WIRELESS 11n ROUTER
WR850RL

User's Manual

September 2008

FCC Warning

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 communication. 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
- Consult the dealer or an experienced radio/TV technician for help. the receiver is connected.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this 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.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

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

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter. IEEE802.11b or 802.11g operation of this product in the USA is firmware-limited to channels 1 through 11.

Notice

Changes or modifications to the equipment, which are not approved by the party responsible for compliance could affect the user's authority to operate the equipment. Company has an on-going policy of upgrading its products and it may be possible that information in this document is not up-to-date. Please check with your local distributors for the latest information.

Copyright

Trademarks:

All trade names and trademarks are the properties of their respective companies.

Revision History

Revision	History
V1	1st Release

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

FCC RF Radiation Exposure Statement:

1. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
2. 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 20 centimeters between the radiator and your body.

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

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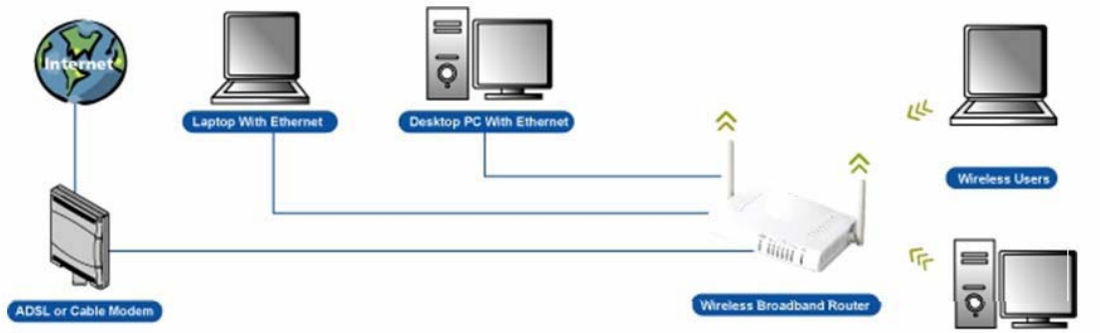
1. Introduction

This Wireless Broadband Router is a draft 802.11n compliant device that provide faster and farther range than 802.11g while backward compatible with 802.11g and 802.11b devices. This Router uses advanced broadband router chipset and wireless LAN chipset solution let you enjoy high-speed Wired and Wireless connection. Simply connect this device to a Cable or DSL modem and then you can share your high-speed Internet access with multiple PCs at your home. It creates a secure Wired and Wireless network for you to share photos, files, video, music, printer and network storage. This device also supports the latest wireless security features such as WEP, WPA, WPA2 and WPS to prevent from unauthorized access.



1.1 Features

- Compliant with IEEE 802.11n draft 2.0 standard
- Backward compatible with IEEE 802.11b/g
- Supports NAT, NAPT, DHCP Server/Client
- Supports VPN pass through - IPSec, PPTP, L2TP
- Supports Virtual Server / Port Trigger / Port Forward
- Supports Virtual DMZ Host, DNS Proxy, DDNS, UPnP
- Supports 64/128-bit WEP Data Encryption
- Supports WPA / WPA2 / WPS / 802.1x Authentication
- Supports WDS (Wireless Distribution System) mode
- Supports Quality of Service (QoS) – WMM
- Supports MAC Filter, Client Filter, URL/IP Filter
- Supports Hacker Pattern Detection
- Supports Auto-crossover (MDI/MID-X) function
- Supports software upgrade through Web
- Friendly web-based GUI Configuration and Management

1.2 Package Contents

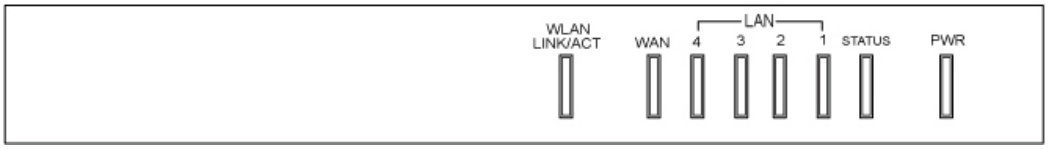
- One Wireless AP Router with 2 antennas
- One External Power Adapter
- One CD-ROM (user's manual)
- One RJ-45 Ethernet Cable

1.3 System Requirements

- Computers with an installed Ethernet adapter.
- Valid Internet Access account and Ethernet based DSL or Cable modem.
- 10/100Base-T Ethernet cable with RJ-45 connector.
- TCP/IP protocol must be installed on all PCs.
- System with MS Internet Explorer ver. 5.0 or later, or Netscape Navigator ver. 4.7 or later.

