

OvisLink

Wireless Router with 4-Port EtherSwitch

User's Guide

Table 2: Connections Ports

FCC Certifications

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- ~~///~~ Reorient or relocate the receiving antenna.
- ~~///~~ Increase the separation between the equipment and receiver.
- ~~///~~ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- ~~///~~ Consult the dealer or an experienced radio/TV technician for help.

CAUTION:

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

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

FCC RF Radiation Exposure Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body.

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INTRODUCTION

The **Wireless Router with 4-port Fast EtherSwitch** is a broadband IEEE 802.11b compliant wireless router with a built in four-port fast Ethernet switch. It offers the easiest way to share and extend your high-speed DSL/cable modem Internet connection, either with or without wires. This high-performance IEEE 802.11b standards-based router connects all of your PC's equipped with wireless PC cards, while an integrated 4-port fast Ethernet switch connects your devices that need Ethernet wiring.

The **Wireless Router with 4-port Fast EtherSwitch** provides not only the ease of Internet access, but also the privacy of data transmission. Network Address Translation (NAT) and VPN pass-through provide your network with protection from hackers, while 64 and 128-bit WEP encryption guard your wireless network for maximum privacy. All incoming data packets are monitored and filtered. It can also be configured to block internal users from accessing to the Internet.

Sample Application

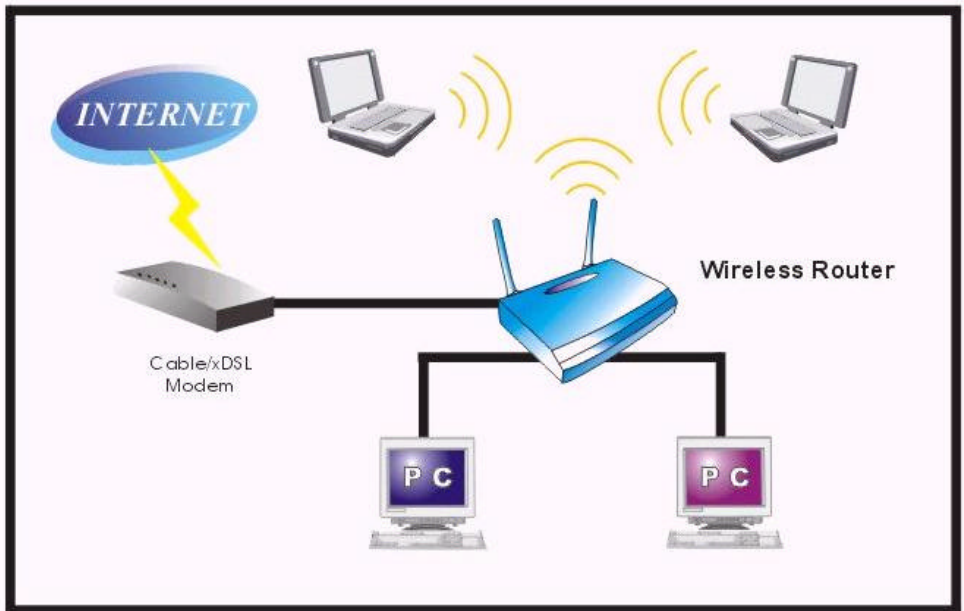


Figure 1: Small Office/ Home Office Setup

Features

Fully compatible with IEEE 802.11b standard and supports a high data rate up to 11 Mbps

Interoperable with IEEE 802.11b (DSSS) 2.4GHz-Compliant equipment

Two adjustable antennas provide for better access angle

Capable of up to 128-bit WEP encryption

1 port 10/100 Mbps N-Way Fast Ethernet for WAN (Internet connection)

4 ports 10/100Mbps N-Way Fast Ethernet Switch for LAN

Web UI management

Support PPPoE

Support VPN(PPTP, IP- Sec pass thru)

LED indicator for received E-Mail

Support Auto MDI/MDIX for both LAN/WAN port

Rich Internet applications are supported such as MSN, StarCraft, AOE, Battle.net multi-user, Crazy Arcade, NetMeeting, ICQ, mIRC, Web browser, FTP, Telnet, E Mail, News, Ping, PCAnyWhere...

DHCP server allocates up to 253 client IP addresses

Allow to set 32 Static DHCP

Proxy DNS

Dynamic DNS (DDNS)

Allow to set 24 Virtual Server

DMZ host & Multi-DMZ

Allow to set 24 Packet Filters

Static routing

Super manager

Allow firmware upgrade through network

Natural firewall keeps hackers out

Load/Save device settings from/to a PC file

Good performance up to 22Mbps between Internet and LAN

Parts Names and Functions



Figure 2: LED Indicators on the Front Panel

LED Indicator	Color	Status	
		Solid	Flashing
Power	Green	Turns solid green when power is applied to this device. Turns solid red for error	N/A.

Internet	Orange (10M) Green (100M)	Connected and linked to a Cable/xDSL Modem. Glow orange with 10Mbps Internet connection; green with 100Mbps.	Receiving/ Sending data
1 (LAN)	Green	Turns green when linked to a local network.	Receiving/ Sending data
2 (LAN)			
3 (LAN)			
4 (LAN)			
A,B,C,D (MAIL ALERT)	Orange	Flashing frequency (F) vs. Email amount (N) F = 1 when $N < 5$ F = 2 when $5 \leq N < 10$ F = 3 when $10 \leq N < 20$ F = 4 for the rest of conditions.	
WLAN	Green	Flashing for Receiving/Sending data	

Table 1: LED Indicators



Figure 3: Ports on the Rear Panel

Port/button	Functions
DC 5V	Connects to a power adapter plug.
Internet	Connects to a Cable/xDSL modem.
Local (1-4)	Four RJ-45 dual-speed (10/100Mbps) auto-sensing ports for connecting with either 10Mbps or 100Mbps Ethernet connections.
Reset	Press to restore factory settings.

Table 2: Connections Ports

FACTORY DEFAULT SETTINGS

Password

Default setting: No password.

Setting up password: When configuring the device, press **Enter** to login the configuration for the first time. It is recommended that you set a password for security and management purpose.

Password forgotten? If you forgot the password, you can reset the device to factory setting. Refer to the section titled “**Factory Reset**” for details.

Local and Global Port Addresses

The LAN parameters of the product are pre-set in the factory. The **default values** are shown below.



Local Port		Global Port
IP address	192.168.1.254	DHCP client function is <i>enabled</i> to automatically get the Global port configuration from ISP.
Subnet Mask	255.255.255.0	
DHCP server function	Enabled	
IP addresses for distribution to PCs	253 IP addresses continuing from 192.168.1.1 to 192.168.1.253	

Table 3: Local and Global Port Addresses

Information from ISP

Before you start configuring this device, you should gather the information as illustrated in the following tables and keep it for reference.

For CATV dynamic mode:

Adapter Address	<p>Some Internet Service Providers (ISP) requires that you register the MAC address of your network card/adapter, which was connected to your cable or DSL modem during installation. If your ISPs require MAC address registration, find your adapter’s MAC address by doing the following:</p> <p>Under Windows 95, 98 or ME : Click Start  Run, type in “winipcfg”, and select the network adapter (not PPP adapter).</p> <p>Under Windows 2000 or XP: Click Start  Run, type in “command”, and press Enter. At the DOS prompt, type “inconfig/ all”. Look for Adapter “Physical</p>
-----------------	--

	Address” with 12-digit HEX number (00-11-22-aa-bb-cc).
Device/Computer Name (or Host Name by some ISP.)	Enter a descriptive name for identification purpose. You may have to check with your ISP to see if your BroadBand Internet service has been configured with a host and domain name. In most cases, these fields may be left blank. Some Internet Service Providers (ISP) requires this information and if that is the case, they will provide you with the name.
Domain Name	<i>ex. yourcompany.com,</i> Provided by your ISP.

Table 4 Device information**For DSL dynamic mode:**

PPPoE Account Info	Provided by your ISP
Username	Provided by your ISP.
Password	Provided by your ISP.
Service Name	For identification purpose. If it is required, your ISP will provide you the information.
Static IP Address	Provided by your ISP.
Static DNS Server	Provided by your ISP.

