on·Q home

4 PORT ROUTER/SWITCH (P/N 364732-01)
OWNER'S MANUAL

1307742 REV.0

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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 or TV communications. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the On-Q Home 4 Port Router/Switch 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 affected receiving radio or TV antenna.
- Increase the separation between the Router/Switch and affected device.
- Connect the Router/Switch into an outlet on a circuit different from that to which the affected equipment is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Shielded interface cables must be used in order to comply with emission limits.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your 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.

CE Mark 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.

All trademarks and brand names are the property of their respective proprietors.

Specifications are subject to change without prior notification.

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I. Introduction

The On-Q Home 4 Port Router/Switch is an integrated Internet IP sharing device with a built-in 4-port 10/100Mbps Fast Ethernet switch. Its superb throughput as high as up to 80Mbps between Internet and LAN makes it the perfect solution to connect a small group of PCs to a high-speed broadband Internet connection (see *Figure 1*). Multiple users can have high-speed Internet access simultaneously via one single IP address (Internet account) of the Cable/xDSL modem.

This product also serves as an Internet firewall, protecting your network from being accessed by outside users. All incoming data packets are monitored and filtered. The Router can also be configured to filter internal users' access to the Internet.

The built-in 4-port Fast Ethernet Switch lets users plug the network cable into the device without buying additional Hub/Switch.
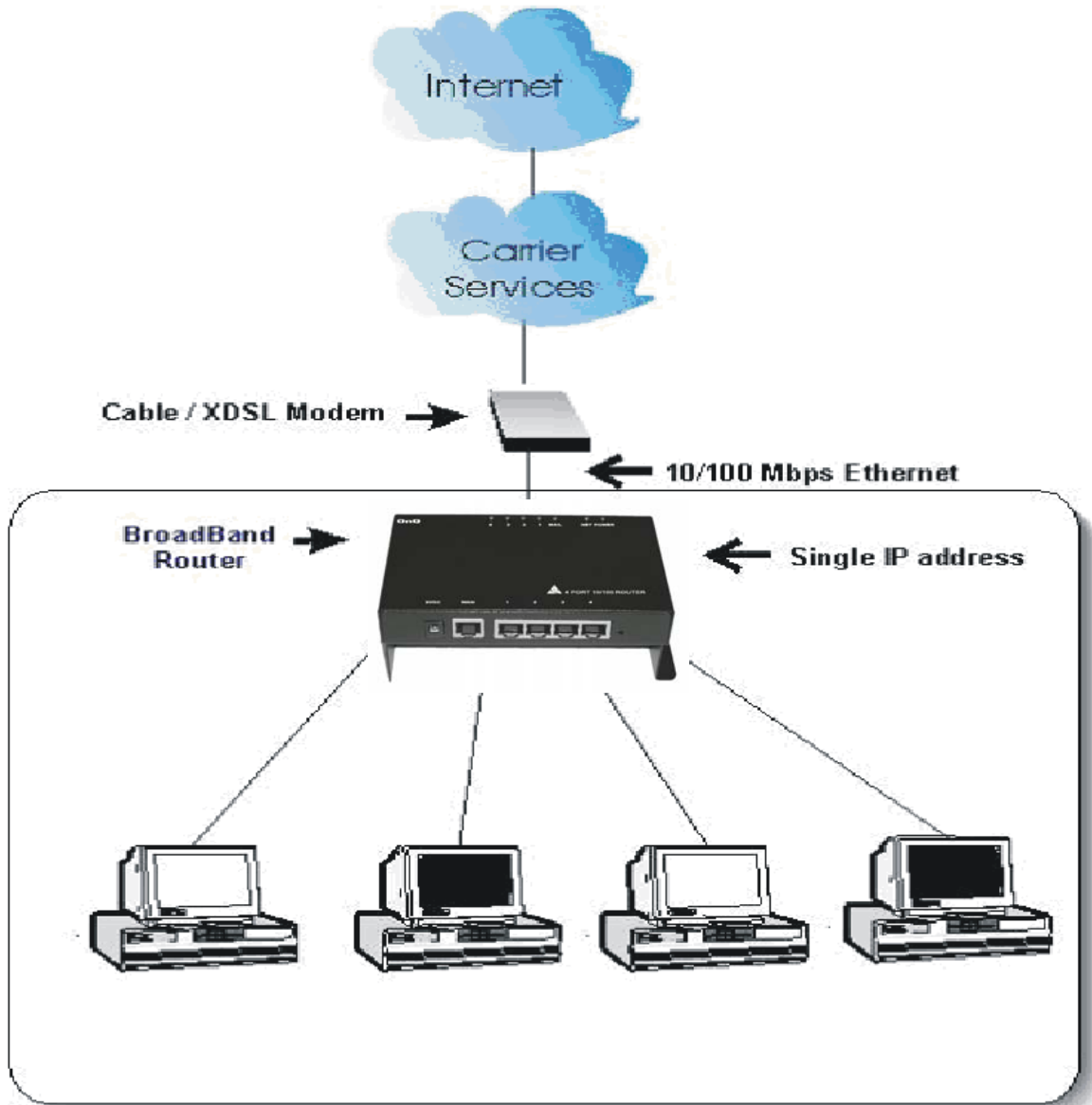

Figure 1: Small Office/ Home Office Setup

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II. Product Overview

A. Features

- *Superb performance with throughput as high as up to 80Mbps between Internet and LAN.*
- *Supports PPPoE.*
- *Supports VPN. (PPTP, IP- Sec pass thru)*
- *Supports Auto MDI/MDIX for both LAN/Internet Port.*
- *Rich Internet applications are supported such as MSN Messenger, Yahoo Messenger StarCraft, AOE, AoM, Battle.net multi-user, Crazy Arcade, CS, E-Donkey, E-Mule, FlashGet, NetMeeting, ICQ, mIRC, Web browser, FTP, Telnet, E-Mail, News, Ping, PCAnyWhere…*
- *DHCP server allocates up to 253 client IP addresses.*
- *Allows up to 32 Static DHCP connections.*
- *Proxy DNS supported.*
- *Dynamic DNS (DDNS) supported.*
- *Up to 24 Virtual Servers supported.*
- *DMZ host & Multi-DMZ supported.*
- *Up to 24 Packet Filters supported.*
- *Static routing supported.*
- *Firmware upgrades through the network supported.*
- *Supports Windows 95/98/ME/NT/2000/XP, Unix, and Mac.*
- *Natural firewall keeps hackers out.*
- *Load/Save device settings from/to a PC file.*

B. Components Included

The On-Q Home 4 Port Router/Switch includes the following parts:

- Router/Switch Module
- Router/Switch 9VDC Power Supply
- Router/Switch Manual on CD
- Router/Switch User Guide

C. Replacement Parts

Replacement parts available for the On-Q Home 4 Port Router/Switch include:

- Router/Switch 9VDC Power Supply (P/N 364723-01)

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D. On-Q Home 4 Port Router/Switch Detailed Physical Description
The following information describes the physical characteristics of the On-Q Home Router/Switch:

1. **Router/Switch Module Connection Area**
   Figure 2 shows the Router/Switch connection area including:
   9 VDC Power Receptacle – connection from power supply
   WAN (Network) Port – 8 position RJ-45 jack (connects to Cable or DSL modem)
   Local Switch Ports – 8 position RJ-45 jacks (connection from outlets in rooms)
   Reset Button - A dual-function button. A brief button press (with a pencil, pen, or other pointed object)
   resets the Router/Switch unit, while a longer button press (over 5 seconds) resets the Router/Switch unit to
   the factory default settings. If the Router/Switch is experiencing trouble connecting to the Internet, briefly
   press and release the Reset button to reset the unit. The Router/Switch will retain its configuration
   information during this reset operation. To reset the unit to the factory defaults, while the unit is powered,
   press and hold the Reset button for more than 5 seconds. This clears the user settings, including User ID,
   Password, IP Address, and Subnet Mask.

   NOTE: Refer to *Section IV Configuration* **for instructions on re-configuring the Router/Switch.**
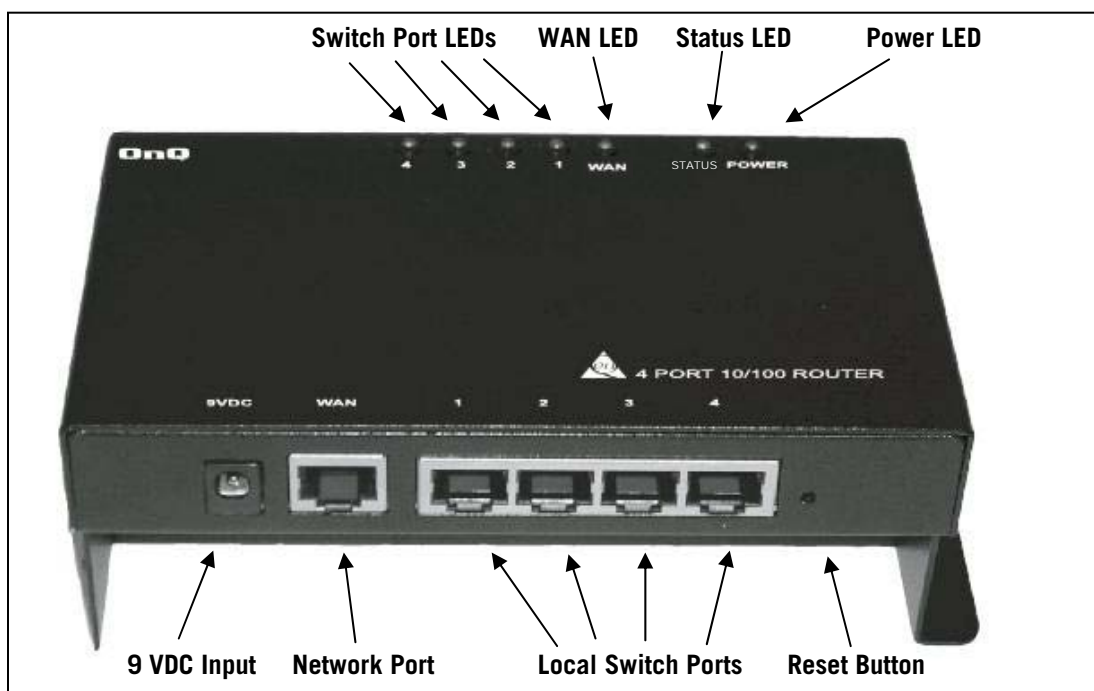
Figure 2

2. **Router/Switch Status LEDs (see** *Figure 2*)

   Power – On solid green when power is supplied.

   Status LED – On solid red indicates device is not working properly. Blinks red during power-up.

   WAN (Network) LED – On solid green to indicate connected and linked to a Cable or DSL Modem.
   Blinks green to indicate receiving or sending data over the network.

   Local Switch Port LEDs– On solid green to indicate proper connection to a local device (PC Network
   Interface Card). Blink to indicate receiving or sending data.

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III. Installation

The On-Q Home 4 Port Router/Switch is best installed during new construction in two steps; at "rough-in" after the Electricians are done, but prior to drywall being installed, and at "trim-out" after the drywall is installed and painted. These steps are detailed below:

A. "Rough-in" steps:

1. A single CAT5e should be run in the walls from the structured wiring enclosure location in the home where the On-Q Home 4 Port Router/Switch will be installed to each outlet location in the rooms where Internet service is required (leave extra cable at both ends).

2. At the selected outlet locations, a single gang box or mud ring should be installed, with the extra CAT5e cable in the box, or attached in such a way that it may be fished out after the drywall is installed.

B. "Trim-out" steps:

3. The CAT5e that was secured at each of the outlets should be pulled out and terminated with a punchdown tool on an RJ45 insert and attached to a wallplate, which is then installed in the single gang box or mud ring.

4. In the structured wiring enclosure the CAT5e from the outlets may be terminated with a punchdown tool onto an On-Q Home 5 Port Network Interface Module's RJ45 Inserts or with RJ-45 plugs for direct connection to the On-Q Home 4 Port Router/Switch.

5. The On-Q Home 4 Port 10/100 Router/Switch is installed in the structured wiring enclosure by slipping the tabs into the square holes, and using the push pin in a round hole to secure the router.

6. If the outlet cables were punched down at a Network Interface Module, CAT5e patch cables are then connected from the On-Q Home 5 Port Network Interface Module to the input ports on the OnQ 4-Port 10/100 Router/Switch.

7. An additional CAT5e patch cable is then connected from the network (WAN) port of the 4 Port 10/100 Router/Switch to the Cable Modem or DSL Modem housed in the structured wiring enclosure.

8. The 4 Port 10/100 Router/Switch is powered with an AC to DC adapter which also needs to be plugged in to an AC source.

9. Follow the steps in the next two sections for configuring the router.

NOTE: Use proper tools and standard TIA 568A rules to prep and terminate the CAT5e cable, such as the On-Q Home CAT5 Cable Stripper (P/N 363292-01) and the On-Q Home EZ RJ45 Crimp Tool (P/N 364555-01).

