynamic IP address. With a dynamic IP address, your IP address may change each time you connect to your ISP, making it difficult to connect to you.

You must register for the Dynamic DNS service. The MULTI-WAN GATEWAY supports 3 types of service providers:

- Standard client, available at <http://www.dyndns.org>
(Other sites may offer the same service, but can not be guaranteed to work)
- TZO at <http://www.tzo.com>
- 3322 is available in China at <http://www.3322.org>

To use the Dynamic DNS feature

1. Register for the service from your preferred service provider.
2. Follow the service provider's procedure to have a Domain Name (Host name) allocated to you.
3. Configure the **Dynamic DNS** screen, as described below.
4. The MULTI-WAN GATEWAY will then automatically update your IP Address recorded by the Dynamic DNS service provider.
5. From the Internet, users will now be able to connect to your Virtual Servers (or DMZ PC) using your Domain name.



The screenshot shows the 'Dynamic DNS' configuration page. It features a title bar with a 'Help' icon. The main content is organized into three sections: 'Dynamic DNS Service', 'Additional Settings', and 'WAN Port Binding'. The 'Dynamic DNS Service' section includes a dropdown menu for 'Service' (set to 'DynDNS.org'), and text input fields for 'Server Name', 'User Name', 'Password', 'Verify Password', and 'Domain Name'. The 'Additional Settings' section has checkboxes for 'Enable Wildcard' and 'Enable Backup MX', and a text input field for 'Mail Exchanger'. The 'WAN Port Binding' section has a dropdown menu for 'WAN 1' and a 'Force Update' button. At the bottom, there are 'Submit' and 'Cancel' buttons.

Figure 4-7: Dynamic DNS

Settings – Dynamic DNS

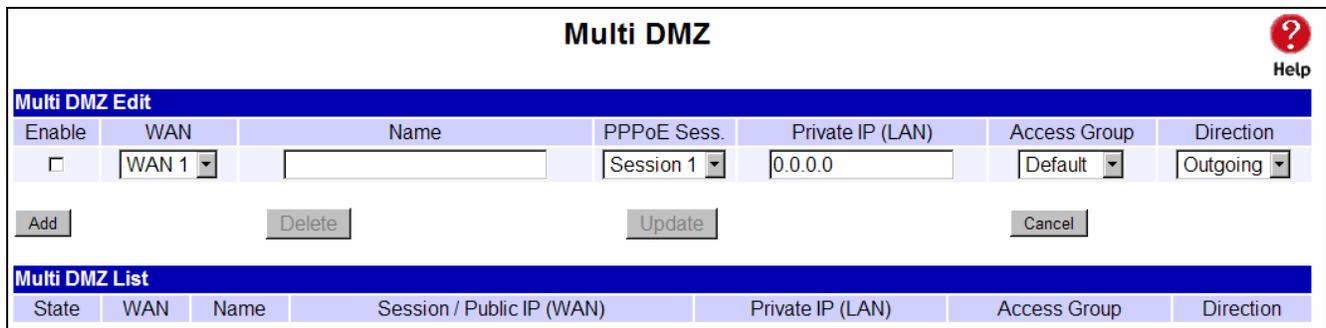
Dynamic DNS Service	<p>This pull-down menu can Enable/Disable the Dynamic DNS feature and select the required service provider.</p> <ul style="list-style-type: none"> • Disable – Dynamic DNS is not used. • TZO – Select this to use the TZO service (www.tzo.com). You must configure the <i>TZO</i> section of this screen. • DynDNS – Select this to use the standard service (from www.dyndns.org or other provider). You must configure the <i>Standard Client</i> section of this screen. • 3322(in China) – This is available in China. It is similar to “DynDNS” • User Defined DDNS Server – This is the user defined DDNS server. If the DDNS provider is other than TZO, dyndns.org or 3322.
Additional Settings	<p>These options are available if using the standard client.</p> <ul style="list-style-type: none"> • Enable Wildcard – If selected, traffic sent to sub-domains (of your Domain name) will also be forwarded to you. • Enable backup MX – If enabled, you must enter the <i>Mail Exchanger</i> address below. • Mail Exchanger – If the setting above is enabled, enter the address of the backup Mail Exchanger.
WAN Port Binding	<ul style="list-style-type: none"> • Select the WAN port used by the Dynamic DNS. • The "Force Update" button will update your record on the Dynamic DNS Server immediately.

Multi DMZ

This feature allows each WAN port IP address to be associated with one (1) computer on your LAN. All outgoing traffic from that PC will be associated with that WAN port IP address. Any traffic sent to that IP address will be forwarded to the specified PC, allowing unrestricted 2-way communication between the "DMZ PC" and other Internet users or Servers.

Note:

The "DMZ PC" is effectively outside the Firewall, making it more vulnerable to hacker attacks or other intrusions. For this reason, you should only enable the DMZ feature when required.



Multi DMZ Edit						
Enable	WAN	Name	PPPoE Sess.	Private IP (LAN)	Access Group	Direction
<input type="checkbox"/>	WAN 1		Session 1	0.0.0.0	Default	Outgoing
Add		Delete		Update		Cancel

Multi DMZ List							
State	WAN	Name	Session / Public IP (WAN)	Private IP (LAN)	Access Group	Direction	

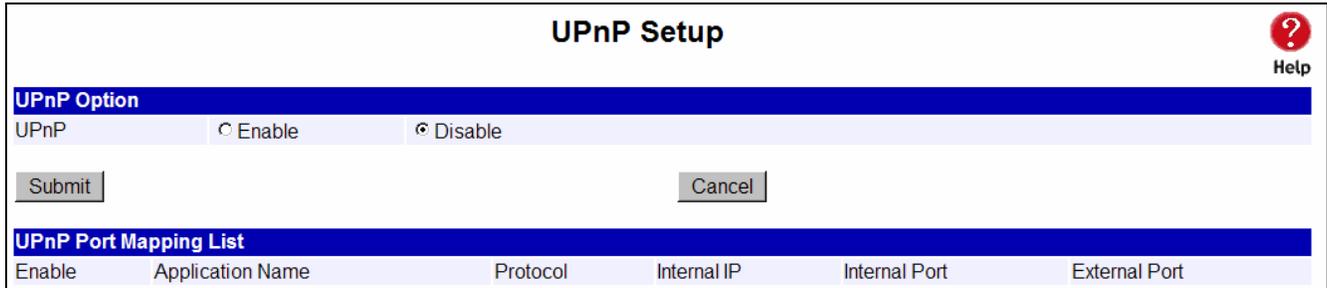
Figure 4-8: Multi DMZ

Settings – Multi DMZ

Multi DMZ Edit	<ul style="list-style-type: none"> • Enable – Use this to enable or disable the DMZ setting, as required. • WAN – Select the desired WAN port binding with a particular LAN host. (There are a maximum 8 WAN ports which can be available.) Its connection type may change based on your WAN connection type (Static/DHCP/PPPoE/PPTP). • Name – Enter a name to assist you to remember this setting. This name can be anything you choose and will have no effect on the operation. • Private IP Address (LAN) – Enter the IP address of the PC you wish to associate with this WAN port IP address. This IP address should be fixed, or reserved. (See the Host IP section for details on reserving an IP address.) • Access Group –You can decide which users will have authorization to use DMZ by defining the groups (Host IP web page) • Direction –For DMZ, you can allow inbound only, outbound only, or both inbound and outbound traffic.
Multi DMZ List	Multi DMZ List shows the details of all DMZ configuration data which are currently defined. You can modify its configuration data by selecting and clicking on a row.

UPnP Setup

With the UPnP (Universal Plug & Play) function, you can easily setup and configure an entire network as well as enable detection and control of networked devices and services.



UPnP Setup					
UPnP Option					
UPnP	<input type="radio"/> Enable	<input checked="" type="radio"/> Disable			
<input type="button" value="Submit"/>		<input type="button" value="Cancel"/>			
UPnP Port Mapping List					
Enable	Application Name	Protocol	Internal IP	Internal Port	External Port

Figure 4-9: UPnP Setup

Settings – UPnP Setup

UPnP Option	If set to <i>Enable UPnP</i> , this device will register on the local network. You will find that there is an icon showing on the <i>My Network Places</i> in Window XP. Each time you add a new service with port mapping, the new service will appear on the mapping list.
UPnP Port Mapping List	If UPnP is set to <i>Enable</i> , this table shows the details of all Custom Virtual Servers configuration data which have been defined.

