3 Setting Up Ethernet / WLAN Client

This chapter describes how to configure a computer for initial connection to the device. If you have modified the router's network setting, your LAN / WLAN clients should make appropriate changes in order to make successful connection.

3.1 Overview

To access the Wireless Broadband Router's Web-based Configuration Utility, at least one properly configured PC must be connected to the device and reside on the same subnet with the Wireless Broadband Router. The easiest way to make the connection is attaching your host computer's NIC directly to the LAN port of the device, though it is also allowed to configure the device via a wireless client.

Whatever your connection method, the computer's Ethernet /wireless interface must be on the same subnet with the router. As the Wireless Broadband Router is configured with these default values:

- **IP address:** 192.168.1.1
- **Subnet mask:** 255.255.255.0
- **DHCP server:** Enabled with the IP address pool from 192.168.1.100 to 192.168.1.150.

So you should set up your NIC's or wireless adapter's TCP/IP settings as one of the following:

1. To use dynamic IP: Set your PC to be DHCP client to accept the dynamic IP from the router's DHCP server.

2. To use static IP: Set the IP address as **192.168.1.x** (x is between 2 and 254), subnet mask as **255.255.255.0** and the gateway as **192.168.1.1** to be on the same subnet with the router.

The default TCP/IP setting for Windows is acting as a DHCP client. Please proceed to next section to verify or, if necessary, configure your TCP/IP settings.

3.2 Setting up TCP/IP

Before proceeding, make sure your computer is equipped with Ethernet network card or wireless adapter and has appropriate network card driver and TCP/IP installed.

Notes:
1. If TCP/IP protocol is not installed on your PC, refer to Windows documentations for installation instructions.
2. For initial verification, we suggest that you connect only one PC directly to an LAN port on the Wireless Broadband Router, not through a hub.
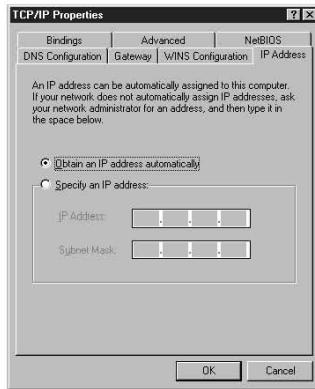
For Windows 98/ME

Step 1   Click on the **Start** menu, point to **Settings** and click on **Control Panel**.

Step 2   Double-click the **Network** icon.

Step 3   In the **Network** window, highlight **TCP/IP** protocol for your NIC or wireless adapter and click **Properties**.

Step 4   Choose one of the methods as required:

Option A: Using DHCP

On the **IP Address** tab, select **Obtain an IP address automatically**.

Then an IP address will be automatically assigned to your computer.

TCP/IP Properties

| Bindings | Advanced | NetBIOS |
| DNS Configuration | Gateway | WINS Configuration | IP Address |

An IP address can be automatically assigned to this computer. If your network does not automatically assign IP addresses, ask your network administrator for an address, and then type it in the space below.

○ Obtain an IP address automatically
○ Specify an IP address:

IP Address:

Subnet Mask:

OK   Cancel

Option B: Using Fixed IP Address

- On the **IP Address** tab, select **Specify an IP address**.

- Then set the IP address as **192.168.1.x** (x is between 2 and 254), subnet mask as **255.255.255.0**.

- Select the **Gateway** tab and set the gateway to **192.168.1.1**.

Step 5   Click **OK** twice to finish the configuration. If your network settings have been changed, you will be prompted to restart your computer. Click **Yes** to have new settings take effect.

Check/Renew IP Address under Windows 98/ME

The following steps help you verify if your network adapter gets an IP address within the DHCP IP pool range (192.168.1.100 ~ 192.168.1.150 by default) of the router. If not, you may need to renew the IP information.

Step 1   From the Start menu, click Run to open the Run dialog box.

Step 2   Enter winipcfg in the dialog box and then click OK.

Step 3   Select the Ethernet or WLAN adapter from the drop-down list to show the IP address. If necessary, click Release and then Renew to get a new IP address.