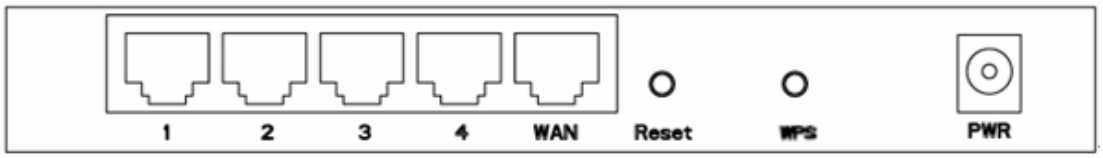
1.4 LEDs Indication & Connectors of Wireless Router

Front Panel LEDs Indication



LED	Light Status	Description
PWR	On	Wireless Router is powered on.
	Off	Wireless Router is powered off.
Status	On	Wireless Router is hung.
	Blinking	Wireless Router is up and ready.
LAN (1, 2, 3, 4)	On	LAN port is successfully connected.
	Blinking	Data is being sent or received.
WAN	On	WAN port is successfully connected
	Blinking	Data is being sent or received.
WLAN LINK/ACT	Slow Blinking	WLAN is successfully connected.
	Blinking	Data is being sent or received.

Back Panel Connectors



Button/Port	Description
Reset	Reset configurations to default. You would use the reset button only when a program error has caused your 11n AP router to hang. Press the button and hold for 10 seconds.
WPS	Click WPS button about 2-3 seconds while you are connecting a PC of wireless adapter with WPS function (you must enable WPS' PBC function).
LAN (1x, 2x, 3x, 4x)	Ethernet RJ-45 connector, connect to PC with a RJ-45 Ethernet cable.
WAN	Ethernet RJ-45 connector, connect to WAN access device, such as the Cable modem or ADSL modem.
PWR	Power connector, connect to the power adapter packaged with the AP router.

1.5 Installation Instruction

1) Power off 802.11n AP Router and DSL/Cable modem.
2) Connect computer to the LAN port on the Wireless Router with Ethernet cable.
3) Connect the DSL or Cable modem to the WAN port on the Wireless Router with Ethernet cable.
4) Power on DSL or Cable modem first, then connect power adapter to the power jack on the rear panel of Wireless Router and plug the power cable into an outlet.
5) Check LEDs.
    a) Once power on Wireless Router, Power LED should be on.
    b) LAN LED should be on for each active LAN connection.
    c) The WAN LED should be on when the DSL or cable modem is connected.

Warning: Only use the power adapter is provided from this package, use other power adapter may cause hardware damage

2. PC Configuration

To communicate and configure 802.11n AP router, the PC on your LAN must install TCP/IP protocol. Make sure the TCP/IP protocol of the PC is configured for Obtain IP address from DHCP and is connected to LAN (Ethernet) port of the AP router. In doing so, the PC obtains an IP address of 192.168.1.1 from 802.11n AP router.

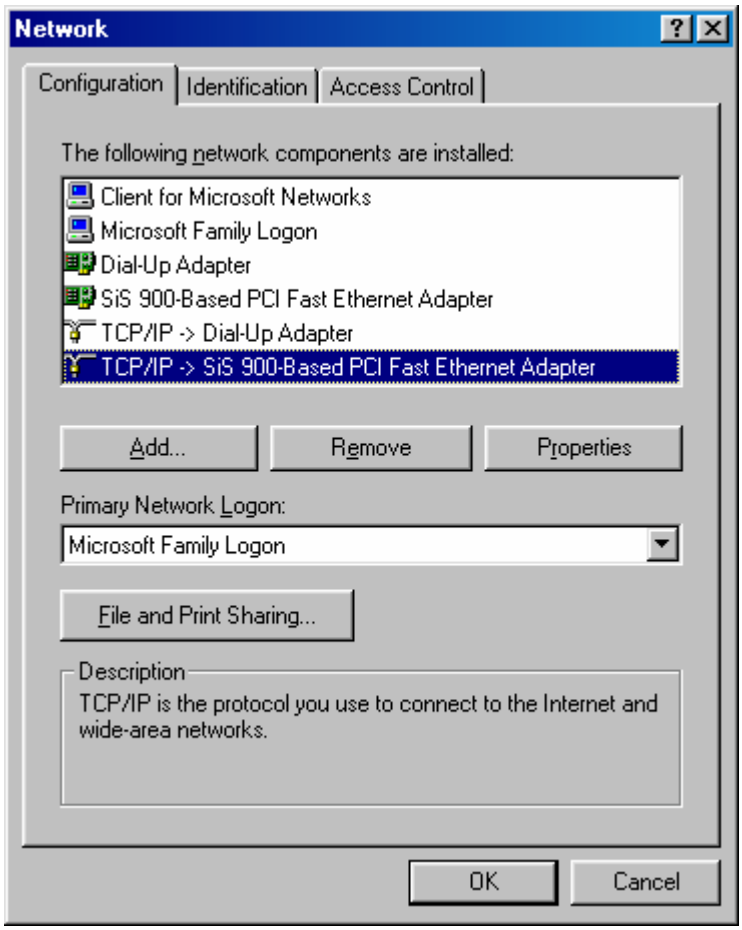
The 802.11n AP router assumes an IP address of 192.168.1.1 without network connectivity. This IP address is used for communicating with the 802.11n AP router via the web UI or Telnet, with the PC connected to the LAN port.

The 802.11n AP router assumes a DHCP IP address on the WAN side if connected to the network. In this case user can communicate with the same IP address 192.168.1.1 with PC connected to the LAN port. PC in the network can communicate with the DHCP IP address allocated to 802.11n router.