Table 5 PPPoE information**For Static Mode:**

	IP address
ISP-assigned IP address	Example: 203.66.81.201
Subnet mask	Example: 255.255.255.0
Gateway	Example. 203.66.81.254
DNS server #1	Example. 203.66.81.251
DNS server #2	Example. 203.66.81.252

Table 6: ISP Assigned Addresses

CONFIGURATION VIA WEB

Before you start setting up this device via the browser-based web configuration, make sure:

Assuming the workstation's TCP/IP is set to obtain IP automatically and the Device's Local Port is set to "Distribute IP" (default), and all the cables are connected correctly, you are now ready to configure this device via Web Browser.

Open the browser, enter the local port IP address of the Device (default at 192.168.1.254), and click "Go" to get the login page.

User name: not required.

Password: default is left blank. If you have set a password, enter that and click **OK** to continue.

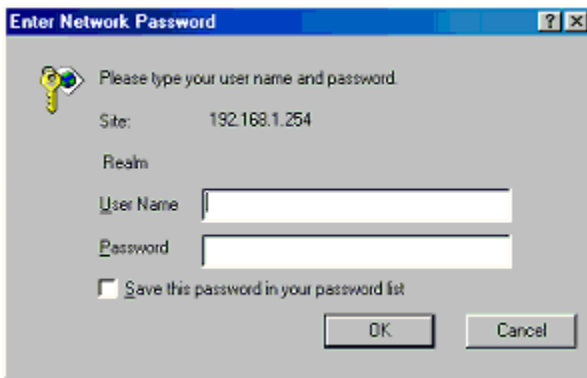



Figure 4

At the setup home page, the left navigation pane where bookmarks are provided links you directly to the desired setup page. You can select *Global Port*, *Local Port*, *Management*, *Virtual Server*, *Packet Filter*, *Static Router*, *Checking E-Mail*, *Dynamic DNS*, *Network Status (WAN IP Status, Session List, Users List)*, *Factory Reset*, *Save Configuration*, *Firmware Upgrade*.

Click on the desired setup item to expand the page in the main navigation pane. The setup pages covered in this utility are described below.

Global Port

The opening screen contains settings for the Global (Internet connection) interface. Click on the **down arrow**  to select the desired Internet connection mode on the list.

Obtain configuration automatically (CATV dynamic mode)	For users who are using Cable Modem Internet service.
PPPoE (DSL dynamic mode)	For users who are using xDSL Internet service that runs PPPoE. If your xDSL service uses PPPoE, after

	installing the device, do not run PPPoE software on your computers.
Static configuration	Select this item when the ISP assigns static IP address for your account.

CATV dynamic Mode

Selecting this mode enables you to obtain dynamic IP address from your ISP via DHCP support. Once the IP address is obtained, you can access the Internet.

For most cases, this page needs no input. However, some ISPs may require some information for identification purpose. For example: Device/Computer name and Domain Name; please enter the information required to complete the settings.

The screenshot shows the configuration page for a Wireless Router in CATV dynamic Mode. The page is titled 'Global Port - CATV dynamic Mode'. It features a navigation menu on the left with options like 'Global Port', 'Local Port', 'Wireless Lan', '+Advanced Setup', '+Network Status', and '+Others'. The main content area includes a dropdown menu for 'Obtain configuration automatically (CATV dynamic mode)'. Below this are sections for 'Device Information', 'IP Address', and 'DNS Configuration'. The 'Device Information' section has fields for 'Adapter Address' (with a 'Modify' button), 'Device/Computer Name' (set to 'Untitled'), and 'Domain Name' (set to 'Domain'). The 'IP Address' section has radio buttons for 'Dynamic' (selected) and 'Static', and fields for 'IP Address', 'Subnet Mask', and 'Gateway'. The 'DNS Configuration' section has radio buttons for 'Dynamic' (selected) and 'Static', and fields for 'Primary' and 'Secondary' DNS servers. At the bottom, there are 'UNDO' and 'SAVE' buttons.

Check to modify the MAC address when necessary.

Figure 5

Device Information

Adapter Address	This field is grayed out, because the Adapter Address is not supposed to be entered randomly. Do Not alter the content unless you are sure it is necessary to modify your MAC address (refer to FAQ in the later chapter for more information about the condition that requires modifying the MAC address). To modify the address; check ? Modify and enter the desired MAC address.
Device/Computer Name	Enter a descriptive name for identification purpose. Some Internet Service Providers (ISP) requires this information

	and if that is the case, they will provide you with the name.
Domain Name	<i>For example: yourcompany.com.</i> The maximum input for this field is 32 alphanumeric characters and it is case insensitive. <i>Note: 1. Your ISP may ask you to input a certain domain name. 2. Domain name is also required for internal network's email and news functions.</i>

IP Config : This field is grayed out for the IP address is obtained dynamically.

DNS Configuration

DNS Server	Select Dynamic or Static. Enter the information of Primary and Secondary DNS Server provided by your ISP when Static configuration is selected.
Primary	Enter the proper setting value provided by your ISP.
Secondary	

UNDO	Click UNDO to clear all the settings on this page.
SAVE	After completing the settings on this page, click SAVE to save the settings.

PPPoE (DSL dynamic Mode)

If this mode is selected and settings are saved, this device will be connected to the Internet over an always-on connection by a method provided by PPPoE. PPPoE offers simulated dial-up software like Microsoft Dial-Up Networking, which save users' time and effort to run the program on their PCs. And the auto-connect/disconnect feature lets the system to stay idle when there's no activity, but pick up the connection in no time when there's network activity. This can significantly save users' cost on connection fees.

The TCP MSS function lets you choose the maximum packet size that fits your need for optimal throughput. To reduce the packet size can help connecting to certain web sites or speeding up packet to be received/sent.

Wireless Router
ver 1.00.000.256

Global Port
Local Port
Wireless Lan
+Advanced Setup
+Network Status
+Others

Global Port - DSL dynamic Mode

PPPoE (DSL dynamic mode)

Device Information

Adapter Address: 00 00 08 11 56 B7 Modify

Device/Computer Name: Untitled

Domain Name: Domain

PPPoE Information

PPPoE Account: Active Profile : 1 2 3

User Name: _____

Password: _____

Confirm Password: _____

Service Name: _____

Max packet size(MTU): 1452

Static IP Address: 0 . 0 . 0 . 0

Static DNS Server

Primary: 0 . 0 . 0 . 0

Secondary: 0 . 0 . 0 . 0

Auto-disconnect if idle for 5 minutes

Auto-reconnect

UNDO SAVE


Figure 6

Device Information

Adapter Address	This field is grayed out, because the Adapter Address is not supposed to be entered randomly. Do Not alter the content unless you are sure it is necessary to modify your MAC address. To modify the address, check Modify and enter the desired MAC address.
Device/Computer Name	Enter a descriptive name for identification purpose. Some Internet Service Providers (ISP) requires this information and if that is the case, they will provide you with the name.
Domain Name	<i>For example: yourcompany.com.</i> The maximum input for this field is 32 alphanumeric characters and it is case insensitive.

PPPoE Information

PPPoE Account Active Profile 1 2 3	You can set up to three PPPoE accounts, while only one account can be enabled at a time. To set the profile, select the profile number, enter all the information, and then click on Save . The device will save the information, restart and return to the previous menu page. If you don't see the saved information on the screen, from the menu on the left, click on
--	--

	the “ Global Port ” to refresh the screen.
Username	• Maximum input is 52 alphanumeric characters (case sensitive).
Password	• Maximum input is 36 alphanumeric characters (case sensitive).
Service Name	For identification purpose. If it is required, your ISP will provide you with the information.
Max packet size (TCP MSS)	Click the down arrow  to select the most appropriate MSS (maximum segment size; default value is 1452) for your application. Reducing the packet size can help connecting to certain web sites or speeding up packet transfer rate. If the incorrect selection is selected, you may not be able to open certain web sites.
Static IP Address	Enter the IP address provided by your ISP.
Static DNS Server	Enter the primary and secondary DNS addresses provided by your ISP.
Auto-disconnect if idle for ? minutes	Configure this device to disconnect the PPPoE connection when there is no activity for a predetermined period of time. ? Default 5 minutes. You can input any number from 0 to 65535. ? To keep the line always connected , set the number to 0.
<input type="checkbox"/> Auto-reconnect	Check to enable auto-reconnected with PPPoE line. This function allows the device to automatically reconnect when the line is disconnected due to ISP problem.
UNDO	Click UNDO to clear all the settings on this page.
SAVE	After completing the settings on this page, click SAVE to save the settings.