NAT Setup

NAT (Network Address Translation) is the technology which allows one (1) WAN (Internet) IP address to be used by multiple LAN users.

NAT Setup

Help

NAT Configuration

NAT Routing	<input checked="" type="checkbox"/> Enable		
TCP Timeout	<input type="text" value="300"/> seconds	UDP Timeout	<input type="text" value="120"/> seconds
TCP Window Limit	<input type="text" value="0"/> (0 for no limit)	TCP MSS Value	<input type="text" value="0"/> (0 for no change)

NAT Port Options

Port Range	Non-Port-Translation	Timeout
<input type="text" value="1025"/> ~ <input type="text" value="61439"/>	<input checked="" type="checkbox"/> Enable	<input type="text" value="0"/> seconds
<input type="text" value="0"/> ~ <input type="text" value="0"/>	<input type="checkbox"/> Enable	<input type="text" value="0"/> seconds
<input type="text" value="0"/> ~ <input type="text" value="0"/>	<input type="checkbox"/> Enable	<input type="text" value="0"/> seconds
<input type="text" value="0"/> ~ <input type="text" value="0"/>	<input type="checkbox"/> Enable	<input type="text" value="0"/> seconds
<input type="text" value="0"/> ~ <input type="text" value="0"/>	<input type="checkbox"/> Enable	<input type="text" value="0"/> seconds

NAT Alias

Enable	Local Lan IP	Wan IP	Protocol	WAN
<input type="checkbox"/>	<input type="text" value="0.0.0.0"/>	<input type="text" value="0.0.0.0"/>	<input type="text" value="ALL"/>	<input type="text" value="WAN 1"/>

NAT Alias List

Enable	Local Lan IP	Wan IP	Protocol	WAN
--------	--------------	--------	----------	-----

Figure 4-10: NAT Setup

Settings – NAT Setup

NAT Configuration	<ul style="list-style-type: none"> NAT Routing – You can enable or disable NAT through the check box. If you disable the NAT checkbox, it will act as a bridge or Static Router. Most features will be unavailable. TCP Timeout – Enter the desired value to use on each WAN port. The default is 300 UDP Timeout – Enter the desired value to use on each WAN port. The default is 120 TCP Window Limit – Enter the desired value to use on each WAN port. The default is 0 (no limit). TCP MSS Limit – Enter the required MSS (Maximum Segment Size) to use on each WAN port. The default is 0 (no limit).
--------------------------	--

Non-Translation Port Range	If some packets whose port number cannot be translated for special applications, you must set state to “Enable” and input value in port range. Alternatively, if its port cannot be translated in the specified time period, you must set Enable and enter a seconds value in Timeout.
NAT Alias	For each alias entry, the WAN IP acts as an alias of the host with Local LAN IP accessing the Internet via the specified WAN port for the specified protocol packets, i.e. 1-1 NAT.
NAT Alias List	NAT Alias List shows the list of all NAT alias configuration data which are currently defined. You can modify its configuration data by selecting and clicking on a row.
Check NAT Detail	Shows all detailed NAT configuration data.
NAT Connection List	This shows the current details of all NAT entries which include interface, protocol, state, destination IP, WAN IP, local IP, idle time and in/out packets.

Advanced Feature

- **External Filters Configuration** – These settings determine whether the MULTI-WAN GATEWAY should respond to ICMP (ping) requests received from the WAN port or not.
- **Interface Binding** – Use these settings to ensure that certain traffic is sent by a particular WAN port and thereby a particular ISP account. These settings are only useful on some WAN ports.
- **Protocol & Port Binding** – This allows you to bind any WAN port by selecting the protocol type you want.

Advanced Feature

?
Help

External Filters Configuration

Block Selected ICMP Types
 Echo Request
 Timestamp Request
 Information Request
 Address Mask Request

DNS Loopback

Domain Name	Private IP	Domain Name	Private IP
<input type="text"/>	<input type="text" value="0.0.0.0"/>	<input type="text"/>	<input type="text" value="0.0.0.0"/>
<input type="text"/>	<input type="text" value="0.0.0.0"/>	<input type="text"/>	<input type="text" value="0.0.0.0"/>
<input type="text"/>	<input type="text" value="0.0.0.0"/>	<input type="text"/>	<input type="text" value="0.0.0.0"/>
<input type="text"/>	<input type="text" value="0.0.0.0"/>	<input type="text"/>	<input type="text" value="0.0.0.0"/>
<input type="text"/>	<input type="text" value="0.0.0.0"/>	<input type="text"/>	<input type="text" value="0.0.0.0"/>

Application

IDENT Port	<input type="checkbox"/> Enable	Make it seem closed, not stealth	
SMTP Binding	<input type="checkbox"/> Enable	WAN 1	
IPSec Passthrough	<input type="checkbox"/> Enable	AUTO	Max Tunnels 10
PPTP Passthrough	<input type="checkbox"/> Enable	AUTO	Max Tunnels 10

Protocol & Port Binding

Enable	Source IP	Dest. Type	IP Address	Subnet Mask	Protocol	Port Range	WAN
<input type="checkbox"/>	<input type="text"/>	Subnet	<input type="text" value="0.0.0.0"/>	<input type="text" value="255.255.255.0"/>	ALL	<input type="text" value="0"/> ~ <input type="text" value="0"/>	WAN 1

Protocol & Port Binding List

State	Source IP	Destination IP / Subnet Mask	Protocol	Port Range	WAN
-------	-----------	------------------------------	----------	------------	-----

Figure 4-11: Advanced Feature

Settings – Advanced Feature

External Filters Configuration	<ul style="list-style-type: none"> • IDENT Port – Port 113 is associated with the Internet's (Identification / Authentication) service. When a client program in your computer contacts a remote server for services such as POP, IMAP, SMTP, that remote server sends back a query to the "Ident" server running in many systems listening for these queries on port 113. This means that hackers can probe port 113 as a rich source of your personal information. The default value of this check box is "Disable" • Block Selected ICMP Types – These settings determine whether or not this device should respond to ICMP requests received from the WAN port. If checked, the selected packet types are blocked. Otherwise, the packets are accepted.
DNS Loopback	<p>Used when you have some servers on the LAN and their domain names have already been registered on public DNS. To avoid DNS loop back problems, please enter the following fields:</p> <ul style="list-style-type: none"> • Domain Name – Enter the domain name specified by you for the local server. • Private IP – Enter the private IP address of your local server.
Interface Binding	<p>SMTP (Simple Mail Transport Protocol) Binding</p> <p>Unless you are using E-mail accounts from different ISPs on each port, you can ignore these settings.</p> <p>Some ISPs configure their E-mail Servers so they will not accept E-mail from IP addresses not allocated by them. If you are using accounts from different ISPs, sending E-mail over the wrong WAN port may result in the mail not being accepted. In this case, you can use these settings to correct the problem:</p> <ul style="list-style-type: none"> • Enable - If enabled, the WAN port you specify below will be used for all outgoing SMTP traffic. If not enabled, either WAN port will be used. • WAN – Select the desired WAN port to be bound.
Protocol & Port Binding	<p>Protocol and Port Binding</p> <p>Use these settings if you wish to ensure that particular traffic is sent by a specific WAN port, and thereby a particular ISP account.</p> <ul style="list-style-type: none"> • Enable - Enable or disable each item as required. • Source IP - IP address of source from which packets are sent. • Destination IP – IP address of destination to which packets are sent. • Subnet Mask – With a subnet mask other than 255.255.255.255, you can make an IP sub-network as your destination. • Protocol – Select protocol type used by the traffic you wish to configure. • Port Range - Enter the beginning and end of the port range used by the traffic you wish to configure. If only a single port is used, enter the port number in both fields. • WAN - Select the WAN port you wish this traffic to use.

**Protocol & Port
Binding List**

This list shows the details of all protocol and port configuration data which are currently defined. You can modify them by clicking on a selected row.

5: Security Management

Overview

- **Block URL** – Ability to block a specific website by configuring IP address, URL or Keywords.
- **Access Filter** – Ability to block all Internet access, a known port or user defined ports by group access.
- **Session Limit** – Ability to limit users Internet access when the device detects new sessions that exceed the maximum value in the sampling time, for example, virus, syn flood, etc.
- **SysFilter Exception** – This feature allows you to configure an unrecognized port, allowing those packets to be processed, enabling some programs to run more smoothly. This is also applicable for some future applications that may need this mechanism in order to work well.

Block URL

This feature allows you to block access to undesirable Web sites. You can block by URL, IP address, or Keyword. You can also have different blocking settings for different groups of PCs.