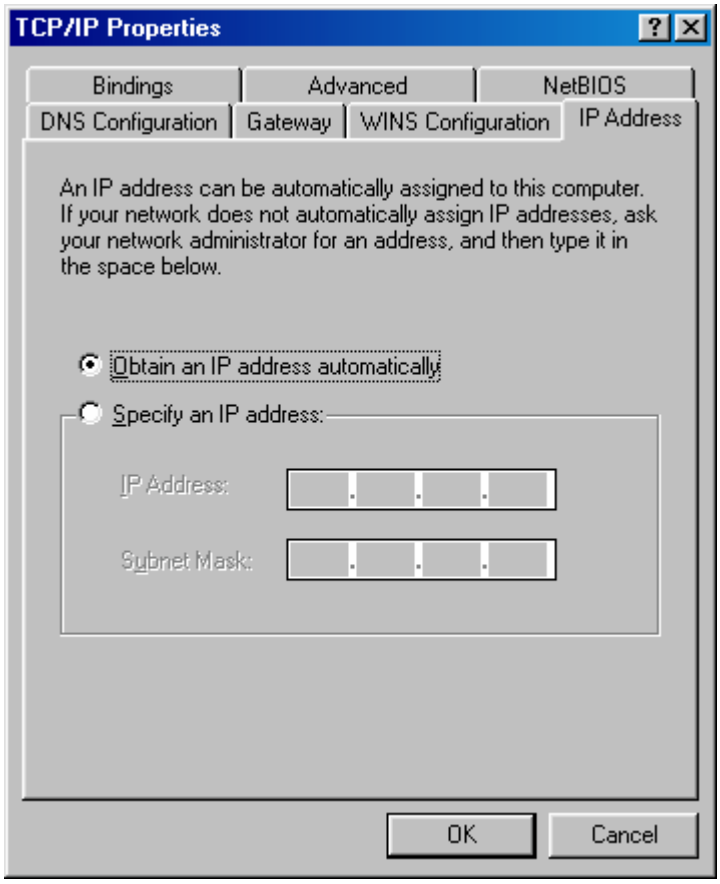
2.1 TCP/IP Networking Setup

Checking TCP/IP Settings for Windows 9x/Me

a) Select **"Start → Control Panel → Network"**, the window below will appear,

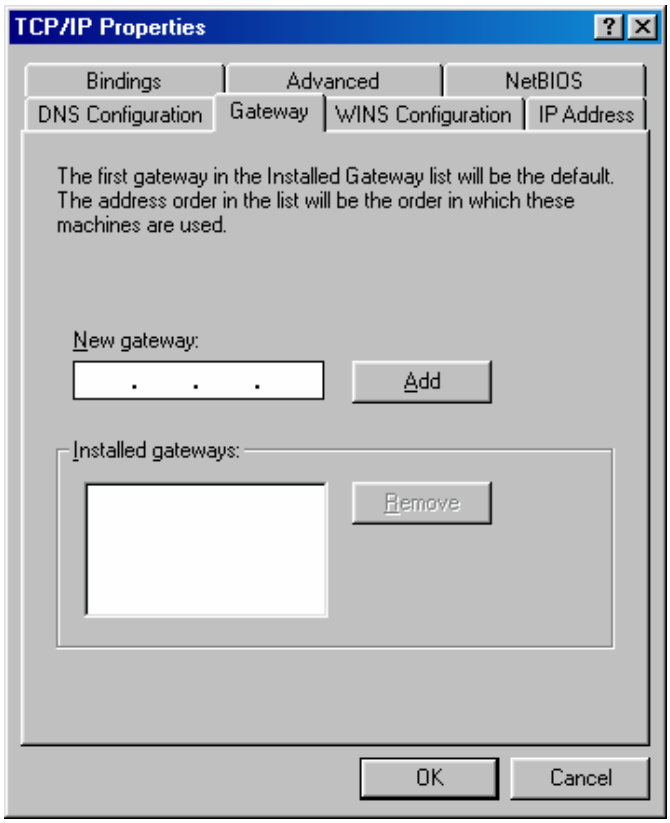


b) Click **"Properties"**, the window below will appear and then click **"IP Address"** tab,