For Windows 2000/XP

Step 1   Click on the Start menu, point to Settings and click on Control Panel.

Step 2   Double-click the Network and Dial-up Connections or Network Connections icon.

Step 2   Right-click the Local Area Connection icon for your NIC or wireless adapter and then click Properties.

Step 3   On the General tab, highlight Internet Protocol (TCP/IP) and then click Properties.

Step 4   Choose one of the methods as required:

Option A: Using DHCP

On the IP Address tab, enable Obtain an IP address automatically and then click OK.

Then an IP address will be automatically assigned to your computer.
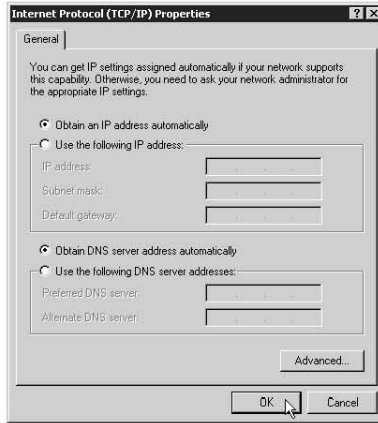
Option B: Using Fixed IP Address

Select **Use the following IP address** and enter these settings:

- **IP address:** 192.168.1.x (x is between 2 and 254)
- **Subnet mask:** 255.255.255.0.
- **Default Gateway:** 192.168.1.1.

Check/Renew IP Address under Windows 2000/XP

The following steps help you verify if your network adapter gets an IP address within the DHCP IP pool range (192.168.1.100 ~ 192.168.1.150 by default) of the router. If not, you may need to renew the IP information.

Step 1   Click **Run** from the **Start** menu to open the **Run** dialog box.

Step 2   Type **cmd** in the dialog box and then click **OK**.

Step 3   At prompt, type **ipconfig** to see the IP information from DHCP server.

Step 4   If you want to get a new IP address, type **ipconfig /release** to release the previous IP address and then type **ipconfig /renew** to get a new one.

3.2 Setting up Wireless Client

If you choose to access the router via a wireless client, also verify the following:

1. Make sure your PC is equipped with 802.11g draft or 802.11b wireless adapter and has appropriate WLAN card driver/utility and TCP/IP installed.

2. Set the wireless adapter to use appropriate TCP/IP settings as described in previous section.

3. Launch the wireless adapter's provided utility and verify that your wireless client is configured with these settings:

   • **Operation Mode**: Infrastructure
   • **SSID**: 802.11g-Sample
   • **Authentication**: Open
   • **WEP Mode**: Disabled

3.3 Checking Connection with the Router

You can use the Ping command to verify whether or not your Ethernet/Wireless client has successfully connected to the Wireless Broadband Router.

To execute ping command, open the DOS window and ping the IP address of the router at the DOS prompt. For example:

```
ping 192.168.1.1
```

If the following response occurs:

```
Reply from 192.168.1.1 bytes=32 time=100ms TTL=253
```

Then the connection between the Wireless Broadband Router and the network has been successfully established.

Otherwise, if you get a failed ping with the response of:

```
Request time out
```

Then the connection is fail. Verify your network setting is correct. For Ethernet client, also check the cable between the router and the PC.

4 Web Configuration

4.1 Accessing Web-Based Configuration Utility

Once your PC is properly configured as described in "3. Setting Up Ethernet / WLAN Client", you can proceed as follows for initial configuration:

1. Start your Web browser and type **http://192.168.1.1** in the URL field. This address is the default private IP of your router.

Note: If the router's LAN port has been specified with new IP address, enter the new IP instead.

---

2. After connecting to the device, you will be prompted to enter the username and password. Leave the username empty and enter the default password of **admin**.

Figure 4-1 Login to Web Configuration Utility

After you login, the **System Overview** page of the Wireless Broadband Router displays. From now on the Wireless Broadband Router acts as a Web server sending HTML pages/forms on your request. You can click the menu options at the top to start your configuration task.

While working with this Web Configuration Utility, corresponding configuration fields are displayed according to your specific selection to avoid any possible conflicting setting. In addition, should you input invalid values, the utility provides instant prompt to help you recover from error inputs.