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IV. Initial Configuration (see *Section V Advanced Setup Steps* for more information)

The On-Q Home 4 Port Router/Switch is typically configured in one of two ways; (1) From a portable PC connected through one of the Local Switch Ports on the Router/Switch Module in the enclosure, or (2) From a PC in one of the rooms of the house, connected through an outlet in the room to the enclosure where it is patched to (or directly connected to) one of the Local Switch Ports (see *Figure 3*). In either case, the PC must have an Ethernet Network Interface Card to communicate with the Router/Switch.
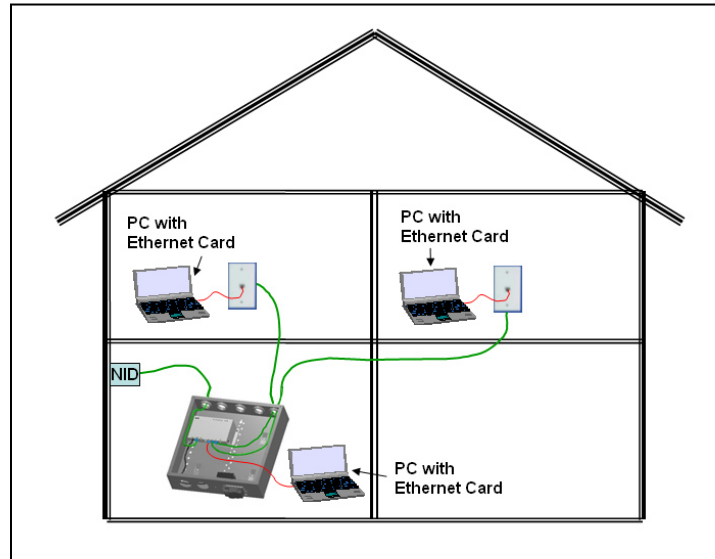

Figure 3

A.   Configuring a Network Interface Card to talk to the Router/Switch

NOTE: The steps below assume that your PC's network interface card is set to DHCP, or in other words, to obtain IP addressing automatically. The steps also assume that the On-Q Home 4 Port Router/Switch is set to its default setting of "Distribute IP" for the local ports and that all the cables previously discussed are properly connected. It is also possible to perform these steps by configuring your computer (with installed Ethernet Network Interface Card) to talk to the On-Q Router/Switch on its specific IP subnetwork (192.168.1.xxx). The On-Q Router/Switch's default IP address in that subnetwork is 192.168.1.254, so your PC's Ethernet Card can be temporarily assigned an IP address, (like 192.168.1.<u>10</u>), on that same subnetwork to talk to and configure the Router/Switch. Giving the PC a specific IP address is also called assigning it a Static IP address, as compared to a Dynamic IP address that is typically assigned by a service provider when your PC's network interface card is configured for Dynamic Host Configuration Protocol (DHCP).

NOTE: Before doing any PC IP Address re-configuration, make sure you first write down all of the current IP settings.

B.   Logging on to the Router/Switch

1.   With your PC connected to one of the local ports on the Router/Switch, open a browser and enter the Router/Switch's default IP address (192.168.1.254), and click "**Go**" (see *Figure 4*) to get the login page.
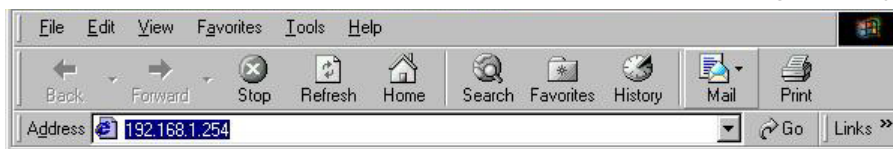

Figure 4

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NOTE: No user name is required and the default password is left blank.

2. To logon, just click **OK** (see *Figure 5*).

Figure 5

NOTE: At the setup home page, the tabs at the top of the page are provided to link you directly to the desired setup screen. You can select *Internet Port, Local Port, Advanced Setup (Management, Virtual Server, Packet Filter, Static Route, Dynamic DNS), Network Status (Connection Status, Sessions List, Users List) and Others (Factory Reset, Save Configuration, Firmware Upgrade).*

C. **Internet Port Setup**

This screen (see *Figure 6*) contains settings for the Internet (WAN) connection interface to your service provider. Click on the **down arrow ▼** to select your specific Internet connection mode on the list (configure only one).

Figure 6

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

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1. **CATV dynamic Mode (Cable Modem)**

   Selecting this mode (see *Figure 7*) 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.

Figure 7

Device Information	
Adapter Address	This field is grayed out, because the Adapter Address is not supposed to be entered randomly. Do Not alter the contents 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	*For example: yourcompany.com.* The maximum input for this field is 32 alphanumeric characters and it is case insensitive. *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.*
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.

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2. **PPPoE (DSL dynamic Mode)**

If this mode is selected (see *Figure 8*) and settings are saved, this Router/Switch 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 saves users' time and effort to run the program on their PCs. And the auto-connect/disconnect feature lets the system stay in an idle state when there is no activity, but pick up the connection quickly when there is network activity. This can significantly save users' cost on connection fees.

The MTU function lets you choose the maximum packet size that fits your need for optimal throughput. Reducing the packet size can help with connecting to certain web sites or with speeding up packet transfer and reception.

Figure 8

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 (ISPs) requires this information, and if that is the case, they will provide you with the name.
Domain Name	*For example: yourcompany.com.* The maximum input for this field is 32 alphanumeric characters and it is case insensitive

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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 "Internet 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 (MTU)	Max packet size (MTU): Click the down arrow ▼ to select the most appropriate MTU (maximum transfer unit, 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.
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.

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3. **Static Mode**

For leased line users, information provided by their ISP has to be filled in the below respective fields when this mode is selected (see *Figure 9*). Information from your ISP includes: IP address, Subnet Mask, Gateway, primary DNS and secondary DNS.

NOTE: There may be more than one IP address assigned by your ISP, select one address and enter its associated information in the corresponding fields.

Figure 9

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	*For example: yourcompany.com.* The maximum input for this field is 32 alphanumeric characters and it is case insensitive

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IP Address	
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	
Primary/Secondary	Enter the information provided by your ISP.

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

D. Local Port Setup

This screen (see *Figure 10*) contains settings for configuring the LAN (4-port switch) side of the product, where your PCs are connected. 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 starting IP address for the group of attached PCs. The number of IP address decides the total number of clients allowed.