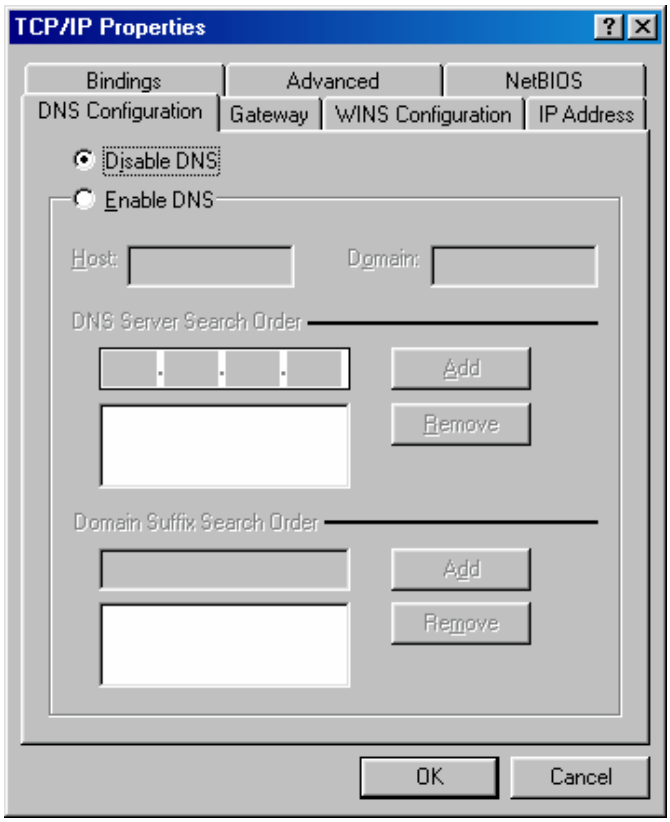


- If you decide to use DHCP, select **"Obtain an IP address automatically"**, then click **"OK"** to confirm your settings. Once you restart your system, Wireless Router will obtain an IP address for this system.
- If you decide to use fixed IP address for your system, select **"Specify an IP address"**, and make sure that **IP Address** and **Subnet Mask** are correct.

c) Select **"Gateway"** tab and enter correct gateway address in **"New gateway"** field, then click **"Add"**,

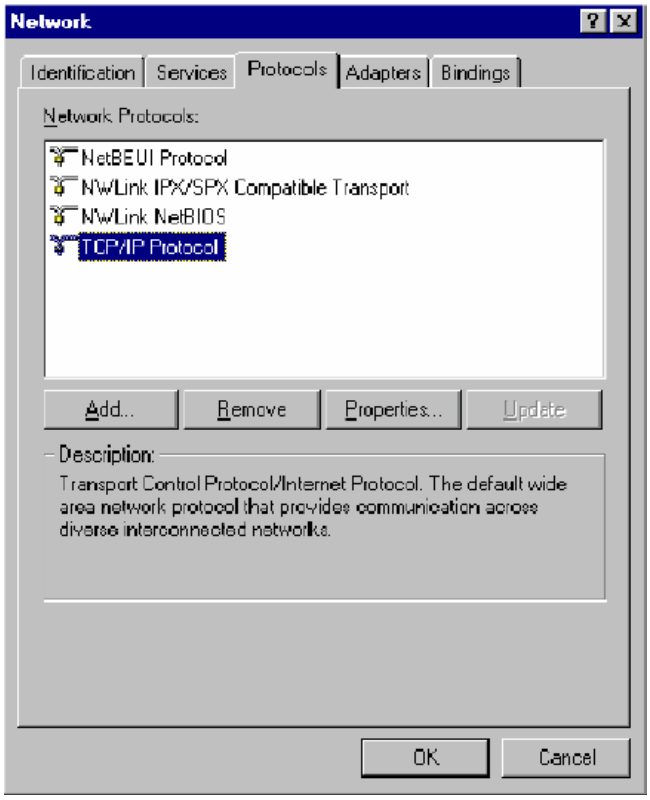


d) Select **"DNS Configuration"** tab and make sure select **"Enable DNS"**, enter the DNS address provides from your ISP in the **"DNS Server Search Order"** field, then click **"Add"**,

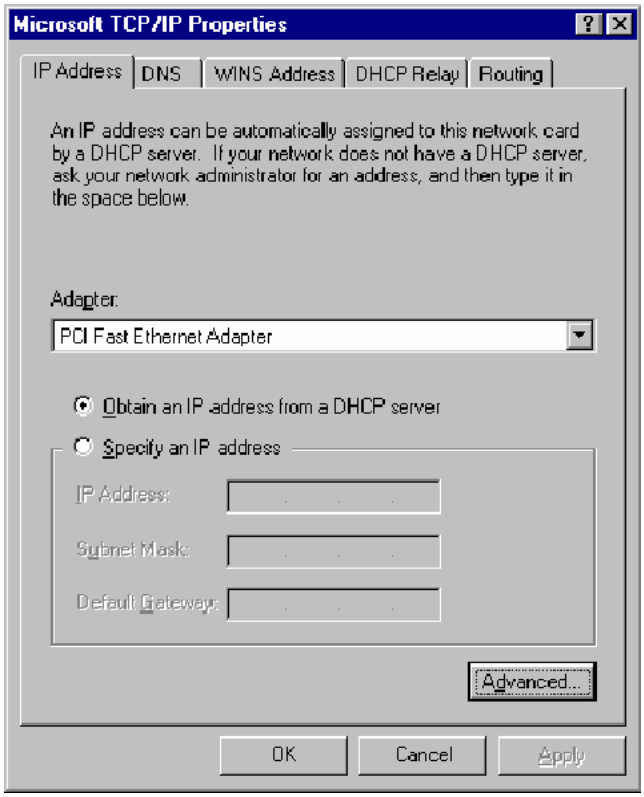


Checking TCI/IP Setting for Windows NT4.0

a) Select **"Control Panel → Network"**, window below will appear, click **"Protocols"** tab then select **"TCP/IP protocol"**,