To enable Your Settings

After you have customized the settings and then click the **Apply** button, the device will begin registering your settings. You will be prompted to wait for a few seconds for the router to commit changes to permanent storage. During this process, it is important not to power on or off the router otherwise damage may be caused to the device.

After the settings have been registered, the screen will return to previous page and the settings are effective. You may then proceed with other configuration tasks.

Submitting Settings ...

Committing values...done

Please wait for 15 Seconds.
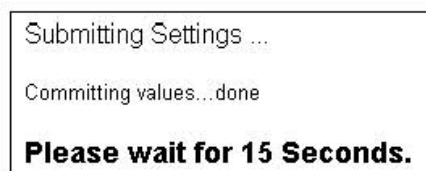
Figure 4-2   Applying Changes

4.2 Viewing System Status

Clicking **System Overview** in the menu bar will display the **System Overview** page which shows the basic information of your Wireless Broadband Router, including the system, WAN/LAN interface and Wireless LAN interface information. You may click the **Update** button to update the overall status.

If firewall is enabled, an additional item **Firewall** is displayed at the bottom of the page. Clicking the **Show Log** button under this item will display the firewall activity log in a separate window.

System Overview	WAN	LAN	Wireless LAN (2.4G)	Wireless LAN Security	Filters	Forwarding	Administration

This page displays summary for the router status. Click the button to update [Update]

| System | System Time: | 1970/01/01 , 02:40:14 |
| | Firmware Version: | 2.02.14.07 |

WAN Interface	WAN/LAN Relation:	NAT Routing
	Protocol:	DHCP Client
	MAC Address:	00:90:96:3d:ad:77
	IP Address/Subnet Mask:	0.0.0.0 / 0.0.0.0
	Default Gateway:	
	DNS Servers:	
	WINS Servers:	
	Host Name:	
	Domain Name:	

LAN Interface	MAC Address:	00:90:96:3d:Ad:76
	IP Address/Subnet Mask:	192.168.1.1 / 255.255.255.0
	DHCP Server:	Enabled
	Active DHCP Leases:	

MAC Address	IP Address	Expires In
00:05:5d:78:05:a1	192.168.1.100	46 seconds

Wireless LAN (2.4G) Interface	Access Point Name:	11g AP
	SSID:	IEEE 802.11 LAN
	BSSID:	00:90:96:3d:a9:af
	Channel ID:	1

| Firewall | Activity Log: | [Show Log] |

Figure 4-3   System Overview

4.3 Configuration for NAT Routing Mode

Prior to configuring your Wireless Broadband Router, you must decide whether to configure the device as a router or as a bridge. This section only describes how to set up the device to act as a router. For bridge configuration, see "4.4 Configuration for Bridge Mode" for instructions.

When operating as a router, the device communicates with your ISP through the WAN port. Depending on the connection type offered by your ISP, you may get the WAN IP address by one of the following means:

- **DHCP Client:** In this connection type, your router acts as a DHCP client and requests IP information from the DHCP server on the ISP side. Select this option if your ISP assigns you with a dynamic IP address each time you log on.

- **PPPoE Client:** Some ISPs use a PPPoE session to make connection with their clients. If this is the case, you should enable this option and finish the PPPoE Client settings. The WAN port of the device will be assigned a public IP address from your ISP's server.

- **PPTP Client:** This router supports VPN (Virtual Private Network) pass-through for both PPTP (Point-to-Point Tunneling Protocol) and IPSec (IP Security). VPN allows corporations to extend their own corporate network through private "tunnels" over the public Internet. If your ISP, e.g., European DSL service providers, uses PPTP as a connection method, you should use this option.

- **Manual Config:** If your ISP assigns you a fixed IP address, you should select this option and manually enter the IP information provided by your ISP.

Different configuration items will be displayed depending on your connection type. Consult with your ISP which option applies to you and obtain related information for correct configuration. Then proceed to finish the following procedures.

WAN Configuration for NAT Routing Mode

Click **WAN** in the configuration menu to enter the WAN configuration page and carry out the procedures below.