NOTE: All the PCs on the same LAN (switch) 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 able to request that IP address. This is useful for support of virtual servers which require fixed IP addresses for outside Internet access.
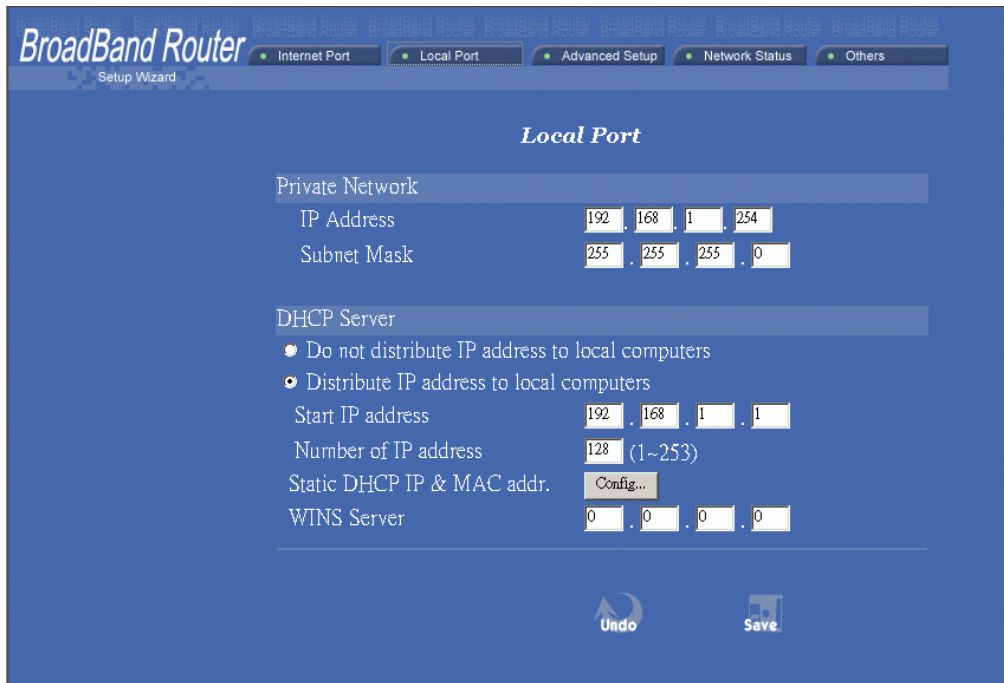
Figure 10

Private Network	
IP Address	Default: 192.168.1.254 (this is the local address of this On-Q Router/Switch)
Subnet mask	Default: 255.255.255.0
DHCP Server	
Do not distribute IP address to local computers	Check this radio button to disable this device from distributing IP Addresses (DHCP Server disabled)
Distribute IP addresses to local computers	Check this radio button to enable this device to distribute IP Addresses (DHCP enabled). This enables the following field for you to enter the starting IP Address
Start IP address	The starting IP address of this local IP network address pool. The pool is a piece of contiguous IP addresses. The default value (192.168.1.1) should work in most cases.

Number of IP address	• Maximum: 253. Default value should work in most cases.
	Note: If "Continuous IP address poll 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.
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 IP addresses. Click BACK to return to the Local Port page to continue

If you clicked on the Static DHCP & MAC addr. "config." Button, this screen (see *Figure 11*) allows you to configure and add up to 32 Static DHCP addresses.
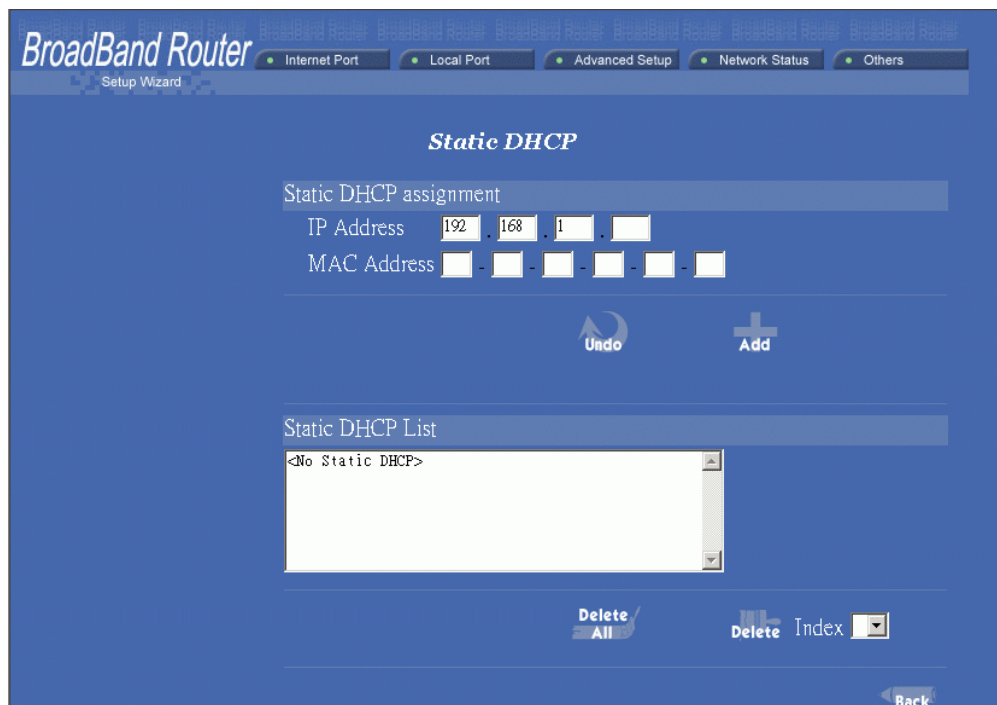

Figure 11

WINS server	When necessary, enter the IP Address of the Windows domain name server.

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

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V. Advanced Setup

A. Management

On this management screen (see *Figure 12*), you can

1. **Change Administrator's password:** change the password for the device.
2. **Limit Management:** Enables two stations to manage this Router/Switch 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 Internet 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.
      Management via Internet: Allows management of this device via HTTP from Internet.
4. **Modify the Configuration Port**.

Figure 12

Change Administrator's password	
New Password	Enter the new password.
Confirm New Password	Re-enter the new password for confirmation.

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Limit Management Station Click ☐ to enable this function.	
Section 1 MAC Address	Enter the first management station's network adapter MAC addresss.
Section 2 MAC Address	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's.
Block Internet Request	Click ☐ to enable this function.
Management via Internet	This field will be automatically disabled when Block Internet Request is checked. If Block Internet Request is not enabled, you can choose to enable/disable this function.

Below are the results of checking or not checking the Block Internet Request and HTTP management for this device. (V: Checked and O: Unchecked)

Block Internet Request	Management Via Internet	Result
V	O (automatically)	WAN requests over TCP 113 (IDENT) and ICMP are rejected. HTTP management is not allowed.
O	V	WAN requests over TCP 113 (IDENT) and ICMP are accepted. HTTP management is allowed.
O	O	WAN requests over TCP 113 (IDENT) and ICMP are accepted. HTTP managements is not allowed.