- In operation, every URL is searched to see if it matches or contains any of the URLs or keywords entered here. Then, after a DNS lookup, it determines the IP address of the requested site and checks it against IP address entries on this screen.
- Note that a single IP address may host many Web sites (shared IP). Entering an IP address on this screen will block all Web sites that may be hosted on that IP address.

URL Filter
?
Help

Access Group

Select Group

URL Filter Type

Access Item

Index	Status	URL / IP / Keyword On Web Site
1	<input type="checkbox"/>	<input style="width: 90%; height: 20px;" type="text"/>

Internet Access List

Index	Status	URL / IP / Keyword

Figure 5-1: Block URL

Settings – Block URL

Access Group	<p>This allows you to have different blocking rules for different Groups of PCs.</p> <ul style="list-style-type: none"> • All PCs (users) are in the <i>Default</i> Group unless moved to another specified group on the Host IP screen. • If you want the same restrictions to apply to everyone, select <i>Default</i> for the Group. In this case, there is no need to enter any Hosts in the Host IP screen. • If you wish to apply different restrictions on different Groups, select the desired Group, and click the "Select" button. The screen will update the data for the selected Group. • URL List Type – Black List: If you select Black List, It will block the URL that you keep it on Access Item. White List: If you are select White List type, it will block the entire URL except you keep it on the Access Item. • Set Type Button – Button to submit Black List or White List.
Access Item	<ul style="list-style-type: none"> • Enable/Disable – Use this to Enable or Disable each setting as required. • Block URL/IP/Keyword – Enter the URL, IP address or Keyword you wish to block.
Internet Access List	<p>The list will display all block rules that you have setup. You can modify it by clicking on a selected row.</p>

Access Filter

The network Administrator can use the Access Filter to gain fine control over the Internet access and applications available to LAN users.

- Five (5) user groups are available and each group can have different access rights assigned to them.
- All PCs (users) are in the *Default* group, unless assigned to another group on the **Host IP** screen.

Help

Access Filter

Access Group

Select Group Default

Filter Setting

No Filtering Allow Selected Access only
 Block All Access Block Selected Access only

ICMP Filters

Selected Packet Types
 Echo Request Timestamp Request
 Information Request Address Mask Request

Submit
Cancel

User-Defined Filter

Index	Enable	Filter Name	Protocol Type	Port Range
1	<input type="checkbox"/>	Archie	UDP	1525 ~ 1525

Add
Delete
Update
Cancel

User-Defined Filter List

Index	Status	Name	Protocol Type	Port Range
1	Disable	Archie	UDP	1525 ~ 1525
2	Disable	DNS	UDP	53 ~ 53
3	Disable	FTP Command	TCP	21 ~ 21
4	Disable	FTP Data	TCP	20 ~ 20
5	Disable	Gopher TCP	TCP	70 ~ 70
6	Disable	Gopher UDP	UDP	70 ~ 70
7	Disable	HTTP	TCP	80 ~ 80
8	Disable	SMTP	TCP	25 ~ 25
9	Disable	POP3	TCP	110 ~ 110
10	Disable	News TCP	TCP	119 ~ 119
11	Disable	News UDP	UDP	119 ~ 119
12	Disable	Real Audio Command	UDP	7070 ~ 7070
13	Disable	Real Audio Data	UDP	7071 ~ 7071
14	Disable	SNMP	UDP	161 ~ 161
15	Disable	SNMP Trap	UDP	162 ~ 162
16	Disable	Telnet	TCP	23 ~ 23
17	Disable	TFTP	UDP	69 ~ 69

Figure 5-2: Access Filter

Settings – Access Filter

Access Group	<p>This allows you have different access rights for different Groups of PCs.</p> <ul style="list-style-type: none"> • If you want the same restrictions to apply to everyone, select <i>Default</i> for the Group. In this case, there is no need to enter any Hosts on the Host IP screen. • If you wish to apply different restrictions to different Groups, select the desired Group. The screen will update data for the selected Group.
Filter Setting	<p>Select the desired option for this Group:</p> <ul style="list-style-type: none"> • No filtering – Nothing is blocked, Internet access is not restricted. • Block All Access – Everything is blocked, Internet access is not available. • Block selected items – Items selected on this screen are blocked. You can block known services by using the checkboxes, or you may define your own filters.
ICMP Filters	<p>If you enable ICMP Filter that means it will block ICMP request packet types specified by users from local host to remote side.</p>
User-Defined Filter	<p>This section is optional. It allows you to define your own filters as required. For each filter, the following information is required:</p> <ul style="list-style-type: none"> • Filter Name – Enter a name for this filter. • Protocol Type – Select a protocol type you wish to block. • Port No. Range – Enter the range of port numbers used that you wish to block. If only a single port is required, enter it in both fields.
User-Defined Filter List	<p>This List shows the details of all User-Defined Filter configurations which are currently defined. You can modify its configuration data by clicking on a selected row.</p>

Session Limit

This new feature allows to drop the new sessions from both WAN and LAN side, if the number of new sessions exceeds the maximum value set by you in the Sampling Time field.

Session Limit

 Help

Outgoing New Session

Session Limit	<input type="radio"/> Enable <input checked="" type="radio"/> Disable	
Sampling Time	400	msec.
Maximum of Total New Sessions	65535	sess. per sec.
Maximum of New Sessions for Host	100	sess. per sec.
Maximum of Dropped New Sessions for Host	25	sess. per sec.
Pause Time for Host while exceeding limit on Dropped New Sessions	5	min.

Figure 5-3: Session Limit

Settings – Session Limit

Sampling Time	The time interval specified by you for new sessions. Only the new sessions that have recently occurred are counted according to the sampling time entered. (Default is 400 mil-sec)
Maximum of Total New session	The maximum total number of new sessions in the system which is acceptable in the sampling time. Any new incoming sessions will be dropped after the number of new sessions has been exceeded. (Default: 65535 session/sec)
Maximum of New Sessions for Host	The maximum number of new sessions from the host which is acceptable in the sampling time. Any new incoming sessions will be dropped from this host after the number of new sessions has been exceeded. (Default: 100 session/sec)
Maximum of Dropped New Sessions for Host	If the number of dropped new sessions from the host exceeds the Maximum in the sampling time, any new session from the host will be dropped in the pause time period. (Default: 25 session/sec)
Pause Time for Host while exceeding limit on Dropped New Sessions	Within the pause time period, new session from the suspended host will not be served by the system when the number of dropped new sessions exceeds the defined Maximum. (Default is 5 minutes)

SysFilter Exception

System Filter Exception - This will reject every packet with an unrecognized port to block port scan programs from hackers. This, however, also incurs problems in some situations where servers (e.g. SMTP server port 113) or WAN clients need to send a response packet to verify the activity of their communication peers.

SysFilter Exception

Help

System Filter Exception Rules						
Index	Enable	Interface	Protocol	Foreign Port Range	Device Port Range	
1	<input type="checkbox"/>	LAN	ICMP	0 ~ 0	0 ~ 0	
<input type="button" value="Add"/>		<input type="button" value="Delete"/>		<input type="button" value="Update"/>		<input type="button" value="Cancel"/>

System Filter Exception Rules List						
Index	Status	Interface	Protocol	Foreign Port Range	Device Port Range	

Figure 5-4: SysFilter Exception

Settings –SysFilter Exception

System Filter Exception Rules	<ul style="list-style-type: none"> Enable – If check box is marked, it will enable System Filter Exception Interface – You can select LAN, any WAN port or ALL interfaces from which a packet originates. Protocol – The packet type (selected in the above Interface) which will be directly processed by this device. Foreign Port Range – Enter the beginning and end of the foreign port range used by the traffic you wish to configure. If only a single port is used, enter the port number in both fields. Device Port Range – Enter the beginning and end of the device port range used by the traffic you wish to configure. If only a single port is used, enter the port number in both fields.
System Filter Exception Rules List	<p>The list will display the details of all System Filter Exception Rules that you have setup. You can modify data by clicking on a selected row.</p>