Part 1. Configuring general settings.

1. In the **WAN/LAN Relation** item, select the **NAT Routing** option.

    This option allows the device to act as a router and use the built-in NAT function to translate your multiple private IP addresses to a single public IP address. However, only outgoing requests are allowed to pass through the device unless you specify otherwise. Outside users cannot see your private local IP addresses. This leaves your home or business network hidden from outside intruders.

2. In the **Protocol** item, select a protocol type according to the connection type offered by your ISP.

3. If required, in the **MAC Address** field, enter your network adapter's MAC address in the format of xx:xx:xx:xx:xx:xx. Otherwise just keep the default values.

    This field allows you to clone a network adapter's MAC address to the WAN port of the router. Some ISPs use the MAC address of NIC, which was connected to your Cable/ADSL modem, for static mapping and thus give you the same IP address each time the Cable/ADSL modem requests for IP address for the Ethernet port. If this is the case, this feature removes the need of asking your ISP to change the registered MAC address and you can still use the same given IP for the router's WAN port.

4. In the **Host Name** field, you may supply a host name for this router if this is required by your ISP. Some ISPs only respond to a DHCP request with a valid "Host Name". If a host name is not necessary for your ISP, just leave it blank.

Part 2. Configuring protocol-specific settings

According to the connection type you selected above, proceed to set up related parameters.

▶ DHCP Client

If DHCP Client is your option, no other configuration is needed. You may just click **Apply** to end your WAN settings. After the connection to your ISP is established, the information provided by your ISP will be displayed in the **Status** group.

Figure 4-4   WAN Configuration-DHCP Client

▶ PPPoE Client

If PPPoE Client is your option, configure these fields as required by your ISP.

PPPoE Connection Status: This item is not configurable. It displays whether the connection is up or down.

Username/Password: Enter the username and password provided by your ISP used to log on to Internet connection.

Connection Mode: Select your PPP connection from these options:

Keep Alive: This feature will keep your PPPoE-enabled Internet connection always alive. This is done by sending echo requests periodically to ISP to prevent the connection from being terminated by ISP.

Connect on Demand: If enabled, the router will trigger a PPP session for connection to the Internet if any client PC on your LAN sends out a request for Internet access. However, the router automatically disconnects the PPP session after the WAN connection has been idle for the amount of time you specified in the **Max Idle Time** box. If your Internet account is billed based on the amount of time of your Internet connection, you probably want to enable this option and enter an idle time value best suitable for your network.

Manual Connect: If enabled, the system administrator can manually connect or disconnect the PPP session by clicking the **Connect/Disconnect** buttons in this page.

MTU/MRU: Allows you to adjust the Maximum Transmission/Receive Unit in bytes for the WAN interface. The packets larger than the specified values will be fragmented before being transmitted.

It's suggested not to modify the MTU/MRU settings unless instructed by your ISP.

After you finish the WAN settings, click **Apply** to submit your changes. Then you can check the **PPPoE Connection Status** item to see if the connection is established. To verify whether WAN interface has successfully obtained an IP address and related information from your ISP, please check the **WAN Interface** group in the **System Overview** page.

Figure 4-5   WAN Configuration-PPPoE Client

▶ **PPTP Client**

If PPTP Client is your option, configure these fields as required.

Username/Password: Enter the access credentials, i.e., username and password, for the router to initiate a PPTP connection to the PPTP server.

Server IP Address: Enter the IP address of the PPTP server.

IP Address/Subnet Mask: Enter the Internet IP address/subnet mask that the ISP assigns to this router for reaching the PPTP server.

Idle Disconnect: If you want to automatically terminate the connection to your ISP when there is no connection for a period of time, check this option and enter the desired idle time.

After you finish the WAN settings, click **Apply** to submit your changes. To see the details of your WAN connection, please check the **WAN Interface** group in the **System Overview** page.