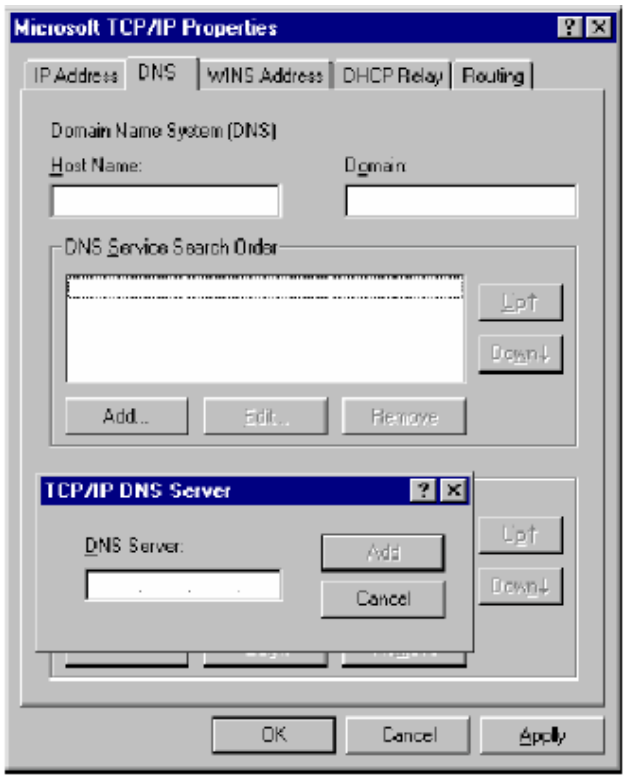


b) Click **"Properties"**, window below will appear.



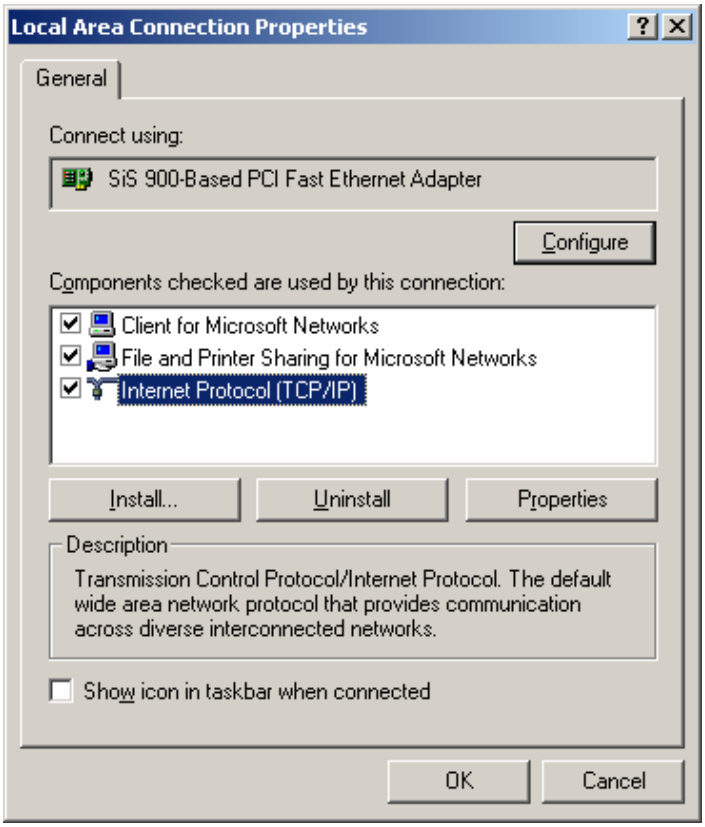
- Select the network card on your system from **"Adapter"** field.
- If you decide to use IP address from Wireless Router, select **"Obtain an IP address from a DHCP server"**.
- If you decide to use the IP address you are desired, select **"Specify an IP address"**. Make sure enter correct addresses in **"IP Address"** and **"Subnet Mask"** fields.
- You must set Wireless Router's IP address as **"Default Gateway"**.

c) To enter DNS address is provided from your ISP. Select **"DNS"** tab, click **"Add"** under **"DNS Service Search Order"** list, then enter DNS Server IP address in **"TCP/IP DNS Server"** window and click **"Add"**.