Modify the configuration port ☐ Enable	Check to modify web configuration port number settings.
Web Configuration port	Input the port number for web configuration. The default web port for configuration is set to 80. If you want to set the port to another port, input that port number and click SAVE. Once the web configuration port is modifiied, configuation over web should be checked with the new setting; e.g. if the web configuration port was set to 8080, to login the web configuration, you need to input the address like: http://192.168.1.254:8080 (where 192.168.1.254 is your local port IP address.)
Non-standard FTP port number ☐ Enable	Check to modify the standard FTP port number.
FTP Port Number	Enter the new FTP port number (default is 21).

SAVE	After changing the setting(s), click SAVE to save the setting(s)
UNDO	Click UNDO to clear all the settings on this page.

B. Virtual Server

On this Virtual Server screen (see *Figure 13*), 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. There are a maximum of 24 Server entries allowed and each port number can only be assigned to one IP address.

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

Figure 13

Add Virtual Server	
Method ⊙By Name ⊙ **By Port**	You can select to set up a virtual server either by name or by port number.
Application (Port)	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	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 O 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	Display of all the virtual servers.
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 a 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.
DMZ WAN IP Address	Enter the WAN IP Address set for DMZ Host.
DMZ LAN IP Address	Enter the local IP address mapping to the client computer, which you want to use as the DMZ Host computer.

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.

C. Packet Filter

The Packet Filters screen (see *Figure 14*) allows you to block specific users from accessing the Internet and you can also disable specific Internet services. There are three different types of filters that may be applied (MAC Address of the network interface card, IP Address single or range, or TCP/UDP Port). Each filter can be set to **filter (drop)** or **forward (pass)** packets. You can program up to 24 total filters.
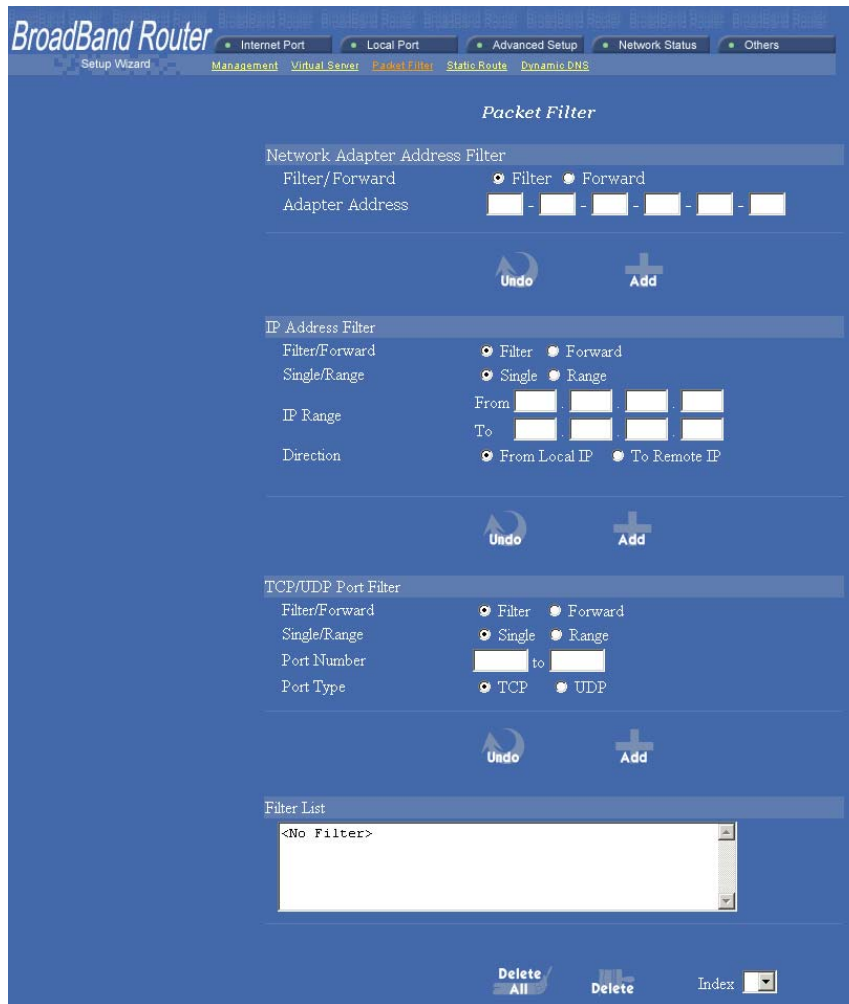
Figure 14

Network Adapter Address Filter	Filter (block) or forward (pass) info from/to local computer's network adapter MAC address (also known as the adapter card's Physical Address).
IP Address Filter	Filter/forward using computer's IP address.
Single/Range	You can filter/forward 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 to filter/forward.
Direction ⊙From Local IP ⊙To Remote IP	Filtering IP address of a local computer; or filtering IP address of a remote server (this remote server connects to the device via Internet).

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

NOTE: Performing a Factory Reset will erase all previously entered device settings.

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	▪ **TCP port:** filter according to the Connection-Based Application Service on the remote server using the port number. ▪ **UDP port:** filter according to the Connectionless Application Service on the remote server using the port number.

ADD	Each time you finish setting a filter, click the ADD button and the added filter will appear on the Filter List
UNDO	Click UNDO to clear all the settings in this categrory

Filter List	Displays 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.

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D. Static Route

You can create static routes (see *Figure 15*) to manually administrate the network topology/traffic when the dynamic route is not effective enough. As mentioned before, static routes may be required by the ISP if you utilize a leased line for network access or for use with virtual servers. To create static routes, select "**Static Route #1**" or "**Static Route #2**", and enter the appropriate destination network/host settings. When finished, click "**SAVE**" to save settings. Click "**UNDO**" to clear all entries.