General	WAN/LAN Relation:	⦿ NAT Routing ○ Bridging			
	Protocol:	○ DHCP Client ○ PPPoE Client ⦿ PPTP Client ○ Manual Config			
	MAC Address:	00:90:96:3d:b7:ce			
	Host Name:				
PPTP Client	Username:				
	Password:				
	Server IP Address:				
	IP Address:				
	Subent Mask:				
	Idle Disconnect:	☐ Disconnect after ____ minutes of no activity.			
		Apply Cancel			

Figure 4-6 WAN Configuration-PPTP Client

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▶ **Manual Config**

If Manual Config is your option, configure these fields as required by your ISP.

IP Address/Subnet Mask: Enter the fixed IP address and subnet mask given by your ISP in respective fields. The default values are 0.0.0.0/0.0.0.0.

Default Gateway: The IP address of the default gateway of the router. It is the IP that the router first contact to communicate with the Internet.

DNS Servers: Specifies the IP address of the Domain Name Server. Your LAN side DHCP clients use the DNS to map a domain name to its corresponding IP address and vice versa. Up to three DNS servers are allowed. If no DNS server is specified or the specified servers are not available, the router will automatically assign a DNS server to the DHCP clients.

WINS Servers: Optional for Windows Internet Names Service. Enter the IP addresses of WINS servers if required.

Domain Name: Optional. Allows you to supply a domain name for the router.

After you finish the WAN settings, click **Apply** to submit your changes.

Figure 4-7   WAN Configuration-Manual Config

LAN Configuration for NAT Routing Mode

Your router communicates with your LAN through its LAN port. The LAN configuration page allows you to define the private IP address and DHCP server settings over the LAN interface.

1. In **Manual Config** > **IP Address & Subnet Mask** fields, enter the IP address and subnet mask for the LAN port.

    By default, the IP address and subnet mask of the LAN port is **192.168.1.1** and **255.255.255.0** respectively. Note that if you change the private IP address and apply the changes, the PC from which you configure the router will lose the communication to the router. To reconnect, you may need to renew the IP address of the PC or change to an IP address compatible with the new LAN port IP address.

2. In **DHCP Server** > **Service** field, select whether to enable DHPC service on the LAN and WLAN port.

    The Wireless Broadband Router implements a built-in DHCP (Dynamic Host Configuration Protocol) server on its LAN and WLAN interface, which dynamically assigns IP addresses to the DHCP clients on the LAN / WLAN. The DHCP server also provides a default gateway (the router's LAN IP address) and DNS addresses for DHCP clients to access the Internet. DHCP function spares you the hassle of manually assigning a fixed IP address to each PC on the LAN / WLAN. It is probably you already have a DHCP server on your network and you do not enable this function. DHCP server is enabled by default.

    If you disable DHCP server, just click **Apply** to submit your changes. Otherwise proceed to next step.

3. If DHCP server is enabled, enter the fields below:

    DHCP Lease Time: Specify the time that a network device can lease a private IP address before the DHCP server reassigning the IP address.

    Note: If the WAN port (when set to acts as a DHCP client) does not get an IP address upon startup, the LAN clients will be assigned with a lease time of 1 minute instead of the time value specified in this field. This is to ensure LAN clients will come back to renew its lease to update the parameters (default gateway, DNS server, etc.) when WAN port gets an IP address later from the ISP. After the update of these

parameters, the lease time assigned to LAN clients turns to the lease time you specified.

IP Pool Range: Specify the starting and ending IP address of the IP address pool. Whenever a network device requests for an IP address, the router will allocate an unused IP address from this pool and lease them to the device for a specified amount of time.

System Overview	WAN	LAN	Wireless LAN (2.4G)	Wireless LAN Security	Filters	Forwarding	Administration

This page configures the LAN interface. It also applies on Wireless LAN interface.