Static Mode

For leased line users, information provided by their ISPs has to be filled in the below respective fields when this mode is selected. Information from your ISP includes: IP address, Subnet Mask, Gateway, primary DNS, secondary DNS. Note that there may be more than one IP address from your ISP, select one address and enter it in the corresponding field.

The screenshot shows the configuration page for a wireless router's global port in static mode. The interface is divided into several sections: Static configuration, Device Information, IP Address, and DNS Configuration. The 'Adapter Address' field is grayed out, and the 'Modify' button is visible. The 'IP Config' section has radio buttons for 'Dynamic' and 'Static', with 'Static' selected. The 'DNS Server' section also has radio buttons for 'Dynamic' and 'Static', with 'Static' selected. At the bottom, there are 'UNDO' and 'SAVE' buttons.

Wireless Router
ver 1.00.000.256

Global Port
Local Port
Wireless Lan
+Advanced Setup
+Network Status
+Others

Global Port - Static Mode

Static configuration

Device Information

Adapter Address:

Device/Computer Name:

Domain Name:

IP Address

IP Config: Dynamic Static

IP Address:

Subnet Mask:

Gateway:

DNS Configuration

DNS Server: Dynamic Static

Primary:

Secondary:

Figure 7

Device Configuration

Adapter Address	This field is grayed out, because the Adapter Address is not supposed to be entered randomly. Do Not change the content unless you are sure it is necessary to modify your MAC address. To modify the address, check ? Modify and enter the desired MAC address.
Device/Computer Name	Enter a descriptive name for identification purpose. Some Internet Service Providers (ISP) requires this information and if that is the case, they will provide you with the name.
Domain Name	<i>For example: yourcompany.com.</i> The maximum input for this field is 32 alphanumeric characters and it is case insensitive.

IP Address

IP Config	<input checked="" type="radio"/> Dynamic <input checked="" type="radio"/> Static This line is grayed out for static configuration.
IP Address	Enter the information provided by your ISP.
Subnet Mask	Enter the information provided by your ISP.
Gateway	Enter the information provided by your ISP.

DNS Server Configuration

DNS Server	<input checked="" type="radio"/> Dynamic <input checked="" type="radio"/> Static This line is grayed out for static configuration.
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Primary/Secondary	Enter the information provided by your ISP.
UNDO	Click UNDO to clear all the settings on this page.
SAVE	After completing the settings on this page, click SAVE to save the settings.

Local Port

This screen contains settings for LAN interface attached to the local network. You can set to distribute IP address to local PCs or not. If **‘Distribute IP address to local computer’** is selected, users can enter the IP addresses assigned for the computers on LAN. The number of IP address decides the number of clients allowed for the assigned IP addresses. *Note that all the PC on the same LAN should use the same subnet Mask.* Users can also set Static DHCP in this page. Users are allowed to set 32 Static DHCP. Using this feature, the device will assign the same IP address to a computer (according to the network adapter’s MAC address) and this computer becomes the only one that is able to request that IP address. This is quite useful to set virtual servers which requires particularity fixed IP for outside Internet access.

The screenshot shows the 'Local Port' configuration interface. On the left is a blue sidebar with navigation links: 'Global Port', 'Local Port', 'Wireless Lan', '+Advanced Setup', '+Network Status', and '+Others'. The main content area is titled 'Local Port' and is divided into two sections: 'Private Network' and 'DHCP Server'. In the 'Private Network' section, the IP Address is set to 192.168.1.254 and the Subnet Mask is 255.255.255.0. The 'DHCP Server' section has two radio buttons: 'Do not distribute IP address to local computers' (unselected) and 'Distribute IP address to local computers' (selected). Below the radio buttons, the Start IP address is 192.168.1.1, the Number of IP address is 128, and there is an 'ADD' button for Static DHCP IP & MAC addr. The WINS Server is set to 0.0.0.0. At the bottom of the form are 'UNDO' and 'SAVE' buttons.

Figure 8

Private Network

IP Address	Default: 192.168.1.254 (this is the local address of this device)
SubNetmask	Default: 255.255.255.0

DHCP Server

Do not distribute IP address to local computers¹	Checking this radio button to disable this device to distribute IP Addresses (DHCP Server disabled).
Distribute IP addresses to local computers	Checking this radio button to enable this device to distribute IP Addresses (DHCP enabled). And the following field will be activated for you to enter the starting IP Address:
Start IP address	The starting address of this local IP network address pool. The pool is a piece of continuous IP address segment. Keep the default value 192.168.1.1 should work for most cases.
Number of IP address	Maximum: 253 . Default value 253 should work for most cases. <i>Note: If “Continuous IP address pool starts” is set at 192.168.1.1 and the “Number of IP address in pool” is 253, the device will distribute IP addresses from 192.168.1.1 to 192.168.1.253 to all the computers in the network that request IP addresses from DHCP server (this Device).</i>
Static DHCP IP&MAC addr	Click the ADD button to enter the Static DHCP page. Enter IP and Network adapter MAC addresses for Static DHCP and click the ADD button to save the settings. Click DELETE ALL to clear all entries. Click the Index drop-down menu to select the desired entry number and then click DELETE to delete only the selected server. You can add up to 32 static DHCP IPs. Click BACK to return to the Local Port page to continue.
WINS Server	Enter the IP Address of the Windows domain name server when necessary,
UNDO	Click UNDO to clear all the settings on this page.
SAVE	After completing the settings on this page, click SAVE to save the settings.

¹ If you check this selection, remember you have to specify a static IP address for all your local computers.

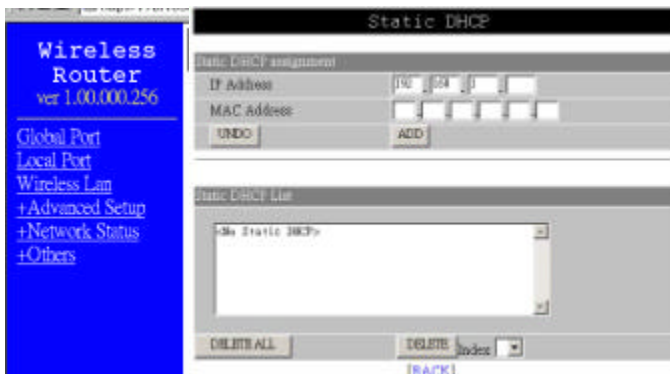


Figure 9

Wireless Lan

Use this page to configure wireless LAN settings.

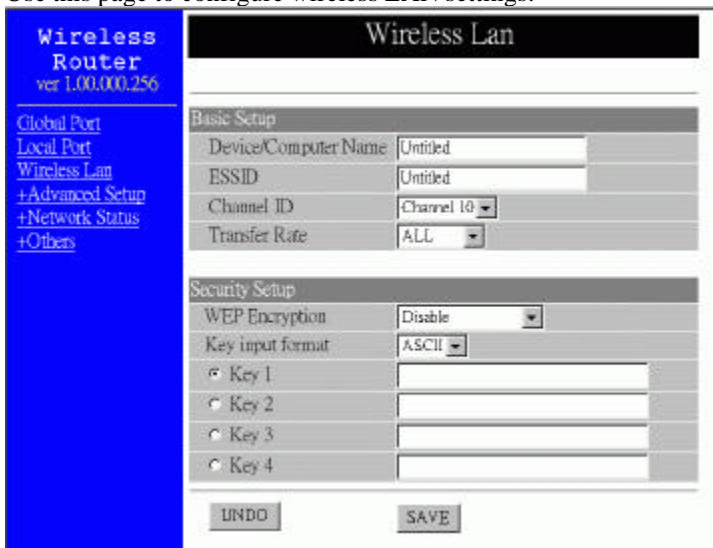


Figure 10

Basic Setup

Device/Computer Name	Default: Untitled .
ESSID	You have to assign an ESSID for identification. ESS (Extended Service Set) is a set of more than two or more BSSs (multiple access point) forming a single network. Use this to prevent cross communication between two or more WLANs in one area.

Channel ID	There are 14 channels available for with the Access Point. All devices communicating with the device must use the same channel. You have to select a Channel No as the Channel ID for identification.
Transfer Rate	By default, the unit adaptively selects the highest possible rate for transmission. Select the basic rates to be used among the following options: All, 1, 2, 5.5, or 11 Mbps. For most networks the default setting is All which is the best choice. When All is enabled the transmission rate will select the optimum rate. If obstacles or interference are present, the system will automatically fall back to a lower rate.