Figure 15

As discussed before, you may be required by the ISP to link a particular PC or server's network interface card to a provided service (see *Figure 16*). Enter the appropriate information as directed by the ISP.
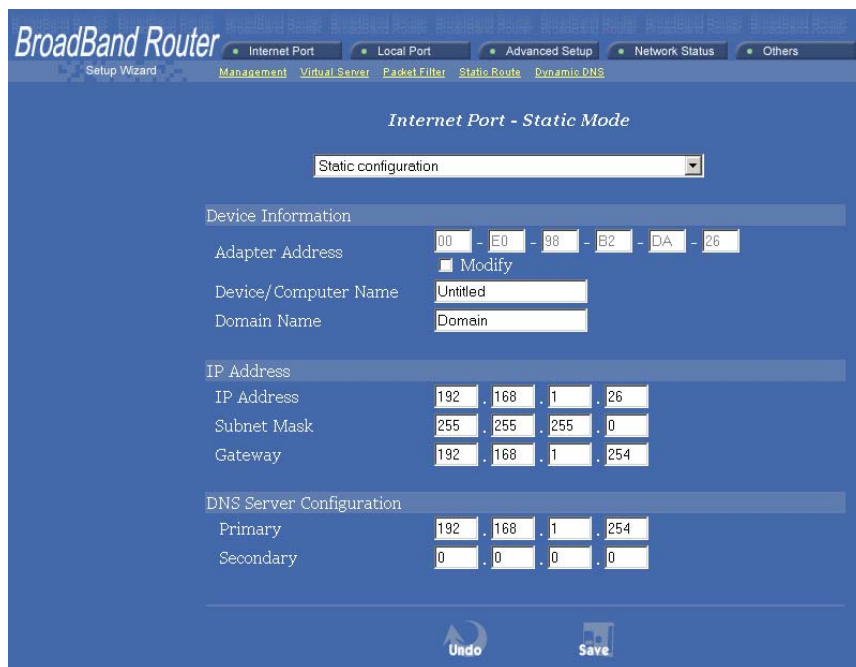

Figure 16

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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	*For example: yourcompany.com.* The maximum input for this field is 32 alphanumeric characters and it is case insensitive
IP Address	
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	
Primary/Secondary	Enter the information provided by your ISP.

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

E. Dynamic DNS

The Dynamic DNS screen (see *Figure 17*) allows you to alias a dynamic IP address to a static hostname, allowing 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 (this function requires Dynamic DNS Service).

Figure 17

Dynamic DNS ☐ Enable	Click to enable this function and make the settings available.
?	Click on the question mark to find out more about Dynamic DNS Service. *Note: If you don't already have the Dynamic DNS Service, please click on the ? and then follow the instructions to sign up for the service.*
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 Refresh 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.

F. **Network Status**

    1. **Connection Status**

This screen (see *Figure 18*) displays 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.
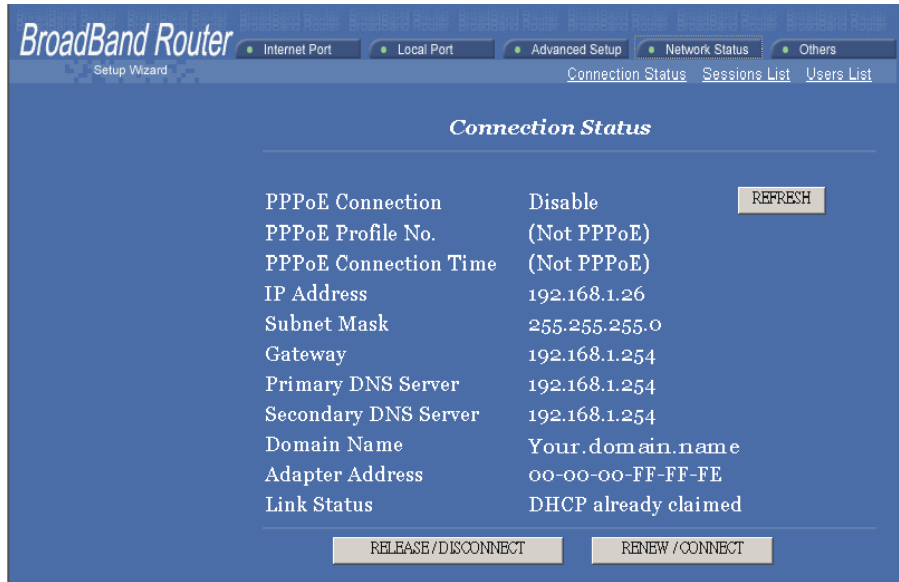

Figure 18

RELEASE/DISCONNECT	Click on this button to disconnect from ISP and release all the IP information on the Internet Port.
RENEW/CONNECT	Click on this button to reconnect to the ISP and renew all IP information on the Internet Port.

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2. Sessions List

This screen (see *Figure 19*) displays active Internet sessions through this device.
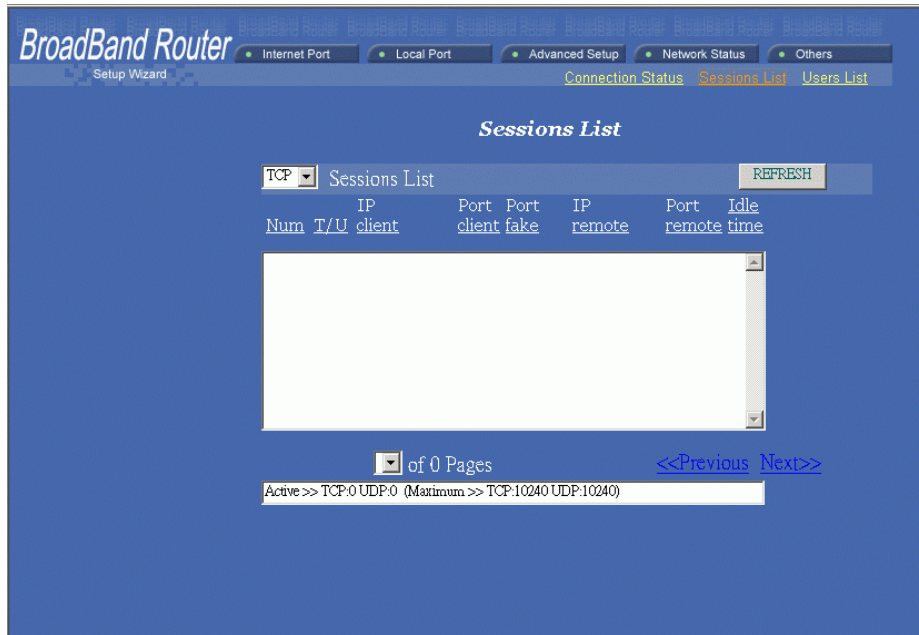
Figure 19

REFRESH	Click on this button to refresh the list and get the latest session list.
T/U	Displays TCP or UDP port type.
IP Client/ Port Client	The local network IP address/port number of one end point of the session.
Port Fake	An NAT feature where a Port Fake is used to translate the local network IP address for connecting to the Internet.
IP Remote/Port Remote	The outside network IP address/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.

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3. Users List

This screen (see *Figure 20*) displays the current active users.

Figure 20

REFRESH	Click this button to refresh the list.

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G. Others

1. Factory Reset (see *Figure 21*)

To reset to factory default settings, click the **GO** button.