6: QoS Configuration

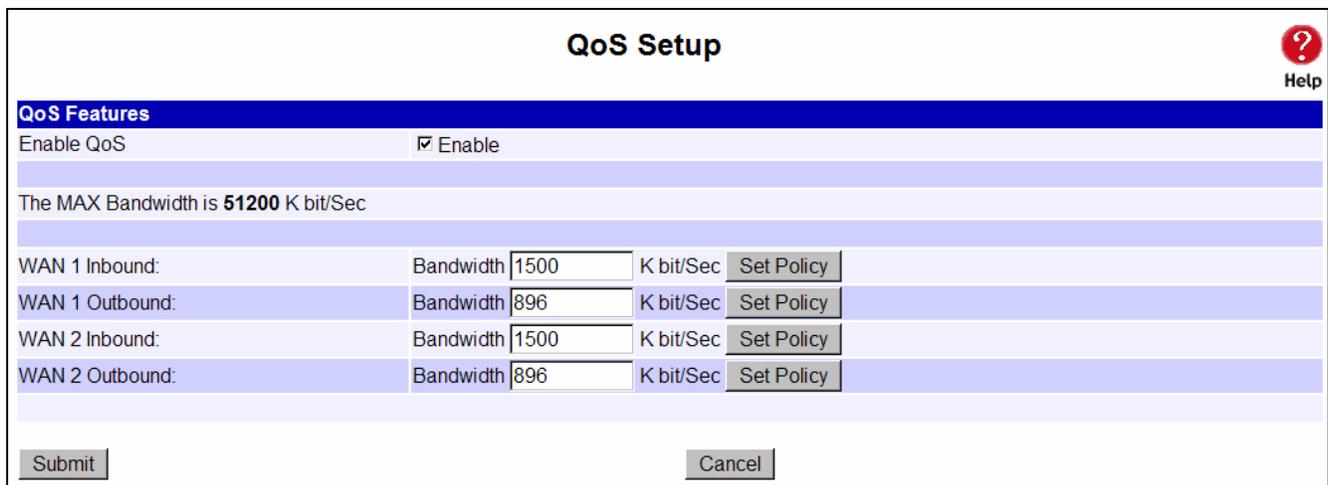
Overview

The MULTI-WAN GATEWAY incorporates a QoS (Quality of Service) utility to provide high quality network support service.

Because it classifies outgoing packets based on policies defined by users, real-time applications should respond or perform better.

QoS Setup

The following web page instructs you on setting up and enabling QoS.



QoS Setup			
QoS Features			
Enable QoS	<input checked="" type="checkbox"/>	Enable	
The MAX Bandwidth is 51200 K bit/Sec			
WAN 1 Inbound:	Bandwidth	<input type="text" value="1500"/>	K bit/Sec <input type="button" value="Set Policy"/>
WAN 1 Outbound:	Bandwidth	<input type="text" value="896"/>	K bit/Sec <input type="button" value="Set Policy"/>
WAN 2 Inbound:	Bandwidth	<input type="text" value="1500"/>	K bit/Sec <input type="button" value="Set Policy"/>
WAN 2 Outbound:	Bandwidth	<input type="text" value="896"/>	K bit/Sec <input type="button" value="Set Policy"/>
<input type="button" value="Submit"/>		<input type="button" value="Cancel"/>	

Figure 6-1: QoS Setup

Settings – QoS Setup.

QoS Feature	<ul style="list-style-type: none"> ◆ Enable QoS – Checkbox allows users enable QoS mechanism. If set to "enable" QoS. QoS will allocate Inbound/Outbound bandwidth to pass through the device. ● WAN Inbound / Outbound Bandwidth –This allows you to set the maximum inbound or outbound bandwidth, maximizing your network's performance. This information can be obtained from your ISP ● Set Policy Button –Setting the policy can allocate Inbound/Outbound bandwidth (based on your configuration) to pass through this device.
--------------------	---

Policy Configuration

Setting the **QoS** policy can allocate Inbound/Outbound bandwidth (based on your configuration) to pass through this device. You can define some policies which classify received packets based on Local/Remote IP, MAC, port and protocol type. This feature is useful when the WAN link is very busy or congested or when using special applications that need real time services such as Internet phone, video conference...etc.

QoS Policy ?
Help

WAN 1 Inbound Policy

Policy Name	<input type="text" value="VOIP"/>			
Local Address	<input type="text" value="IP Address"/>			
	From	<input type="text" value="192.168.1.101"/>	To <input type="text" value="192.168.1.104"/>	
Remote Address				
	From	<input type="text" value="0.0.0.0"/>	To <input type="text" value="0.0.0.0"/>	
Protocol Type	<input type="text" value="IP"/>			
Local Port	From	<input type="text" value="0"/>	To <input type="text" value="0"/>	
Remote Port	From	<input type="text" value="0"/>	To <input type="text" value="0"/>	
The total Bandwidth is 1500 K bit/Sec The rest of Guaranteed Bandwidth is 1244 K bit/Sec				
Maximum Bandwidth:	<input type="text" value="896"/>	K bit/Sec		
Guaranteed Bandwidth:	<input type="text" value="256"/>	K bit/Sec		
<input type="button" value="Add"/> <input type="button" value="Delete"/> <input type="button" value="Update"/> <input type="button" value="Cancel"/> <input type="button" value="Go Back"/>				
Policy Name	Source Address / Port	Destination Address / Port	Protocol	Guaranteed / Maximum
VOIP	192.168.1.101~192.168.1.104(0,0)	0.0.0.0~0.0.0.0(0,0)	IP	256Kbps / 896Kbps

Figure 6-2: Policy Configuration

Settings – QoS Policy

WAN Inbound / Outbound Policy	<ul style="list-style-type: none"> Policy Name –The name of a policy which is used to classify the received packets based on the following types for your memory Local / Remote Address, Port –Specify a packet based on Local/Remote address or port. Address has two types: IP address and MAC address. By default, the IP address is 0.0.0.0 for all IP Addresses but the MAC address is 00-00-00-00-00-00 which cannot be used to classify. Port and Protocol Type define all packets for special applications Protocol Type – The field defines traffic packet type, i.e. IP, TCP and UDP. Maximum Guaranteed Bandwidth –This device supports Bandwidth queues. When a packet meets a policy rule requirement, it will be put into the responding queue. The queue will send them use the guaranteed bandwidth. If the rest bandwidth is enough it will try to arrive the maximum bandwidth.
--------------------------------------	---

7: Management Assistant

Overview

The following advanced features are provided:

- Admin. Setup
- Email Alert
- SNMP
- Syslog
- Upgrade Firmware

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

Admin. Setup

Remote Access Configuration – This feature allows you to manage the MULTI-WAN GATEWAY via the Internet. You can restrict access to a specified IP address or address range.

Administrator Password – This feature allows you to assign a password for remote upgrade and access to the MULTI-WAN GATEWAY.

Admin. Setup				? Help
Remote Access Configuration				
Remote Upgrade	Remote Setup	Access Port	Allowed Remote IP	
<input type="checkbox"/> Enable	<input type="checkbox"/> Enable	8080	0.0.0.0	~ 0.0.0.0
Administrator Password				
User Name	Password	Verify Password		
admin				
Submit		Cancel		

Figure 7-1: Admin. Setup

Settings – Admin. Setup

Remote Access Configuration	<ul style="list-style-type: none"> • Remote Upgrade – If enabled, you can use the supplied Windows utility to remotely upgrade the firmware. If not enabled, the upgrade must be performed by a PC on the LAN. • Remote Setup – If enabled, access to the web-based interface is available via the Internet (See below for details). If not enabled, access is only available by a PC on the LAN. • Access port – The port number used when connecting remotely. The default port number is 8080. • Allowed Remote IP – Remote access is only available to the IP address entered here. <ol style="list-style-type: none"> 1. Leaving these fields blank (0.0.0.0 ~ 0.0.0.0), will allow access by all PCs. 2. These addresses must be Internet IP addresses; not addresses on the local LAN. 3. To specify a single address, enter it in both fields.
Administrator Password	<p>You can modify the device password in this field. The default entry is “ “ (no password).</p>

Email Alert

This feature will send a warning Email to the system administrator when any WAN port is disconnected, has received excessive ping flooding, exceeded session limitation, etc.

Email Alert

 Help

Global Settings: Notification on

Enable & Link Down	Excessive Ping
<input type="checkbox"/> Enable	<input type="checkbox"/> Enable MAX. Pings Before Notification <input style="width: 50px;" type="text" value="0"/> times / min.