Security Setting

WEP Encryption	WEP Encryption (Wired Equivalent Privacy) is set to Disabled by default. When WEP is enabled, data packet is encrypted before transmitted to prevent data packets are eavesdropped by unrelated people. By using WEP data encryption, there may be a significant degradation of the data throughput on the wireless link.
Key Input format	There are two kinds of format to be selected, ASCII or HEX.
Key 1~ Key 4	There are four data encryption keys to secure your data from being eavesdropped by unauthorized wireless users. The values must be set up exactly the same on the Wireless Router as they are on the wireless client stations. The same value must be assigned to Key 1 on both the Wireless Router and the client adapters, the same value must be assigned to Key 2 on both the Wireless Router and the client stations and so on, for all four WEP keys.
UNDO	Click UNDO to clear all the settings on this page.
SAVE	After completing the settings on this page, click SAVE to save the settings.

Advanced Setup

Management

In this management page, you can

1. **Change Administrator's password:** change the password for the device.
2. **Limit Management Station:** Enables two stations to manage this device through Web configuration. Enter the MAC addresses of the stations you selected for management. After the setup is completed, only the assigned stations with correct password authentication can manage this device.
3. **Block WAN Request:** Blocks requests from Internet to the local network. If this item is checked, the function of management through Web configuration will be **disabled**. In other words, Internet requests and the HTTP management, namely ICMP, IDENT, and HTTP will be rejected.
4. **Modify the configuration port:** Enables to modify the port number for web configuration.

The screenshot shows the 'Management' page of a wireless router. On the left is a blue sidebar with navigation links: Global Port, Local Port, Wireless Lan, -Advanced Setup, Management (highlighted), Virtual Server, Packet Filter, Static Route, Check E-Mail, Dynamic DNS, +Network Status, and +Others. The main content area has a title bar 'Management' and a 'Firmware Version : 1.00.000.256' label. Below are several sections:

- Change Administrator's Password:** Includes 'New Password' and 'Confirm New Password' input fields.
- Limit Management Station:** Has a checked 'Enable' checkbox and two rows for 'Station 1 MAC Address' and 'Station 2 MAC Address', each with six input boxes containing '00'.
- Block WAN Request:** Includes a checked 'Block WAN Request' checkbox and an unchecked 'Management Via Internet' checkbox.
- Modify the configuration port:** Has a checked 'Enable' checkbox and a 'Web Configuration port' input field containing '80'.

 At the bottom are 'UNDO' and 'SAVE' buttons.

Figure 11

Change Administrator's password:

1. Click on ? to enable this change.
2. Enter the new password.
3. Re-enter the new password for confirmation.
4. Click **SAVE** to save the setting.

Limit Management:

1. Click ? to enable this function.
2. Enter the first management station's network adapter MAC address.

3. Enter the second management station's network adapter MAC address. If you are only setting up one management station, leave Station 2 MAC address with all F.

Block WAN Request:

1. Click ? to enable this function.

Modify the configuration port: Check to enable the function, otherwise the default configuration port is set at 80.

Virtual Server

In this page, you can set up a local server with specific port number that stands for the service (e.g. web (80), FTP (21), Telnet (23)). When this device receives an incoming access request for this specific port, it will be forwarded to the corresponding internal server. You can add virtual servers by either port numbers or by names.

Maximum 24 Server entries are allowed and each port number can only be assigned to one IP address.

NOTE: Setting up Virtual Server is like opening the firewall, which exposes your network to users on the Internet. This means the device's NAT will no longer be able to provide protection from hackers.

The screenshot shows the 'Virtual Server' configuration page. On the left is a blue sidebar with navigation links: Global Port, Local Port, Wireless Lan, -Advanced Setup, Management, Virtual Server (highlighted), Packet Filter, Static Route, Check E-Mail, Dynamic DNS, +Network Status, and +Others. The main content area has a title bar 'Virtual Server' and an 'Add Server' section. The 'Add Server' section includes:

- Method: By Name By Port
- Application (Port): FTP (TCP 21) (dropdown menu)
- Port Type: TCP UDP
- Single/Range: Single Range
- Port Number: [] to []
- Local Server IP Address: [192] [168] [1] []
- Buttons: UNDO, ADD

 Below the 'Add Server' section is a 'Server List' section with a text area containing '<No Virtual Servers>'. At the bottom of the 'Server List' section are buttons for 'DELETE ALL', 'DELETE', and a 'Index' dropdown menu.

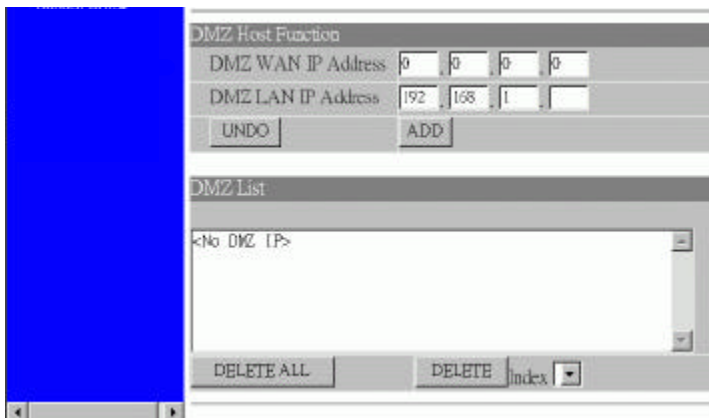




Figure 12

Add Server

Method  By Name 	You can select to set up a virtual server either by name or by port number.
By Port	
Application (Port)	Select and click ? to scroll down. Select from the most popular server applications for Virtual Server.
Port Type	Select the port type (TCP or UDP) for the port number that was entered earlier.
Single/Range, Port Number	You can select a specific port or a range of ports which you want the Internet users to be able to access. The valid port number ranges from 0 to 65535.
Local Server IP Address	Enter the Local Server's IP address (for the specified port entered above).
UNDO	Click UNDO to clear all the settings on this page.
ADD	Each time you finished setting, click ADD and the added servers will appear on the Server List .

Server List

DELETE ALL	Click to delete all the servers on the list.
DELETE	Click the Index drop-down menu to select the desired server number and then click DELETE to delete only the selected server.

DMZ Host Function	If the DMZ Host Function is enabled, it means that you set up DMZ host at a particular computer to be exposed to the Internet so that some applications/software, especially Internet / online game can have two-way connections. You can enter up to four DMZ Hosts in the device.
DMZ LAN IP Address	Enter the local IP address mapping to the client computer, which you want to use as the DMZ Host

	computer.
DMZ WAN IP Address	Enter the WAN IP Address set for DMZ Host.
UNDO	Click to clear all the settings on this page.
ADD	After completing the settings on this page, click “ADD” to save the settings.

DMZ List	Display all the DMZ hosts.
DELETE ALL	Click to delete all the DMZ host(s) on the list.
DELETE	Click on the Index drop-down menu to select the desired host number and then click DELETE to delete only the selected host.

Packet Filters

In the Packet Filters setup screen, you can block specific internal users from accessing the Internet and you can also disable specific Internet services. You can set up the filters through the following three filter. Each filter can be set to **filter (drop)** or **forward (pass)** packets. You can input up to 24 filters in this device.

Network Adapter Address Filter

Filter/Forward	Click the radio button to filter or forward the computer according to local computer’s network adapter MAC address you enter in the next field.
Adapter Address	Enter the MAC address of the computer that you want to filter/forward.

UNDO	Click to clear all the settings on this page.
ADD	After completing the settings on this page, click “ADD” to save the settings.

IP Address Filter

Filter/Forward	Click the radio button to filter or forward the computer according to local computer’s IP address you enter in the next field.
Single/Range	You can filter a single IP, or a range of the IP addresses.
IP Range	Enter the Start and End IP addresses for a range of IP addresses for filter/forward.
Direction	<ul style="list-style-type: none"> ☒ From Local IP: filtering IP address of a local computer; or ☒ To Remote IP filtering IP address of a remote server (this remote server connects to the device via Internet).
UNDO	Click to clear all the settings on this page.
ADD	After completing the settings on this page, click “ADD” to save the settings.

TCP/UDP Port Filter: Filter using the port number. You can set filter for a single port or a range of ports.