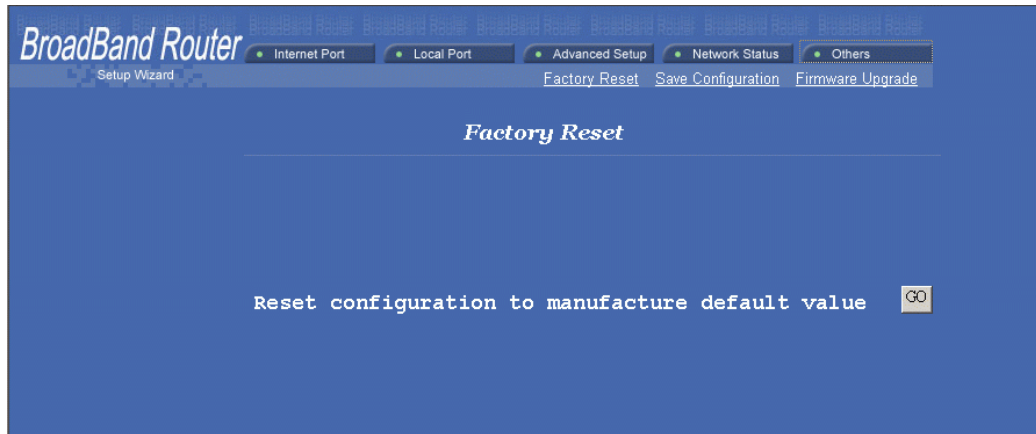**NOTE: Performing the Factory Reset will erase all previously entered device settings.**

Figure 21

2. **Save Configuration**

    This function (see *Figure 22*) 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 a configuration from a file, enter the file name or click **Browse…** to find the file from your computer.
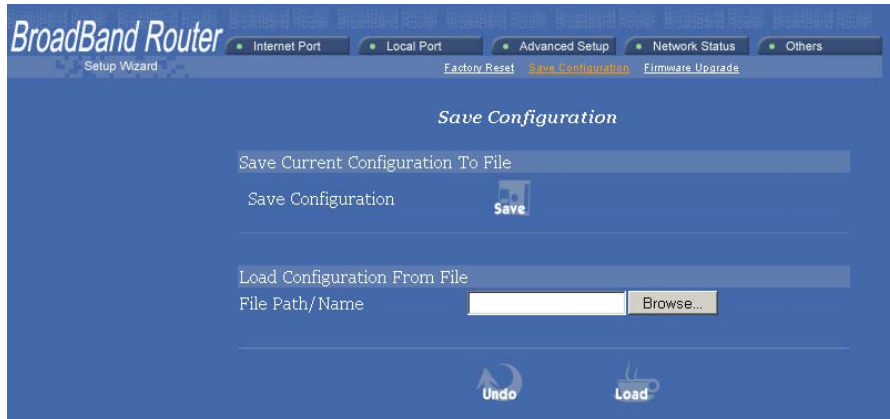
Figure 22
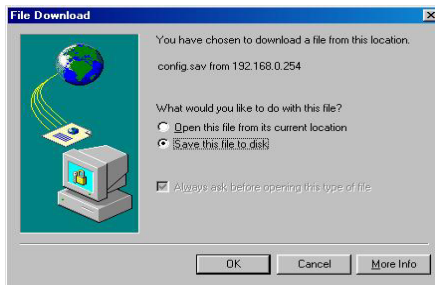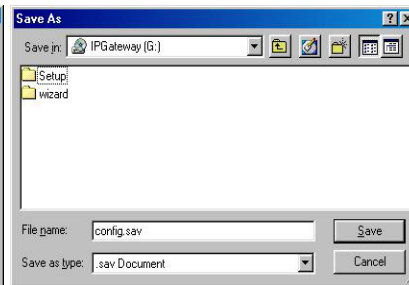
Figure 23   **Figure 24**

SAVE	Click SAVE to save the current configuration to file.
UNDO	Click to clear the input.
LOAD	Click to start loading configuration from file when you are done with the previous settings.

When prompted (see *Figure 23*), select "Save this file to disk", and the Save As screen (see *Figure 24*) will prompt you with a dialog box to enter the file name and the file location. Please note that the configuration file is in a .sav format.

Load Configuration From File	
File Path/Name	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.

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3. **Firmware Upgrade** (see *Figure 25*)

   a. Download the latest firmware from your distributor and save the file on the hard drive.

   b. Make sure all computers in the network are off; or connect the Broadband Router directly to the PC that has the new firmware.

   c. 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).

   d. Click UNDO to clear all the settings on this page. Or click UPGRADE NOW to start the upgrade.

Figure 25
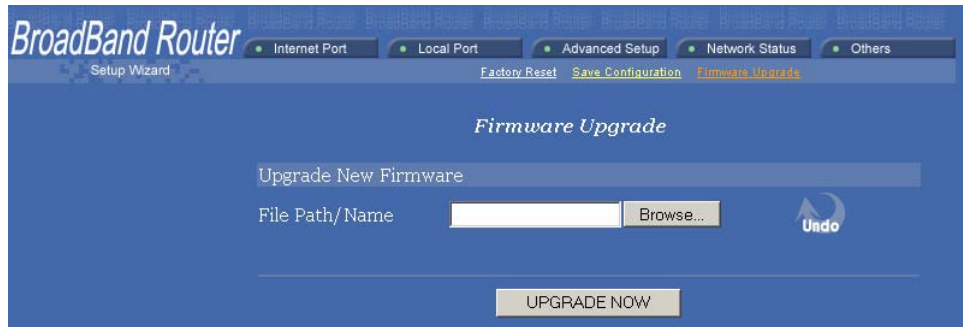
VI. Troubleshooting

This section will detail possible solutions to common problems that might occur in using the On-Q Wireless Access Point (WAP).

A. Contact Information

If you are unable to locate a solution here, please access our website at www.onqhome.com for the latest information. You can also reach us at 1-800-321-2343.

B. FAQs

1. **When Should I modify the MAC address for Internet port settings?**

   Some ISPs identify the clients that attempt to attach to them by the accessing the client's MAC address and ISP assigned host name. The MAC address required for Internet port settings is the Router's MAC address which should be the one you already registered with your ISP, and there is no need for modifying it. However, if the ISP has been utilizing the your PC adapter card's MAC address prior to obtaining this Router, you may have to modify the Router's MAC address for Internet port settings to reflect the MAC address of the PC adapter card.

2. **What is a DMZ?**

   The DMZ (demilitarized zone), is 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.

3. **What is Dynamic DNS?**

   The Dynamic Domain Name Service is an IP Registry service that provides a public central database where information such as email addresses, hostnames, IP addressess, etc. can be stored and retrieved. The Dynamic DNS service acts like old-style phone operator where 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 for more information.