General	MAC Address:	00:90:96:3d:Ad:76

Manual Config	IP Address:	192.168.1.1
	Subnet Mask:	255.255.255.0

DHCP Server	Services:	⊙ Enable ○ Disable
	DHCP Lease Time:	72 hour(s)
	IP Pool Range:	192.168.1.100 — 192.168.1.150

[Apply] [Cancel]

Figure 4-8   LAN Configuration in Router Mode

Viewing Current DHCP Assignments

When DHCP server function is enabled, the router keeps a record of any machine (either Ethernet or Wireless node) that has leased IP from the specified IP pool. The DHCP lease table is displayed under **System Overview > LAN Interface**:

LAN Interface	MAC Address:	00:90:4C:1D:00:2A
	IP Address/Subnet Mask:	192.168.1.1 / 255.255.255.0
	DHCP Server:	Enabled
	Active DHCP Leases:	

MAC Address	IP Address	Expires In
00:05:5d:a6:3e:e9	192.168.1.100	46 seconds
00:90:96:00:45:32	192.168.1.101	expired

Figure 4-9   DHCP Lease Table

4.4 Configuration for Bridge Mode

A bridge connects two or more LANs together and bases the forwarding decision on the MAC address. Under Bridge mode, filters and forwarding are not applicable. Acting as a bridge, the devices supports DHCP server service. To set up the bridge mode, perform the procedures below.

Part 1. Enable bridging function.

Go to the WAN configuration page and select the **Bridging** option as the **WAN/LAN relation** and then click **Apply** to commit the changes.

System Overview	WAN	LAN	Wireless LAN (2.4G)	Wireless LAN Security	Filters	Forwarding	Administration
This page configures the WAN interface.							
General	WAN/LAN Relation:		○ NAT Routing ⊙ Bridging				
			Apply Cancel				

Figure 4-10   Enabling Bridging Mode

Part 2. LAN configuration.

1. In the **Protocol** item, select **DHCP Client** or **Manual Config** as required.

   DHCP Client: Select this option if there is already a DHCP server in your network which assigns IP to this bridge. If enabled, no further configuration is needed since the DHCP server will pass the required IP information. Click **Apply** to submit your changes.

   Note: After committing the settings, your configuring PC may lose connection to the device. To reconnect, you will need to make sure the PC uses an IP address in the same subnet as the device.

System Overview	WAN	LAN	Wireless LAN (2.4G)	Wireless LAN Security	Filters	Forwarding	Administration

This page configures the LAN interface. It also applies on Wireless LAN interface.

General	MAC Address:	00:90:96:32:61:28
	Protocol:	☐ Manual Config ☑ DHCP Client

Apply   Cancel

Figure 4-11   Bridge Mode-DHCP Client

Manual Config: If enabled, manually enter the IP address and its subnet mask in **IP Address & Subnet Mask** fields.

2. For **Manual Config** setting only, in **DHCP Server** > **Service** item, select whether to have your bridge act as a DHCP server.

If you disable DHCP service, no further configuration is required. Just click **Apply** to submit your changes.

Note: After committing this setting, your configuring PC may lose connection to the device. To reconnect, you will need to make sure the PC uses an IP address in the same subnet as the manually entered IP.

If DHCP server service is enabled, proceed to set up the items below:

DHCP Lease Time: Specify the time that a network device can lease a private IP address before the device reassigning the IP address.

IP Pool Range: Specify the starting and ending IP address of the IP address pool. Whenever a network device requests an Internet session, the device will allocate an unused IP addresses from this pool and lease them to the device for a specified amount of time.

Default Gateway & **DNS Servers**: Specify the default gateway and DNS servers for your network. These settings allow your network to access the Internet

After finishing the settings above, click **Apply** to submit the changes.

Note: Under Manual Config setting, after DHCP Server takes effect, your configuring PC will need to renew its IP address to connect to the device.

System Overview	WAN	LAN	Wireless LAN (2.4G)	Wireless LAN Security	Filters	Forwarding	Administration

This page configures the LAN interface. It also applies on Wireless LAN interface.

General	MAC Address:	00:90:96:32:61:28
	Protocol:	⦿ Manual Config ⦿ DHCP Client

Manual Config	IP Address:	192.168.1.1
	Subnet Mask:	255.255.255.0
	Default Gateway:	192.168.1.1

DHCP Server	Services:	⦿ Enable ⦿ Disable
	DHCP Lease Time:	72 hour(s)
	IP Pool Range:	192.168.1.100 ~ 192.168.1.150
	DNS Servers:	___ . ___ . ___

Apply   Cancel

Figure 4-12   Bridge Mode-Manual Config