Email Alert Configuration

	WAN 1
Email (SMTP) Server Address	<input style="width: 90%;" type="text"/>
User Name	<input style="width: 90%;" type="text"/>
Password	<input style="width: 90%;" type="text"/>
Sender Address	<input style="width: 90%;" type="text"/>
Recipient Address	<input style="width: 90%;" type="text"/>

Email Alert Configuration List

Interface	Mail Server	User Name	Sender Addr.	Recipient Addr.
WAN 1				
WAN 2				

Figure 7-2: Email Alert

Settings – Email Alert

Global Setting: Notification on	<ul style="list-style-type: none"> Link Down – If set to Enable, it will send a warning email to alert the administrator when any WAN port is disconnected. Excessive Ping – This feature is useful to prevent ICMP attacks from WAN or LAN. It will drop the packets if the ping packets exceed the threshold value. If enabled, an email alert is sent to the administrator.
--	--

Email Alert Configuration	<ul style="list-style-type: none">• Email (SMTP) Server Address – An email sever to which a warning email will be sent, if email alert has been enabled. For example: mail.domain.com• User Name – An email account name for the sender.• Password – A password for the sender.• Sender Address – An email address that sends a warning email to a recipient.• Recipient Address – An email address that a warning email will be sent to. Usually this is a system administrator email address. For example: <u>admin@mail.domain.com</u>
Email Alert Configuration List	This lists all email alert configuration data that you have entered. You can modify these details by clicking on a selected row.

SNMP

This section is only useful if you have SNMP (Simple Network Management Protocol) software on your PC. If you have SNMP software, you can use a standard MIB II file with the MULTI-WAN GATEWAY.

SNMP		Help
System Information		
Contact Person	<input type="text" value="Supervisor"/>	
Device Name	<input type="text" value="Multi-Wan Load Balancer"/>	
Physical Location	<input type="text" value="Head Office"/>	
Community		
Community Name 1	<input type="text" value="private"/>	Access Control 1 <input type="text" value="Read/Write"/>
Community Name 2	<input type="text" value="public"/>	Access Control 2 <input type="text" value="Read Only"/>
Trap Targets		
Target IP Address 1	<input type="text" value="0.0.0.0"/>	(ex. xxx.xxx.xxx.xxx)
Target IP Address 2	<input type="text" value="0.0.0.0"/>	
Target IP Address 3	<input type="text" value="0.0.0.0"/>	
<input type="button" value="Submit"/>		<input type="button" value="Cancel"/>

Figure 7-3: SNMP

Settings – SNMP

System Information	<ul style="list-style-type: none"> • Contact Person – The name of the person responsible for this device. • Device name – The name of this device. • Physical Location – The location of the device.
Community	<ul style="list-style-type: none"> • Community Name – This is a password or key used between this device and the management station. The administrator/manager must use the same name when monitoring the device. • Access Control – Access privileges which allow the management station to manage this device. This value may be: Read/Write, Read Only or No Access.
Trap Targets	Enter the IP addresses of any targets (PCs running SNMP software) to which you want traps to be sent. All traps are level 1.

Syslog

This feature can send the real time system information to a web page or to specified PCs.

Syslog Configuration – Syslog Configuration allows you to select whether to send the system information to another machine or not. Up to three machines can be chosen to send the system log to.

Message Status – Messages are only sent and kept when “Keep Sent Message” is enabled. Currently 100 messages are retained in RAM and will be cleared when the system is rebooted or powered off.

Syslog

 Help

Syslog Delivery

Sending Out	<input checked="" type="checkbox"/> Enable	IP Address	Port (Default:514)	Keep Sent Message <input checked="" type="checkbox"/> Enable	Log Priority Level
Syslog Server 1	<input checked="" type="checkbox"/>	192.168.1.1	514	<input checked="" type="checkbox"/>	Debug
Syslog Server 2	<input type="checkbox"/>	0.0.0.0	514	<input type="checkbox"/>	Emerg.
Syslog Server 3	<input type="checkbox"/>	0.0.0.0	514	<input type="checkbox"/>	Emerg.

Log Priority for Modules
Collapse

KERNEL	Info.	MAIL	Info.	AUTH	Emerg.	SYSLOG	Info.
SECURITY	Warning	NTP	Emerg.	AUDIT	Emerg.	PPPOE	Info.
PPP	Info.	PPTP	Info.	RIP	Info.	SNMP	Info.
DNS	Info.	HTTP	Info.	DHCP	Info.	DDNS	Info.
UPNP	Info.	NAT	Emerg.	SNTP	Info.		

SNTP Configuration

Time Zone: (GMT-12:00) Kwajalein

System Time: 2000 / 5 / 6 23 : 57 : 20

SNTP Server 1:

SNTP Server 2:

SNTP Server 3:

Submit
Cancel
View Syslog

Figure 7- 4: Syslog

Settings – Syslog

Syslog Delivery	<ul style="list-style-type: none"> • Sending Out – Set to “<i>Enable</i>”, if you want to send system log messages to other machines (PCs). • Keep Sent Message – If set to Enable, it means you want to keep sent messages; otherwise the sent messages will be deleted. • Syslog Server – Up to 3 syslog servers can be used. <ul style="list-style-type: none"> • IP Address: The IP address(es) of the syslog server(s) that you want to send to. • Port: If your syslog server does not use the default port, you can change it. • Log Priority Level: The syslog messages are divided into 8 levels from Emergency to Debug. The lower the level, the more messages will be generated. Emergency is the highest priority level and Debug is the lowest.
Log Priority for Modules	By pressing the “Expand” button, selection can be made as to which syslog module and level should be sent to the syslog server. You can arrange all items on a line by pressing the “Collapse” button.
SNTP (Simple Network Time Protocol) Configuration	SNTP is an Internet protocol to synchronize the computer (device) clock. You can select your location from the pull-down menu and fill in the SNTP server’s IP address. The local clock will then synchronize with your device which updates with the correct time received from the SNTP server, then adds the Time Zone.

Using Remote Web-based Setup

To connect to the MULTI-WAN GATEWAY from a remote PC via the Internet:

1. Ensure that both your PC and the MULTI-WAN GATEWAY are connected to the Internet.
2. Open your Web Browser.
3. In the "Address" bar, enter "HTTP:///" followed by the Internet IP Address of the MULTI-WAN GATEWAY. If the port number is not 80, then 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 that the WAN IP Address is 123.123.123.123 and the port number is 8080.
- If using the **Dynamic DNS** feature, you can connect using the domain name allocated to you.
e.g.

[HTTP://my_domain_name.dyndns.org:8080](http://my_domain_name.dyndns.org:8080)

Management password

Enter the desired password, re-enter it in the *Verify Password* field, then save it.

When you connect to the MULTI-WAN GATEWAY with your Browser, you will be prompted for the password when you connect, as shown below:

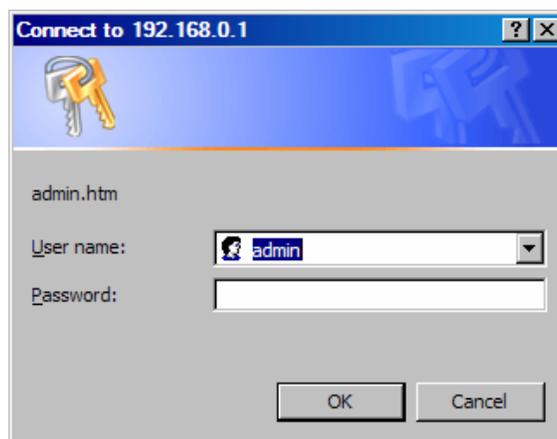
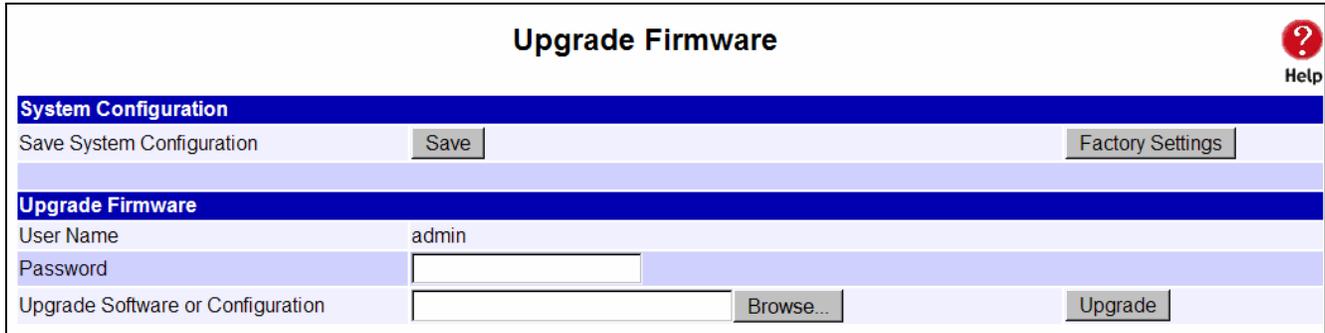


Figure 7-5: Password Dialog

- Enter "Admin" for the *User Name*.
- Enter the password for the MULTI-WAN GATEWAY.