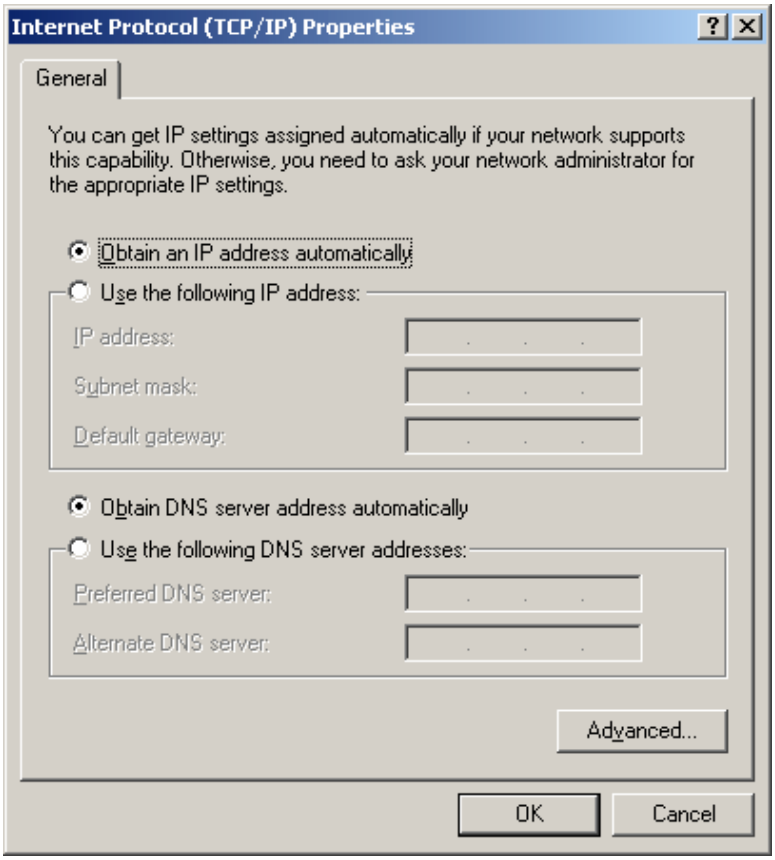


Checking TCP/IP Settings for Windows 2000

a) Select **"Start → Control Panel → Network and Dial-up Connection"** and right click **"Local Area Connection"** then click **"Properties"**,



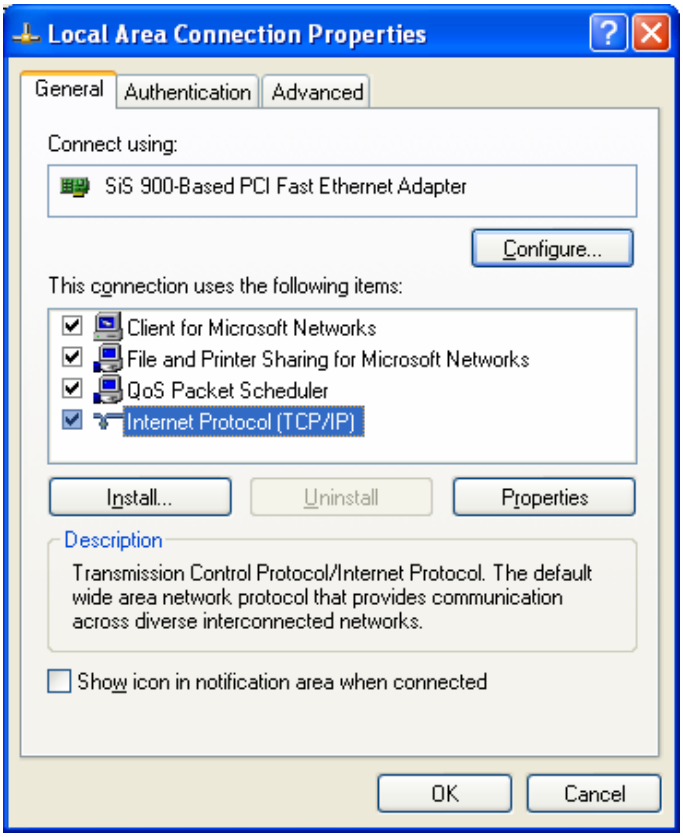
b) Select the **"Internet Protocol (TCP/IP)"** for the network card on your system, then click **"Properties"**, window below will appear.



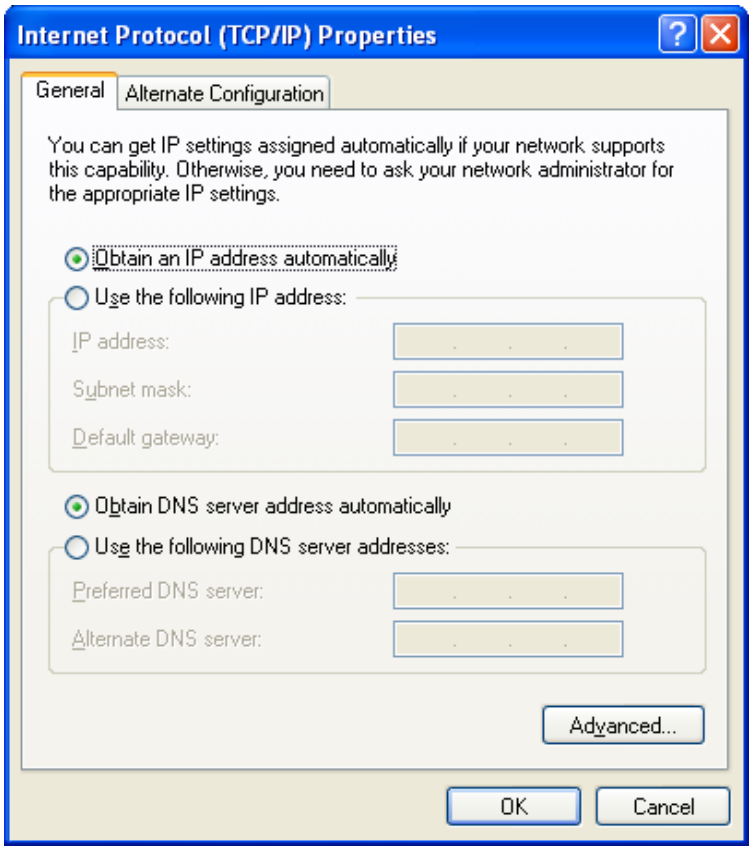
- If you decide to use IP address from Wireless Router, select **"Obtain an IP address automatically"**.
- If you decide to use the IP address you are desired, select **"Use the following IP address"**. Make sure enter correct addresses in **"IP Address"** and **"Subnet Mask"** fields.
- You must set Wireless Router's IP address as **"Default Gateway"**.
- If the DNS Server fields are empty, select **"Use the following DNS server addresses"** and enter the DNS address is provided by your ISP, then click **"OK"**.