Filter/Forward	Select to Filter or Forward for the following assigned port(s).
Single/Range	You can filter a single port, or a range of ports.
Port Number	The port number(s) for the filters.
Port Type	<p>☒ TCP port: filter according to the Connection-Based Application Service on the remote server using the port number.</p> <p>☒ UDP port: filter according to the Connectionless Application Service on the remote server using the port number.</p>

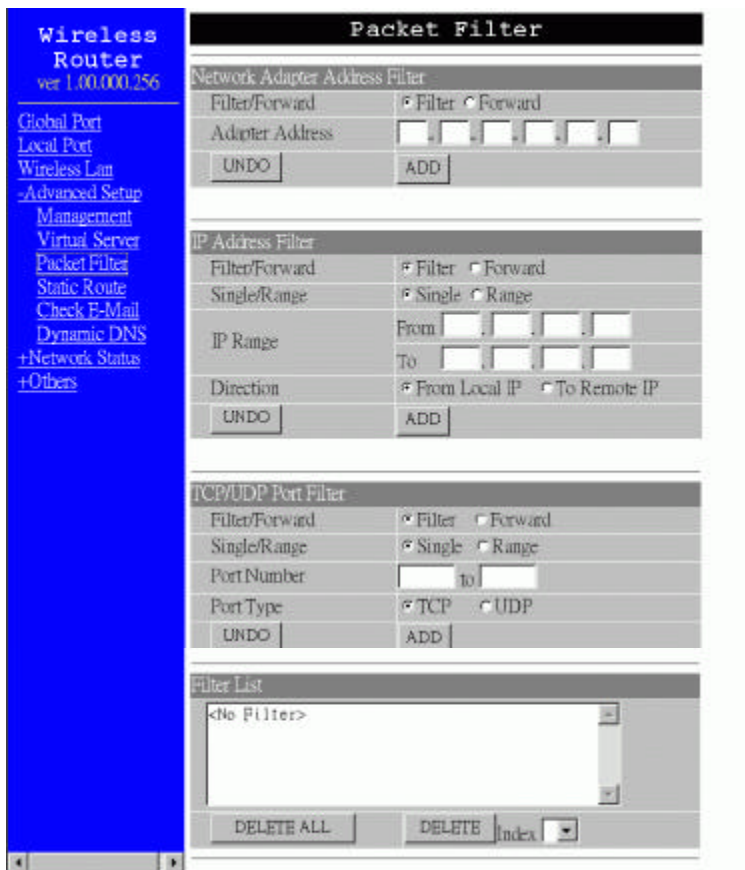


Figure 13

UNDO	Click UNDO to clear all the settings in this category
ADD	Each time you finished setting the filters, click the ADD button and the added filter will appear on the Filter List .
Filter List	Display all the Packet Filters.

DELETE ALL	Click to delete all the filters on the list.
DELETE	Click on the Index drop-down menu to select the desired filter number and then click DELETE to delete only the selected filter.

Static Router

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

Steps to set the static routers are:

1. Select “**Static Route #1**” or “**Static Route #2**”
2. Enter the settings.
3. You can refer to the following two example applications for settings. When finished, click “**SAVE**” to save settings. Click “**UNDO**” to clear all entries.

Example Application 1:

Default Gateway: 192.168.4.2.

Destination Network/Host: 192.168.3.0

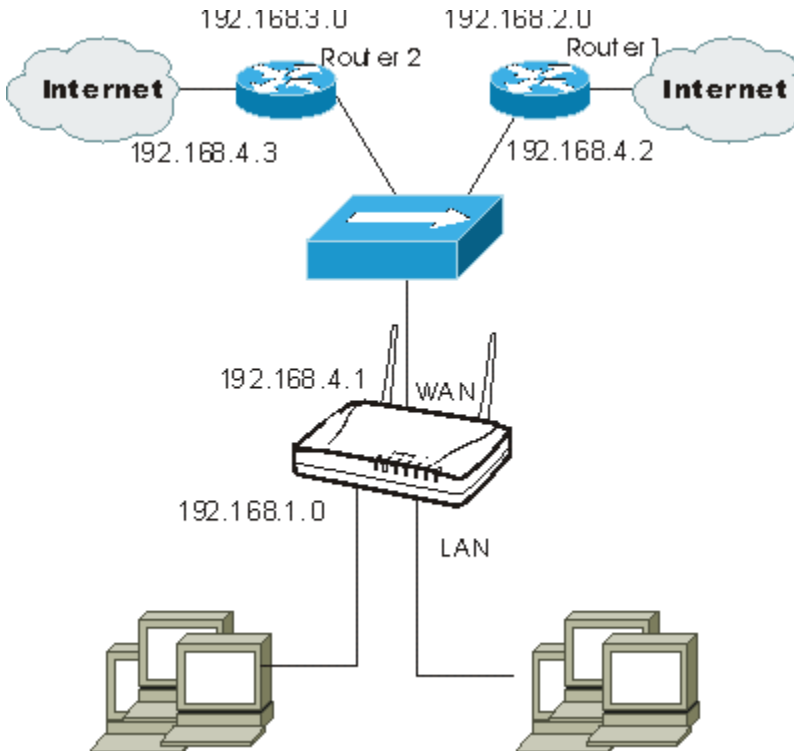


Figure 14

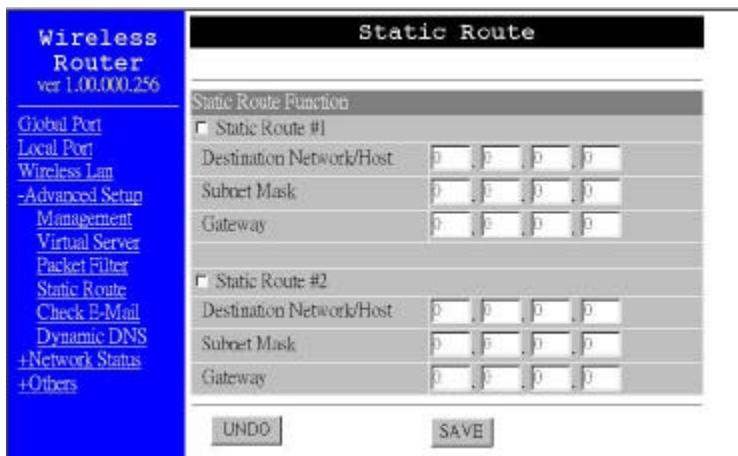


Figure 15

Example Application 2:

Default Gateway: 192.168.4.2.

Destination Network/Host: 192.168.3.0

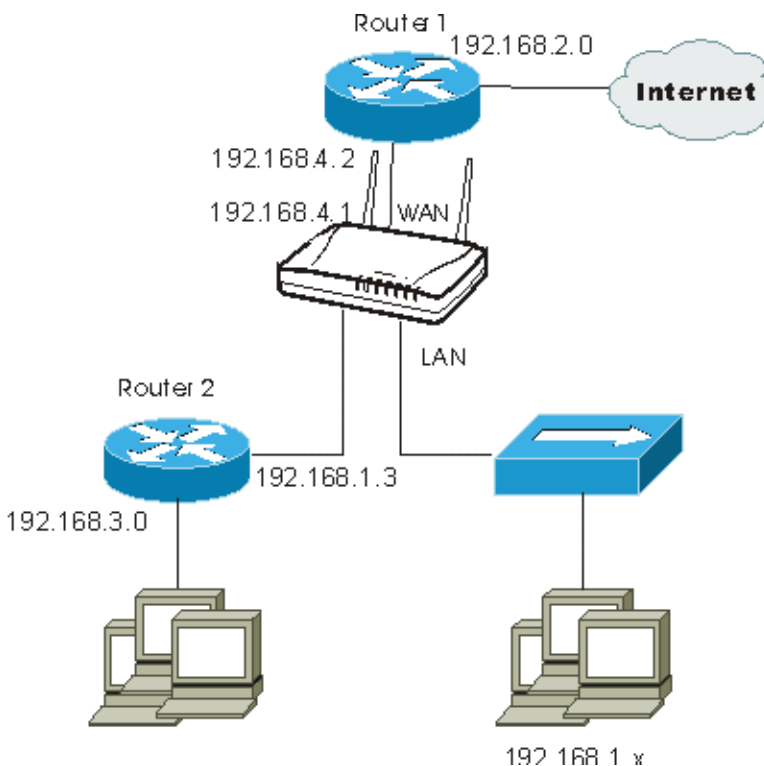


Figure 16

Figure 17 (IP settings vs. Static Route settings)

Check E-Mail

Check E-Mail: You may input up to four mail accounts on this device and the device will check e-mails respectively according to the desired interval time.