4. **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 features are enabled, your host can be reached by *.yourhost.dyndns.org. First , you need to register a dyanmic 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.

5. **What's MX (Mail Exchanger)?**

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

6. **What is PPPoE (PPP over Ethernet)?**

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

7. **How can I know if I am using PPPoE?**

   PPPoE client software is provided by the ISP and should be installed onto your computer first. You run the program to connect to/disconnect from 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 started up the device, the device will provide your ISP with the PPPoE information and login automatically.

8. **What does the message "*IP address conflict*" mean?**

   When you see the message box prompt 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, run **IPCONFIG /release** and then run **IPCONFIG /renew** on the problem workstation (*for Windows 98SE or ME, run the "**winipcfg**" utility, select the correct Network Adapter, click "release all" to release all current configuration, then click "renew all" to renew the IP information again,*). 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 addresses.

9. **What does "*Can not access the Internet*" mean?**

   Check the physical connectivity of the local network and broadband device.
   Make sure you are using the correct cables and the cables are connected to the network devices properly. 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.

   Check the status of this product.
   After checking the cabling and LEDs, 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 (TCP/IP Network Diagnosis).
   The WINIPCFG program (for Win95, 98, and ME) or IPCONFIG program (for Windows 2000, NT, XP) 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, but can be used to get the current IP address assignments.

   For Win 95/98/ME, from Windows, go to **Start**, click **Run**, enter **WINIPCFG,** and click **OK**.
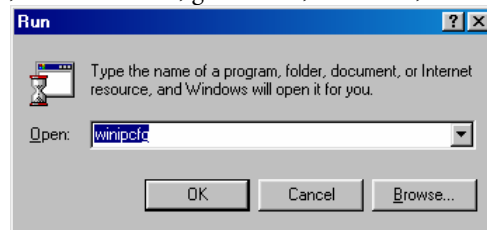
Figure 26

Figure 27 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.
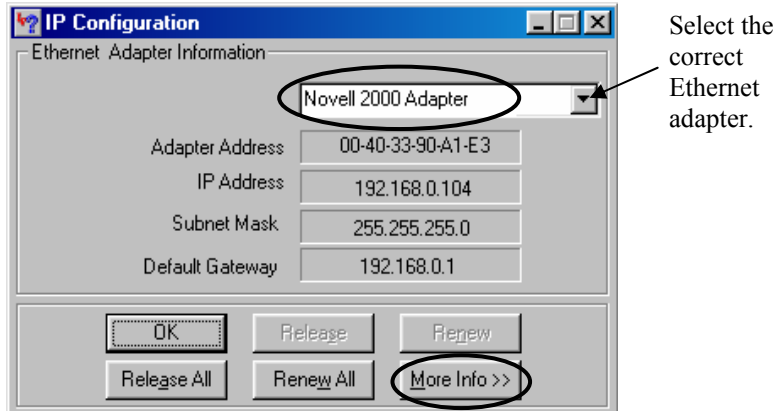
Figure 27: IP Configuration

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

Click here to reveal more.
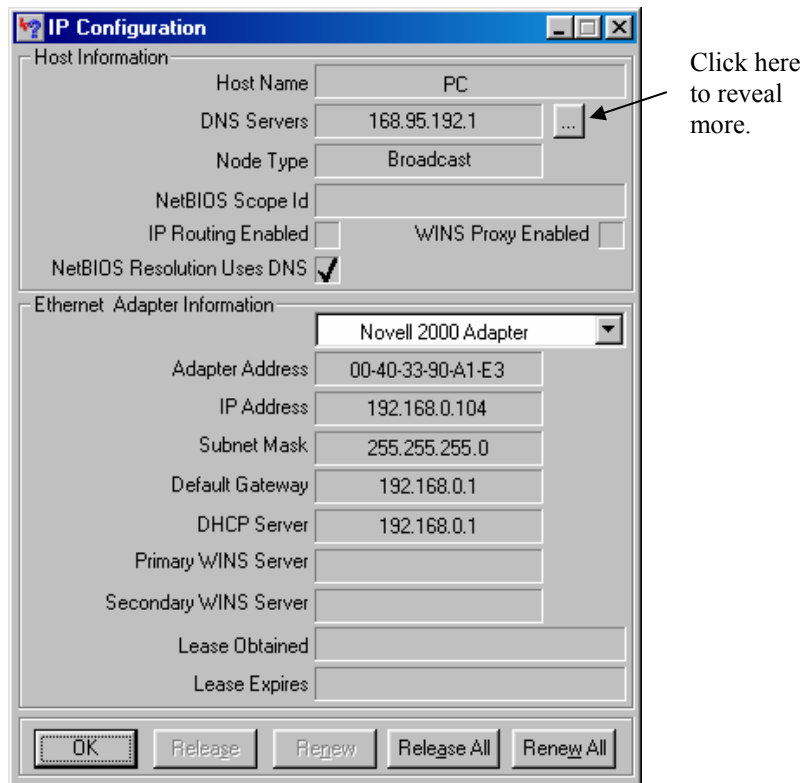
Figure 28: IP Configuration

On the top (see *Figure 28*), the "Host Name" and "DNS server" are what the computer is called 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:

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.

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 /?.**

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

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.**

To insure you are communicating with the ISP, 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.

To insure you have access to the Internet, PING an IP address or domain name on Internet.

For example, at the command prompt enter **C:\> PING 168.95.192.1 –w 5000 or**
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** **IEEE 802.3x Flow Control**
Ports	**WAN: One 10/100Mbps RJ-45 port for Cable/DSL Modem** **LAN: Four 10/100Mbps switched ports**
Cabling type	**UTP Category 3 or better (10Base-T)** **UTP Category 5 or better (100Base-TX)**
Protocols Supported	**IP, NAT, ARP, ICMP, DHCP client/server, PPPoE, PPP, PAP, CHAP, NTP, HTTP, TFTP.**
Management	**Web-Based configuration and management** **GUI program for Windows 98/ME/NT/2000/XP**
LED indicators	**Power Green** **Status Red** **WAN Green for 100M/10M (flashing for activity)** **LAN (1 – 4) Green for 100M/10M (flashing for activity)**
Input power specifications	**DC 9V, 700mA**
Physical Dimension	**134x 90x 29mm^3 (W x D x H)**
Weight	**175 g**
Agency and Regulatory	**FCC part 15 Class B, CE, VCCI, BSMI**
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)**

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Appendix C INTERNET PORT LINK STATUS

PPPoE link status

"PPPoE offline. Ready to connect."	Device's Internet 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 Internet 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 Internet 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.

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