Checking TCP/IP Settings for Windows XP

a) Click **"Start"**, select **"Control Panel → Network Connection"** and right click **"Local Area Connection"** then select **"Properties"**, window below will appear.



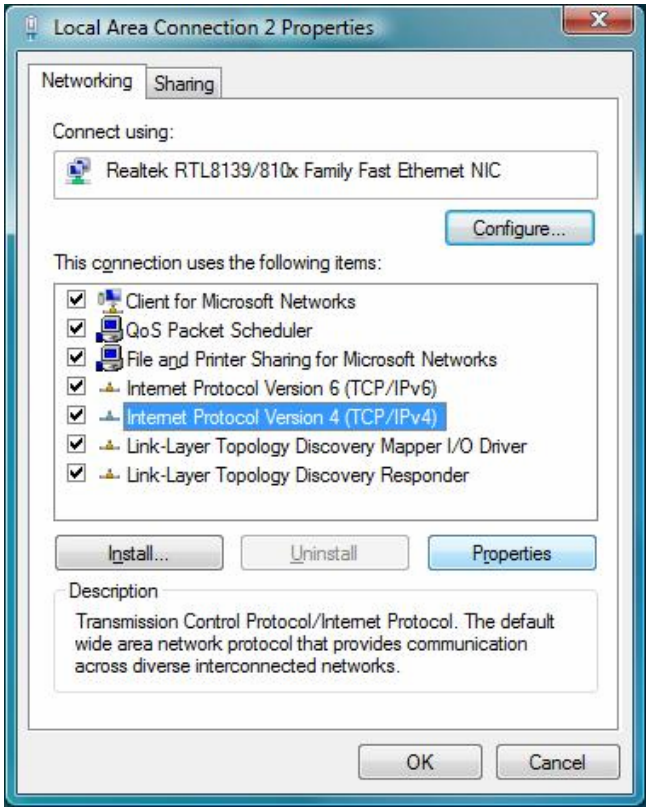
b) Select **"Internet Protocol (TCP/IP)"** then click **"Properties"**, window below will appear.



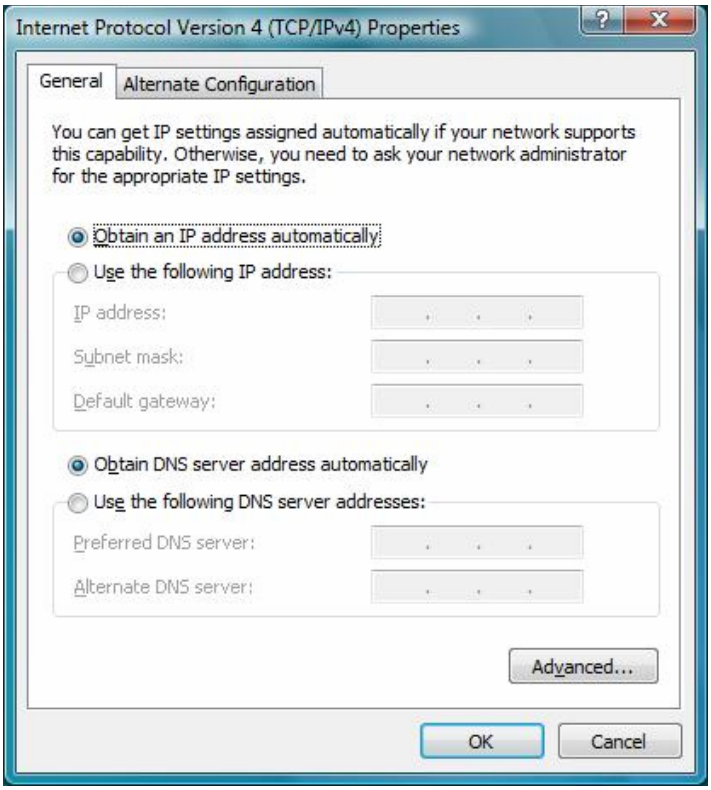
- If you decide to use IP address from Wireless Router, select **"Obtain an IP address automatically"**.
- If you decide to use the IP address you are desired, select **"Use the following IP address"**. Make sure enter correct addresses in **"IP Address"** and **"Subnet Mask"** fields.
- You must set Wireless Router's IP address as **"Default Gateway"**.
- If the DNS Server fields are empty, select **"Use the following DNS server addresses"** and enter the DNS address is provided by your ISP, then click **"OK"**.

Checking TCP/IP Settings for Windows Vista

a) Click **"Start"** → **"Control Panel** → **"Manage Network Connections"** and right click **"Local Area Connection"** then select **"Properties"**, window below will appear.



b) Select **"Internet Protocol (TCP/IP)"** then click **"Properties"**, window below will appear.