Upgrade Firmware

The Upgrade Firmware Screen allows you to upgrade the firmware or backup the system configuration.



The screenshot shows a web interface titled "Upgrade Firmware". At the top right, there is a red circular help icon with a question mark and the word "Help" below it. The interface is divided into two main sections. The first section, "System Configuration", has a blue header and contains two buttons: "Save System Configuration" with a "Save" button next to it, and "Factory Settings" with a "Factory Settings" button next to it. The second section, "Upgrade Firmware", also has a blue header and contains three rows of input fields. The first row is "User Name" with the text "admin" entered. The second row is "Password" with an empty text box. The third row is "Upgrade Software or Configuration" with an empty text box, a "Browse..." button, and an "Upgrade" button.

Figure 7-6: Upgrade Firmware

- ◆ You can backup your system configuration by pressing the Save System Configuration “Save” button. This will save the system configuration for future use.
- ◆ You also can upgrade the firmware by inputting the correct password, browsing to the firmware upgrade file and then pressing the “Upgrade” button. Do not reset or restart the device while updating the firmware as this may cause the system to crash.
- ◆ Pressing the “Factory Settings” button will reset the configuration data to its default value.

8: Network Info

Operation

Once the MULTI-WAN GATEWAY and the PCs are configured, operation is automatic. However, there are some situations where additional Internet configuration may be required. Refer to *Chapter 4 - Advanced Setup* for further details.

System Status

Use the **System Status** link on the main menu to view this screen.

System Status
?
Help

Interface	Connection Type	Status	MAC Address
WAN 1	PPPoE <input type="button" value="Connect"/>	Disconnected	00-09-A3-00-B3-CC
WAN 2	PPPoE <input type="button" value="Connect"/>	Disconnected	00-09-A3-00-B3-CD

Interface	IP Address	Subnet Mask	Gateway	DNS IP Address
WAN 1	0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0
WAN 2	0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0

Interface	IP Address	Subnet Mask	MAC Address	DHCP Server
LAN	192.168.1.9	255.255.255.0	00-09-A3-00-B3-CB	Disable

Device Information

Hardware ID	032121042000010000000000107033				
Firmware Version	Ver 8.0 Rel 10 Beta01 Built Date: Jan 13 2006				
NAT	Enable	Load Balance	Enable	Virtual Server	Disable
Special Application	Disable	Multi DMZ	Disable	URL Filter	Disable

Device Statistics

System UpTime	126d 23h 59m 30s			
CPU Usage	Memory Heap	Packet Queue		
1 %	1 %	2 %		

Figure 8-1: System Status

Data – System Status

WAN Interface	<ul style="list-style-type: none"> • Connection Type – The type of connection used – DHCP, Fixed IP, PPPoE or PPTP. • Connection Status – Either "Connected" or "Disconnected". • "Force Renew" button– Only available if using a dynamic IP address (DHCP). Clicking this button will perform a DHCP "Renew" transaction with the ISP's DHCP server. This will extend the period for which the current WAN IP address is allocated to you. • Connect/Disconnect – Used for dial-up/connection of PPPoE or PPTP. • IP Address – The IP address of the MULTI-WAN GATEWAY, as seen from the Internet. This IP Address is allocated by the ISP (Internet Service Provider). • Subnet Mask – The Network Mask (Subnet Mask) for the IP Address above. • Domain Name IP Address – The address of the current DNS (Domain Name Server) • Gateway – The address of the MULTI-WAN GATEWAY gateway. • MAC Address – The MAC (physical) address of the MULTI-WAN GATEWAY, as seen from the Internet.
LAN Interface	<ul style="list-style-type: none"> • IP Address – The LAN IP Address of the MULTI-WAN GATEWAY. • Subnet Mask – The Network Mask (Subnet Mask) for the IP Address above. • MAC Address – The MAC (physical) address of the MULTI-WAN GATEWAY, as seen from the local LAN. • DHCP Server – The status of the DHCP Server function - either "Enabled" or "Disabled".
Device Information	<ul style="list-style-type: none"> • Hardware ID – The manufacturers ID for this particular device. • Firmware Version – Version of the Firmware currently installed. • NAT – Status of the <i>NAT</i> feature – either "Enable" or "Disable". • Load Balance – Status of the <i>Load Balance</i> feature – either "Enable" or "Disable". • Virtual Server – Status of the <i>Virtual Server</i> feature – either "Enabled" or "Disabled". • Special Applications – Status of the <i>Special Applications</i> feature – either "Enabled" or "Disabled". • Multi DMZ – Status of the Multi <i>DMZ</i> feature – either "Enabled" or "Disabled". • Block URL – Status of the <i>Block URL</i> feature – either "Enable" or "Disable".

Device Statistics	<ul style="list-style-type: none"> • System UpTime – The time since the device system was last reinitialized. • CPU Usage – The current CPU percentage usage. • Memory Heap – The current Memory percentage usage (Heap & Queue). • Packet Queue – The current Packet Queue percentage usage.
Buttons	<ul style="list-style-type: none"> • Refresh – Updates the on-screen data. • Restart – Restarts (reboots) the MULTI-WAN GATEWAY. • Restore Factory Defaults – This will delete all existing settings and restore the factory default settings. See below for details.

Restore Factory Defaults

When the "Restore Factory Defaults" button on the **Status** screen above is clicked, the following screen is displayed:



Figure 8-2: Restore Factory Defaults

If the "Restore" button on this screen is clicked:

- ALL of your settings will be erased.
- The default IP address, password and all other settings will be restored to the factory default values.
- The DHCP server function will be enabled.

These changes may mean that the current connection is invalid and you will have to re-connect to the MULTI-WAN GATEWAY using its default IP address (192.168.1.1).

WAN Status

Use the **WAN Status** link on the main menu to view this screen.

WAN Status									
 Help									
NAT Statistics									
Interface	Status	Loading Share		Current Loading			Current Bandwidth		
		Default	Current	Session	Byte	Packet	Download	Upload	
WAN 1	Disconnected	50 %	50 %	1	1	1	0 bytes/sec	0 bytes/sec	
WAN 2	Disconnected	50 %	50 %	1	1	1	0 bytes/sec	0 bytes/sec	
Interface Statistics									
Interface	Loading Share	Overall Statistics							
		Received	Transmitted	Total					
WAN 1	65 %	4 KB	1 KB	5 KB					
WAN 2	34 %	2 KB	0 KB	2 KB					
<input type="button" value="Refresh"/> <input type="button" value="Restart Counters"/> <input type="button" value="NAT Status .."/>									

Figure 8-3: WAN Status

Data – WAN Status

NAT Statistics	<p>This section displays data for each WAN port.</p> <ul style="list-style-type: none"> • Status – This will display either <i>Connected</i> or <i>Disconnected</i>. • Default Loading Share - The default traffic loading on each WAN port. • Current Loading Share – The current traffic loading on each WAN port. • Current Loading – The number of current traffic Sessions, Bytes and Packets being processed on each WAN port. • Current Bandwidth – The current Download and Upload speed on each WAN port. • Refresh – Updates the on-screen data. • Restart Counters – Restarts the counters used in the "Interface Statistics". • Check NAT Detail – Displays the NAT Status screen, described below.
Interface Statistics	<p>This section displays cumulative statistics.</p> <p>Use the "Restart Counter" button to restart these counters when required.</p>

Appendix A

Specifications

Model	MULTI-WAN GATEWAY
Dimensions	423mm (W) x 155mm (D) x 43mm (H)
Operating Temperature	0° C to 40° C
Storage Temperature	-10° C to 70° C
Network Protocol:	TCP/IP
Network Interface:	16 *10/100 BaseT (RJ45) Auto-switching Hub ports for WAN / LAN devices.
LEDs	1 power LED. 2 status LEDs. 16 LEDs for WAN/LAN
Power Supply	Internal AC 100V ~ 240V / 50 ~ 60 Hz

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.

Tested to comply with FCC Standards for Home or Office use.

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.

Appendix B

Windows TCP/IP Setup

Overview

TCP/IP Settings

If using the default MULTI-WAN GATEWAY settings and the default Windows 95/98/ME/2000 TCP/IP settings, no changes need to be made.