1. Select the LED number and enter the account name, password, the name of the incoming mail server (POP3; i.e. mail.myaccount.com) and the interval to check mail.
2. Check **Enable** to enable this device to indicate when there's email(s) detected.

Depending on the number of e-mails in the mailbox, the **MAIL ALERT** LED will flash in different frequency. For details of the e-Mail LED indication, refer to the previous section titled **"Parts Names and Functions"**.

Figure 18

E-Mail Account

User Name	Enter the user name for email information.
Account	Enter the email account name you want to check for email information.
Password	Enter the password for the above email account for authentication.
Incoming Mail Server	Enter the incoming mail server name (POP3) corresponding to the email account you want to check up.





Interval to check	Enter the time interval that you would like the device to checks the email.
UNDO	Click “UNDO” to clear all the settings on this page.
SAVE	After completing the settings on this page, click “SAVE” to save the settings.


Dynamic DNS

The Dynamic DNS (Domain Name Server) allows you to alias a dynamic IP address to a static hostname, which enables your device to be more easily accessed by specific name. When this function is enabled, the IP address in Dynamic DNS Server will be automatically updated with the new IP address provided by ISP.



Figure 19

Dynamic Function	DNS	Click  Enable to enable this function and make the settings available.  Click on the question mark to find out more about Dynamic DNS Service. <i>Note: If you don't have the Dynamic DNS Service yet, click on the  and then follow the instructions to sign up for the service.</i>
Force Update IP		Click to update the IP so that the Dynamic DNS Serve can get the current IP. (The IP address in Dynamic DNS Server will be automatically updated each time the device is rebooted, therefore, it is unnecessary to force update IP unless the device is functioning incorrectly.)
DNS Account		Enter your host domain name. Click the down arrow  to select your Dynamic DNS client with which you registered for the service.
User Name		Enter your user name, which was registered with the Dynamic DNS client.
Password		Enter your password, which was registered with the Dynamic DNS client.

 Enable Wildcard	Check to enable the Wildcard function. To know more about Wildcard, please refer to FAQ section.
Mail Exchanger	To know more about MX (Mail Exchanger), please refer to FAQ section.
Backup MX?	Check to have Backup MX service enabled.
Status	Displays the results of the action. If action failed, click Force Update IP to enable the function.
UNDO	Click to clear all the settings on this page.
SAVE	After completing the settings on this page, click SAVE to save the settings.

Network Status

WAN IP Status

Display the current Internet connection status. After the device is connected to the Internet Service, you will see IP, Subnet Mask, Gateway and DNS IP addresses on the table.



Figure 20

REFRESH	Click on this button to refresh the list and get the latest IP information.
RELEASE/DISCONNECT	Click on this button to disconnect from ISP and release all the IP information on the WAN port.
RENEW/CONNECT	Click on this button to reconnect to the ISP and renew all IP information on the WAN port.

Sessions List

Displays active Internet sessions through this device.

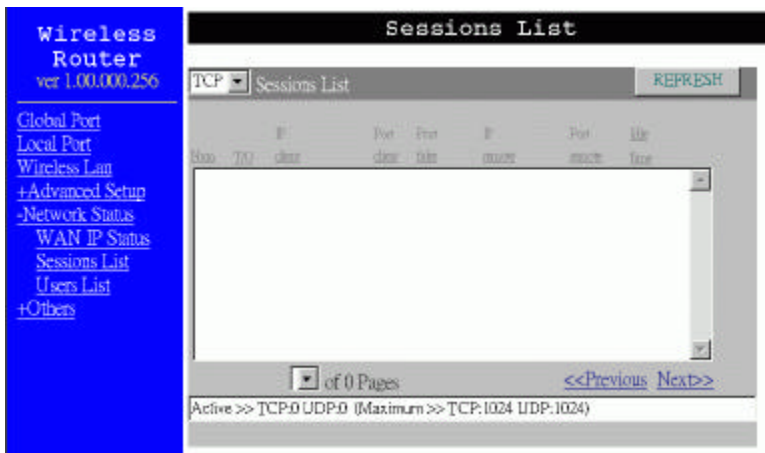


Figure 21

Session List	Click the down arrow to select between TCP and UDP type.
REFRESH	Click on this button to refresh the list and get the latest session list.
IP Client	The local network IP address of one end point of the session.
Port Client	The local network port number of one end point of the session.
Port Fake	Featuring NAT, the Port Fake is used to translate the local network IP addresses for connecting to the Internet.
IP Remote	The outside network IP address of the other end of the session.
Port Remote	The outside network port number of the other end of the session.
Idle	The idle time of the session. If the idle time is too long (more than 15 minutes), the device will disconnect the idled session.

Users List

Displays the current active users.

REFRESH	Click this button to refresh the list.
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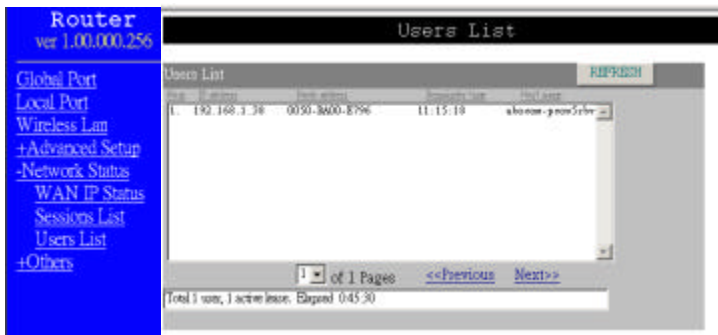


Figure 22

Others

Factory Reset

To reset to factory default settings, click the **GO** button. *Please note that performing the Factory Reset will erase all previously entered device settings.*



Figure 23

Save Configuration

This function enables users to always save the current configurations as a file (i.e. config.sav), so that no re-entry is required when users want to switch between various configurations. To load configuration from file, enter the file name or click **Browse...** to find the file from your computer.

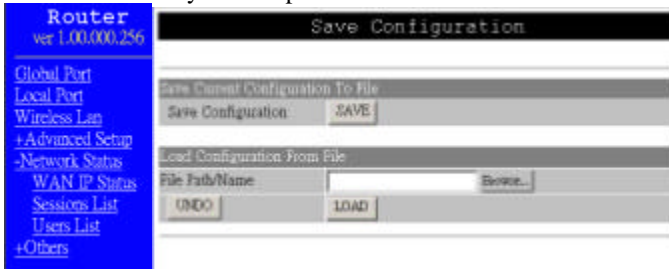


Figure 24

Save Configuration **SAVE**: Click **SAVE** to save the current configuration to file.

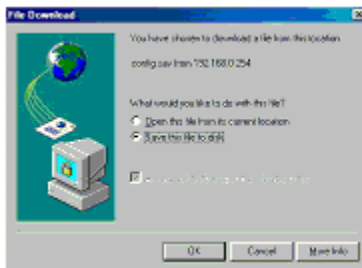


Figure 25

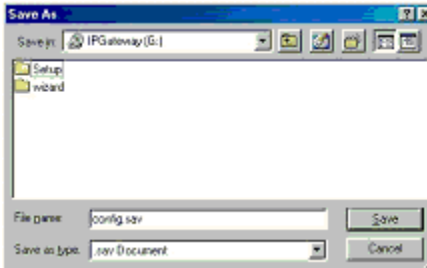


Figure 26

When prompted the upper left screen, select “**Save this file to disk**”, and the upper right screen will prompt you a dialog box to enter the file name and the file location. Please note that the configuration file is in **.sav** format.

Load Configuration From File

File Path/Name **Browse...**: If you want to load a configuration file, enter the file name with the correct path and then click on **LOAD**. Or click **Browse...** to select the file.

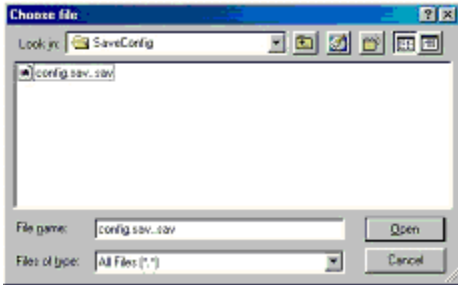


Figure 27

UNDO: Click to clear the input.

LOAD: Click to start loading configuration from file when you are done with the previous settings.