- By default, the MULTI-WAN GATEWAY will act as a DHCP Server, automatically providing a suitable IP Address (and related information) to each PC when the PC boots.
- For all non-Server versions of Windows, the default TCP/IP setting is to act as a DHCP client.
- If you wish to check your TCP/IP settings, the procedure is described in the following sections.
- If your LAN has a router, it must be reconfigured by the LAN Administrator.

Checking TCP/IP Settings - Windows 9x/ME:

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

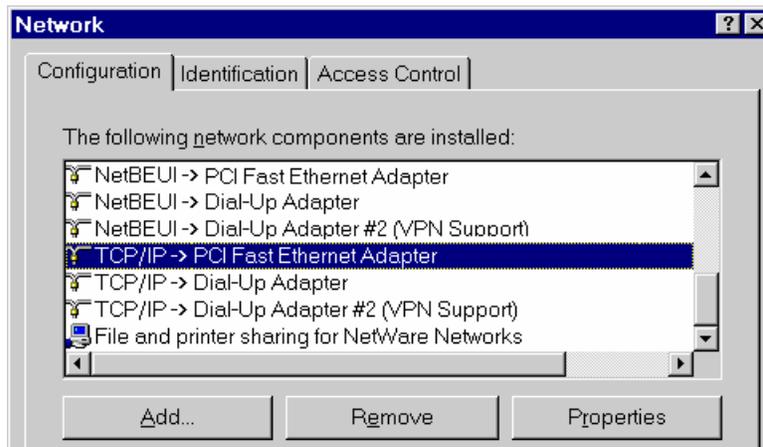


Figure B-1: Network Configuration

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:

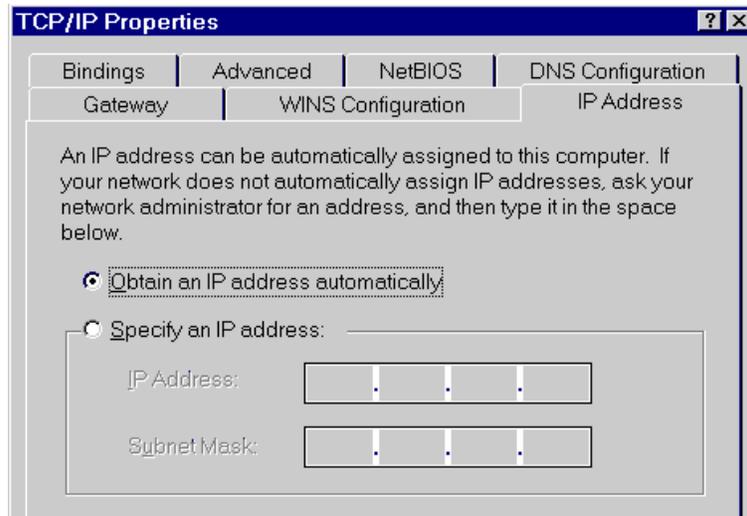


Figure B-2: IP Address (Win 95)

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 setting.

Restart your PC to ensure it obtains an IP Address from the MULTI-WAN GATEWAY.

Using "Specify an IP Address"

If your PC is already configured, check with your network administrator before making the following changes:

- If the *DNS Server* fields are empty, select *Use the following DNS server addresses*, and enter the DNS address or addresses provided by your ISP, then click *OK*.
- On the *Gateway* tab, enter the MULTI-WAN GATEWAY's IP address in the *New gateway* field and click *Add*, as shown below. (Your LAN administrator can advise you of the IP Address assigned to the MULTI-WAN GATEWAY.)

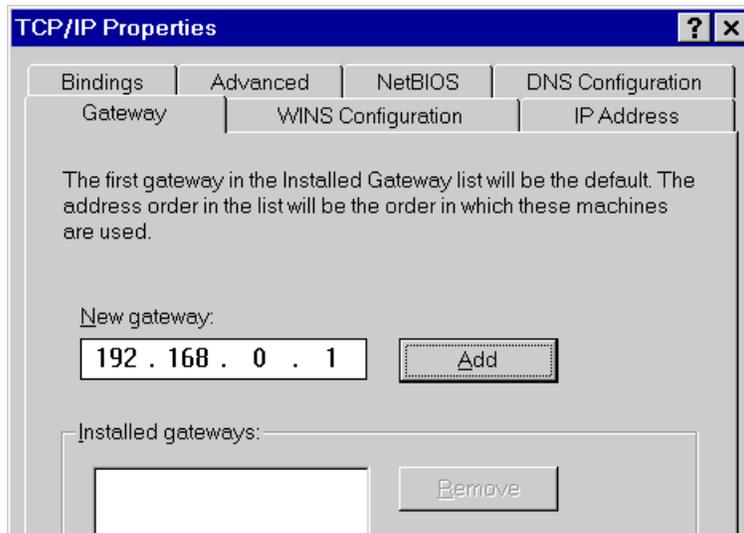


Figure B-3: Gateway Tab (Win 95/98)

- 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 field beside the *Add* button, then click *Add*.

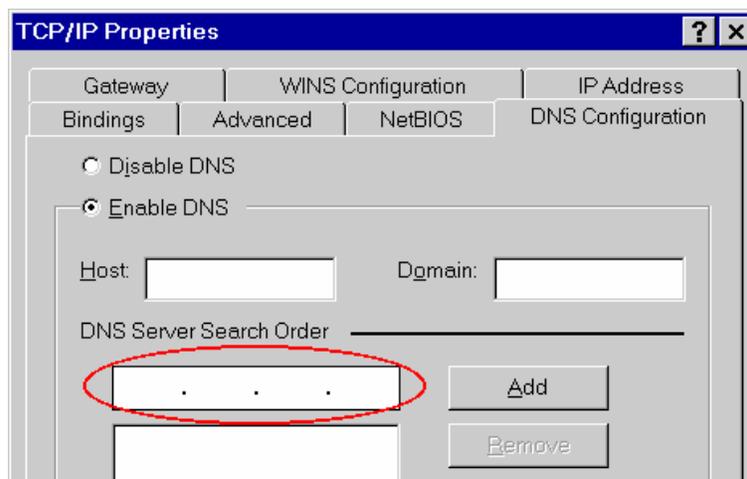


Figure B-4: DNS Tab (Win 95/98)

Checking TCP/IP Settings - Windows 2000:

1. Select *Control Panel - Network and Dial-up Connection*.
2. Right click the *Local Area Connection* icon and select *Properties*. You should see a screen like the following:

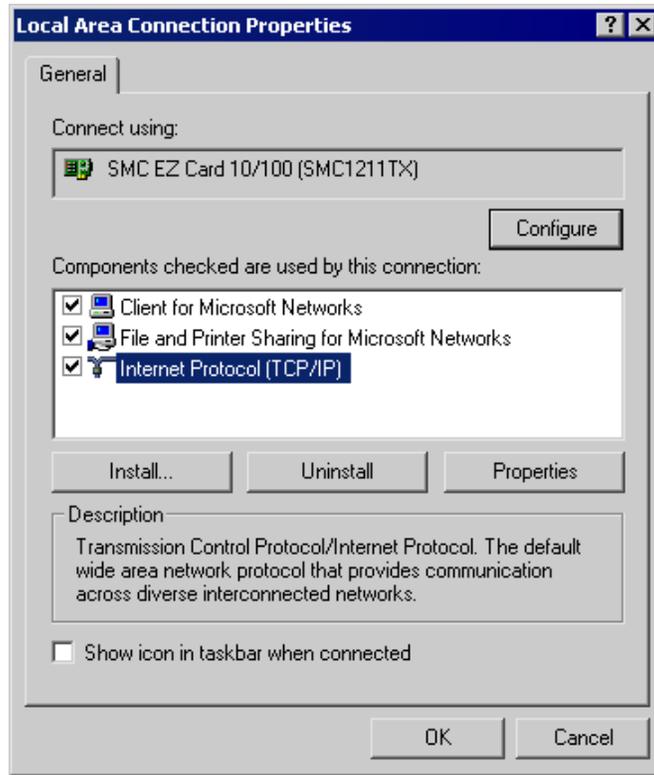


Figure B-5: Network Configuration (Win 2000)

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

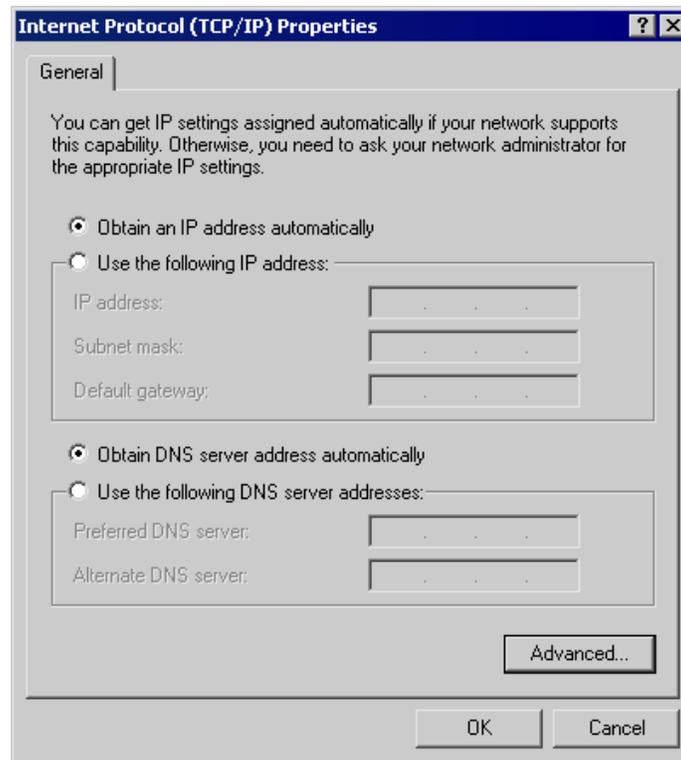


Figure B-6: TCP/IP Properties (Win 2000)

5. Ensure your TCP/IP settings are correct:

Using DHCP

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

Restart your PC to ensure it obtains an IP Address from the MULTI-WAN GATEWAY.

Using a fixed IP Address ("Use the following IP Address")

If your PC is already configured, check with your network administrator before making the following changes:

- Enter the MULTI-WAN GATEWAY's IP address in the *Default gateway* field and click *OK*. (Your LAN administrator can advise you of the IP Address assigned to the MULTI-WAN GATEWAY.)
- If the *DNS Server* fields are empty, select *Use the following DNS server addresses*, and enter the DNS address or addresses provided by your ISP, then click *OK*.

Checking TCP/IP Settings - Windows XP:

1. Select Control Panel - Network Connection.
2. Right click the *Local Area Connection* and choose *Properties*. You should see a screen like the following:

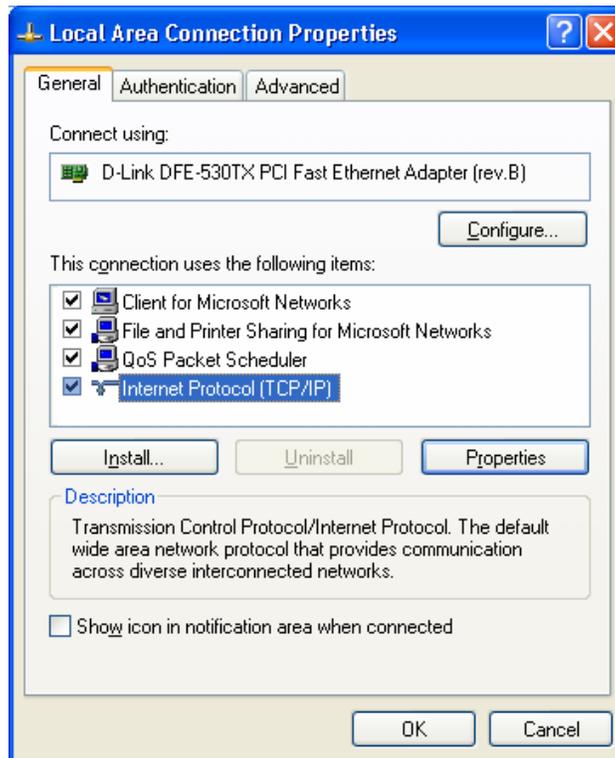


Figure B-7: Network Configuration (Windows XP)

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

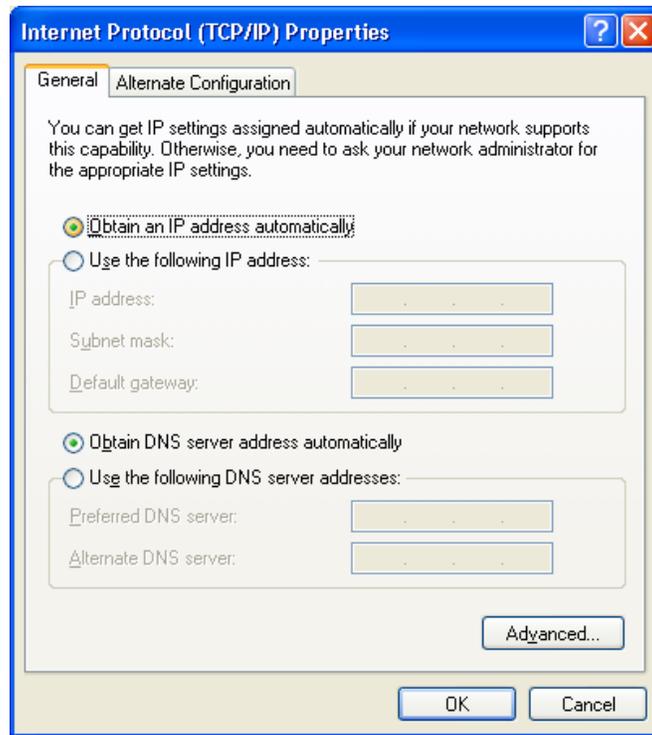


Figure B-8: TCP/IP Properties (Windows XP)

5. Ensure your TCP/IP settings are correct.

Using DHCP

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

Restart your PC to ensure it obtains an IP Address from the MULTI-WAN GATEWAY.

Using a fixed IP Address ("Use the following IP Address")

If your PC is already configured, check with your network administrator before making the following changes.

- Enter the MULTI-WAN GATEWAY's IP address in the *Default gateway* field and click *OK*. (Your LAN administrator can advise you of the IP Address assigned to the MULTI-WAN GATEWAY.)
- If the *DNS Server* fields are empty, select *Use the following DNS server addresses*, and enter the DNS address or addresses provided by your ISP, then click *OK*.

Appendix C

Troubleshooting

Overview

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

General Problems

Problem 1:	Can't connect to the MULTI-WAN GATEWAY to configure it.
Solution 1:	<p>Check the following:</p> <ul style="list-style-type: none">• The MULTI-WAN GATEWAY is properly installed, LAN connections are OK, and it is powered ON. <i>By default, Port 1-2 of this device are WAN ports, the others are LAN ports. Otherwise you have changed Maximum WAN ports.</i>• Ensure that your PC and the MULTI-WAN GATEWAY are on the same network segment. (If you don't have a router, this must be the case.)• If your PC is set to "Obtain an IP Address automatically" (DHCP client), restart it.• If your PC uses a Fixed (Static) IP address, ensure that it is using an IP Address within the range 192.168.1.2 to 192.168.1.254 and thus compatible with the MULTI-WAN GATEWAY's default IP Address of 192.168.1.1. Also, the Network Mask should be set to 255.255.255.0 to match the MULTI-WAN GATEWAY. In Windows, you can check these settings by accessing <i>Control Panel-Network</i> to check the <i>Properties</i> for the TCP/IP protocol.

Internet Access

Problem 1:	When I enter a URL or IP address I get a time out error.
Solution 1:	<p>A number of things could be causing this. Try the following troubleshooting steps.</p> <ul style="list-style-type: none"> • Check if other PCs are working. If they are, ensure that your PC's IP settings are correct. If using a Fixed (Static) IP Address, check the Network Mask, Default gateway and DNS as well as the IP Address. • If the PCs are configured correctly, but still not working, check the MULTI-WAN GATEWAY. Ensure that it is connected and ON. Connect to it and check its settings. (If you can't connect to it, check the LAN and power connections.) • If the MULTI-WAN GATEWAY is configured correctly, check your Internet connection (DSL/Cable modem etc.) to see if it is working correctly.
Problem 2:	Some applications do not run properly when using the MULTI-WAN GATEWAY.
Solution 2:	<p>The MULTI-WAN GATEWAY processes the data passing through it, so it is not transparent.</p> <p>Use the <i>Special Applications</i> feature to allow the use of Internet applications which are not functioning correctly.</p> <p>If this does solve the problem, you can use the <i>DMZ</i> function. This should work with most applications, however:</p> <ul style="list-style-type: none"> • It is a security risk, since the firewall is disabled for the <i>DMZ</i> PC. • Only one (1) PC can use this feature.