Firmware Upgrade

1. Download the latest firmware from your distributor and save the file on the hard drive.
2. Make sure all computers in the network are off or connect the device directly to the PC that has the new firmware.
3. Start the browser, open the configuration page, click on **others**, and click **Firmware Upgrade** to enter the **Firmware Upgrade** window. Enter the new firmware's path and file name (i.e. C:\FIRMWARE\firmware.bin). Or, click the **Browse** button, find and open the firmware file (the browser will display to correct file path).
4. Click **UNDO** to clear all the settings on this page. Or click **UPGRADE NOW** to start the upgrade.



Figure 28

CHANGING PASSWORD

The device has no password at default. It is recommended that you set a password to ensure that no one can adjust the device's settings.

1. At the setup home page, select Detail Setup at the left panel.
2. Click on **Advanced Setup** and then click on **Management**.
3. Click to check the box for **Change Administrator's Password**.
4. Enter the new password.
5. Enter the password again to confirm.
6. Click **SAVE** at the bottom of the page to save the setting.

FAQ

When Should I modify the MAC address for global port settings?

Some ISPs identify their clients by the accessing MAC address and the host names, therefore, entering these information is the process required to prove they are who they claim to be. MAC address required for global port settings is the adapter address for the device you are now configuring; theoretically it should be the one you already registered in your ISP, and there is no need for modifying it. However, there is scenario that the device you are now using is not the one with the MAC address that you registered in your ISP. Under this condition, modifying the MAC address is then necessary

What is DMZ?

DMZ (demilitarized zone), a barrier between the Internet and a company's Intranet. It is a subnet that contains a firewall and proxy server, which can be in separate servers or in one server. The firewall connects to an external firewall on the Internet side, which may be at the ISP's location and is often called a "boundary router." The double firewall architecture adds an extra measure of security for the Intranet.

What is Dynamic DNS?

The Dynamic DNS service, an IP Registry provides a public central database where information such as email addresses, hostnames, IPs etc. can be stored and retrieved. This solves the problems if your DNS server uses an IP associated with dynamic IP. The Dynamic DNS service acts like old-style phone operators: other users call the operator, and ask to speak to you, and the operator, who knows your extension, will make the connection. Every time your computer comes online, it will inform the Dynamic DNS server what the current IP address is. Users who need to connect to your server, through the magic of DNS service, will be sent to the right place. Please visit [HTTP://WWW.DYNDNS.ORG](http://WWW.DYNDNS.ORG) for more information.

Why "Dynamic DNS?"

With Dynamic DNS support, you can have a static hostname alias for a dynamic IP address, allowing the host to be more easily accessible from various locations on the Internet. You must register with a Dynamic DNS Client to use this service. Please go to [HTTP://WWW.DYNDNS.ORG](http://WWW.DYNDNS.ORG) for more information.

What is Wildcard ?

A wildcard alias is a method which is used to give your hostname multiple identities. If you were to register yourhost.com, everything (*.yourhost.com) would be aliased to yourhost.com. This includes host names such as www.yourhost.com or ftp.yourhost.com.

Once Wildcard feature was enabled, your host can be reached by *.yourhost.dyndns.org. First, you need to register a dynamic DNS account with www.dyndns.org. To use this service, you must register with the Dynamic DNS client. The Dynamic DNS Client service provider will give you a password or key. Refer to **What's Dynamic DNS ?** question above for more information.

What's MX (Mail Exchanger)? And why MX?

The Internet email system for both machines and network connections are prone to error. With this, a chain of email hubs into the email architecture is thus built. If the "primary" mail host goes down, instead of queuing up the mails in the unreliable host on the Internet, they get sent to the "secondary" or "backup" mail exchanger for delivery, until the primary mail server becomes functional again. In technical term, such service is called Backup Mail Exchanger.

What is PPPoE (PPP Over Ethernet)?

PPPoE is known as a dial-up DSL service. It is designed to integrate the broadband services into the current widely deployed, easy-to-use, and low-cost dial-up-access networking infrastructure. Thus, customer can get greater access speed without changing the operation concept.

How can I know I am using PPPoE?

PPPoE client software is provided by our ISP and should be installed onto your computer first. You run the program to connect/disconnect to the Internet. User Account information (User Name and Password) is also required each time you connect to the Internet access.

Note: After you have entered the PPPoE information during the device setup, and starting up the device, the device will provide your Internet Service the PPPoE information and login automatically. It is not necessary to install and run the PPPoE software on the computers and you can just uninstall the PPPoE software from your computers.

IP address conflict

When you see the message box prompted for IP address conflict on any of the workstations in the network, this means two or more workstations have the same IP address. If you have setup the device as a DHCP server, on the problem workstation, please run the "**winipcfg**" (see previous question) utility, select the correct Network Adapter, click "release all" to release all current configuration first, then click "renew all" to renew the IP information again (for Windows 2000/NT40/XP, run **IPCONFIG /release** and then run **IPCONFIG /renew**). If the DHCP function is disabled and static IP addresses are assigned to each workstation, please double check each workstation's IP address for any duplicate IP.

Can not access the Internet

Check the physical connectivity of local network.

Check if both the LEDs of Local and Global on the product's front panel are lit. If yes, go to next step. Otherwise, make sure you are using the correct cables and the cables are connected to the network devices properly.

Check the physical connectivity of broadband device.

Examine the LED of LAN port and the LED of the broadband signal input on the Cable Modem/xDSL Modem. If the LAN LED is off, make sure you are using the correct cables and the cables are connected to the devices properly. If the LED of the broadband signal is off, please contact your ISP.

Note: You can also call your ISP and make sure the Internet service is still online.

Check the status of this product.

After checking the cabling, you also have to check if you have entered the correct user name and password that your ISP provided. While checking, please note that the information is case sensitive.

To check the Internet connection status, open the browser to start the Web configuration, select **Network Status** ↗ **WAN IP Status**. Check if Link Status displays "**Connect successfully**". If not, you may have to contact your ISP to see if their Internet service is available.

Check the logical connectivity from your computer to the Internet.

Refer to the section "**PING.EXE**" in the "TCP/IP Network diagnosis" chapter. Follow the described steps to find out where the problem is.

Diagnosis

TCP/IP Network Diagnosis

Execute *WINIPCFG.EXE* or *PING.EXE* for TCP/IP network diagnosis.

WINIPCFG

The WINIPCFG program (for Win95, 98, and ME) is used to gather information about the TCP/IP connections that are active on your system. It cannot be used to dynamically adjust TCP/IP connections. You can also renew leases (if allowed by the network), and get the current IP address assignments through this program.

From Windows, go to **Start**, click **Run**, enter **WINIPCFG**, and click **OK**.

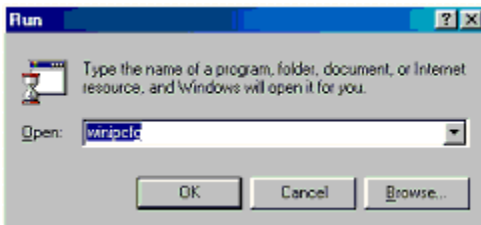
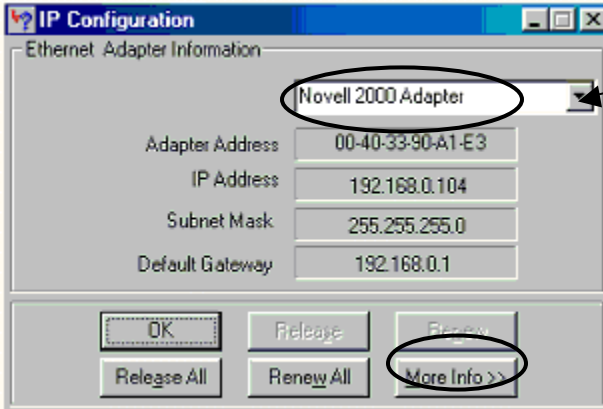


Figure 29: Run

The following figure displays the adapter address and current TCP/IP address.

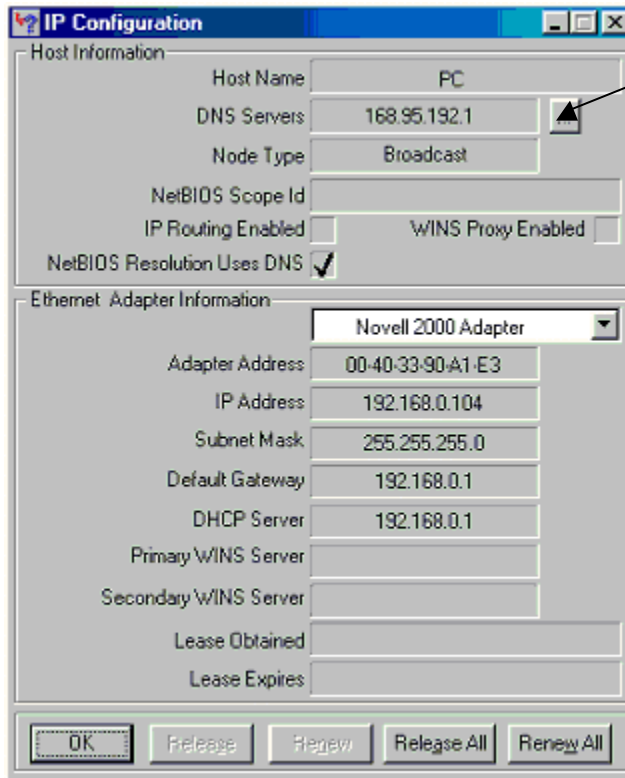
Note: At the “Ethernet Adapter Information”, select the correct Ethernet adapter that is installed in this computer.



Select the correct Ethernet adapter.

Figure 30: IP Configuration

Click the **More Info** button to get detailed configuration information.



Click here to reveal more.

Figure 31: IP Configuration




On the top, the “Host Name” and “DNS server” of the computer are configured to call when it is looking for a named resource. The default gateway is the server through which the client connects to the Internet. The DHCP Server identifies the network server that assigns IP addresses to computers on the network.

If the product is working properly, the following should be apparent from this screen:

If the product is working properly, the following should be apparent from this screen:

- 1) The Client should have an IP address within the prescribed range (default 192.168.1.#; where # is from 1 ~ 253).
- 2) The “DHCP” and “Default Gateway” should list the product’s local port address (the device’s IP address; default 192.168.1.254).
- 3) The DNS server IP addresses should match the DNS server IP addresses set in the device.

IPCONFIG

For Win NT and Win2000, go to “Start”  ”Programs”  ”Accessories”  ”Command Prompt” to open the Command Prompt. Type in **IPCONFIG /ALL** and hit “Enter” to see the adapter’s information. Type in **IPCONFIG /RELEASE** to release all adapters’ IP address and **IPCONFIG /RENEW** to renew IP addresses. For a list of the **IPCONFIG** commands, type in **IPCONFIG /? .**

PING.EXE

Ping is used to verify that a computer is active and available. Users can ping a specific destination domain name or just the IP address.

Example :

For example, to find the server 168.95.192.1, type the following command at the MS-DOS prompt and then press “Enter”:

```
C:\>ping 168.95.192.1
```

PING can be executed in Windows as shown below:

1. Go to the **Start** menu.
2. Click **Run**.
3. Type **ping 168.95.192.1** and click **OK**.
4. The server (IP address) is online if the following message appears.
Reply from 192.168.0.1: bytes=32 time=3ms TTL=100
5. The destination device is not reachable if the following message appears.
Reply from 192.168.0.1: Destination host unreachable
or **Request timed out**.

ISP Connectivity Checkup

Issue a PING command to the IP address of your ISP’s Gateway or DNS server.

For Example:

If the DNS server address is 203.66.81.254, at C:\> prompt, enter **Ping 203.66.81.254**. If successful, you can reach your ISP server.

If unsuccessful (Request timeout), you may have trouble connecting to your ISP, please verify that the product is properly configured to connect to your ISP. Also verify that your Cable/DSL modem and the line are functioning.

Internet Connectivity Checkup

PING to an IP address or domain name on Internet.

For Example:

```
C:\> PING 168.95.192.1 -w 5000
```

```
C:\> PING www.yahoo.com -w 5000
```

If successful, you are connected to the Internet.

If you can ping the ISP's gateway, but cannot ping a specific site (e.g. www.yahoo.com) on the Internet, chances are, your ISP has an internal problem (DNS server not available).

APPENDIX A SPECIFICATIONS

Standards	IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100Base-TX Fast Ethernet ANSI/IEEE 802.3 N-way Auto-Negotiation IEEE 802.11b Wireless LAN
Frequency	2.412 GHz to 2.4835 GHz Direct Sequence Spread Spectrum (DSSS)
Channels	11 Channels (US, Canada) 13 Channels (Europe) 14 Channels (Japan)
Data Rate (wireless)	1, 2, 5.5, and 11Mbps
Security Encryption	64-bit, 128-bit WEP encryption
Antenna	Two fixed type antennas
Ports	WAN: One 10/100Mbps RJ-45 port for Cable/DSL Modem LAN: Four 10/100Mbps switched ports
Buttons	One Factory Reset button
LED indicators	Power Green for ok / Red for error Internet (100/10Mbps) Green for 100M / Orange for 10M (flashing for activity) Mail Alert (A – D) Orange (flashing for received e-mail) Local (1 – 4) Green (flashing for activity) WLAN Green (flashing for activity)
Protocols Supported	TCP/IP, NAT, ARP, ICMP, DHCP client/server, PPPoE, PPP, PAP, CHAP, NTP, HTTP, TFTP, POP3
Management	Web-Based configuration and management
Input power specifications	DC 5V
Physical Dimension	159 x 128 x 28 mm ³ (Width x Depth x Height)
Weight	280 g
Power Consumption	5.5W
Agency and Regulatory	FCC part 15 Class B, CE mark
Operating Temperature	0°C to 50°C
Operating Humidity	0-90% non-condensing

APPENDIX B SUPPORTED INTERNET APPLICATIONS

Application	Settings for Outgoing Connection	Setting for Incoming connection
ICQ98a,99b	None	None
ICQ2000b, ICQ2001b	DMZ function enabled	DMZ function enabled
NetMeeting 2.1 & 3.0	None	1503(tcp) 1720(tcp)
AOE	2300-2400(tcp) 2300-2400(udp) 47624(tcp)	2300-2400(tcp) 2300-2400(udp) 47624(tcp)
VDO Live	None	None
MIRC	None	None
Cu-Seeme	7648(tcp) 7648(udp) 24032(udp)	7648(tcp) 7648(udp) 24032(udp)
PCAnywhere	5632(udp), 22(udp), 5631(tcp), 65301(tcp)	5632(udp), 22(udp), 5631(tcp), 65301(tcp)
Iphone 5.0	22555 (tcp)	22555 (tcp)
MSN 4.5	None	None
IP sec	500 (udp)	500 (udp)

APPENDIX C WAN PORT LINK STATUS

PPPoE link status

"PPPoE offline. Ready to connect."	Device's wan port is not connected to the ISP's dialup server. Dialup server for connecting to the Internet is now available.
"Connecting to server."	Device's wan port is now dialing to dialup server.
"Server found."	Device dialed to dialup server, and is negotiating with dialup server.
"Start PPP negotiation."	Negotiation is ongoing.
"Authentication (PAP)."	Server is verifying the dialup account with PAP method.
"Authentication (CHAP)."	Server is verifying the dialup account with CHAP method.
"Obtaining WAN IP address."	Authentication is successful! Device now is obtaining IP address from the dialup server.
"Connect successfully."	Device dials up to server successfully. User can connect to internet now.
"Can not find server."	Device cannot dial up to the dialup server. Dial-up to server failed.
"Fail on LCP stage."	Configuration for network link failed.
"Authentication (PAP) failure."	Failed in authentication; failure was caused by wrong password.
"Authentication(CHAP) failure."	Verification on the identity of the device dialup account failed.
"Fail to Obtain WAN IP address."	Device cannot obtain IP address from the dialup server. Dial-up to server failed.
"Server dropped the connection."	Server cut the device's internet connection. Device is disconnected to the Internet.
"Disconnect on idle."	Device has been idle longer than the idle interval and was cut off from the connection. The idle interval value was set in the field "Auto-disconnect if idle xxx Minutes".
"Connection establish timeout."	Device was re-trying to dialing-up to server and failed. Device finally gave up dialing to the server.

DHCP link status

"DHCP already claimed"	Device obtained IP address from DHCP server.
"DHCP under claiming"	Device is trying to obtain IP address from DHCP server.

Static IP assignment link status

"Static assigned"	IP address succeeds in manually setting up.
--------------------------	---