- If you decide to use IP address from Wireless Router, select **"Obtain an IP address automatically"**.
- If you decide to use the IP address you are desired, select **"Use the following IP address"**. Make sure enter correct addresses in **"IP Address"** and **"Subnet Mask"** fields.
- You must set Wireless Router's IP address as **"Default Gateway"**.
- If the DNS Server fields are empty, select **"Use the following DNS server addresses"** and enter the DNS address is provided by your ISP, then click **"OK"**.

3. Configure Wireless Router via Web Based Utility

The Wireless Router implements a Web server allowing user configure this device via the web based Utility. This Utility provides comprehensive system management scheme, including system configuration, performance monitoring, system maintenance and administration.

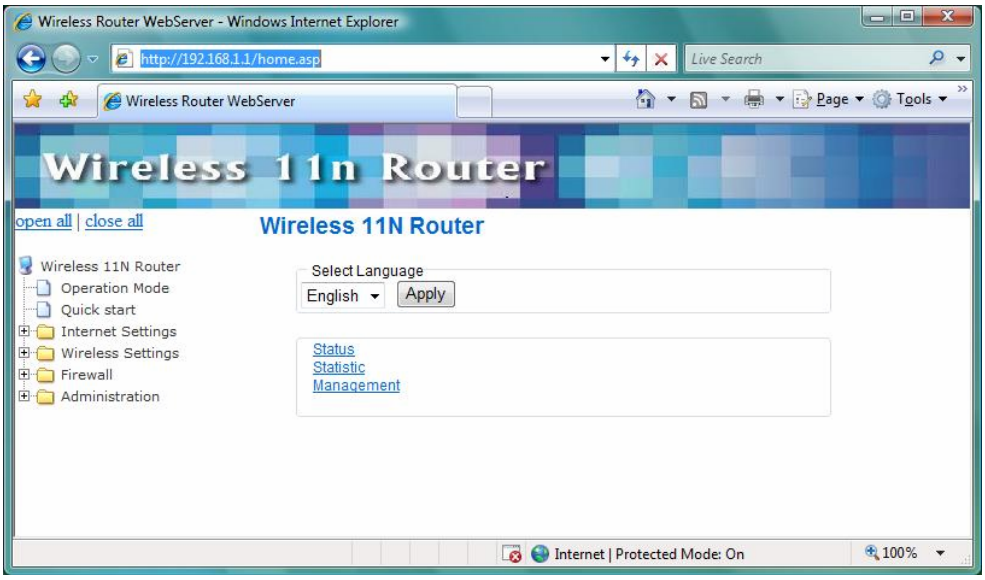
3.1 Access Web Based Configuration Utility

To access the Web-Based Configuration Utility, you have to launch your Internet Browser. (MS IE 5.0 or later, Netscape Navigator 4.7 or later).

Step1: Enter Wireless Router's default IP address as **http://192.168.1.1** in the Address field then press Enter.

Step2: Login dialog box will appear, enter **admin** as Administrator Name and **1234** as default Administrator Password, and then click **"Login"** to access Configuration Utility.

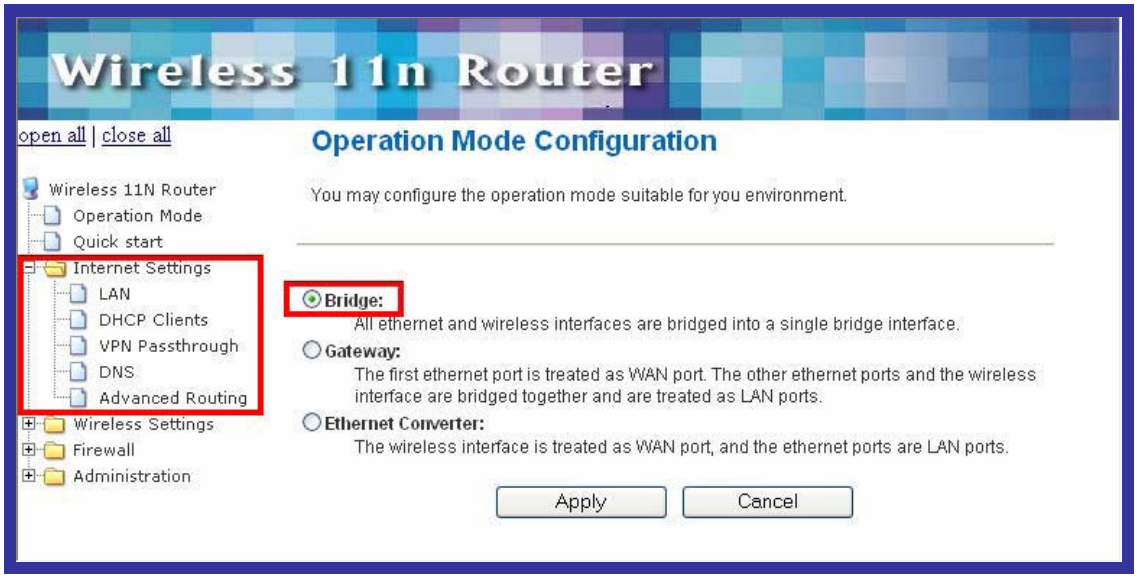
Step3: After log in, you can see the Main menu as below.



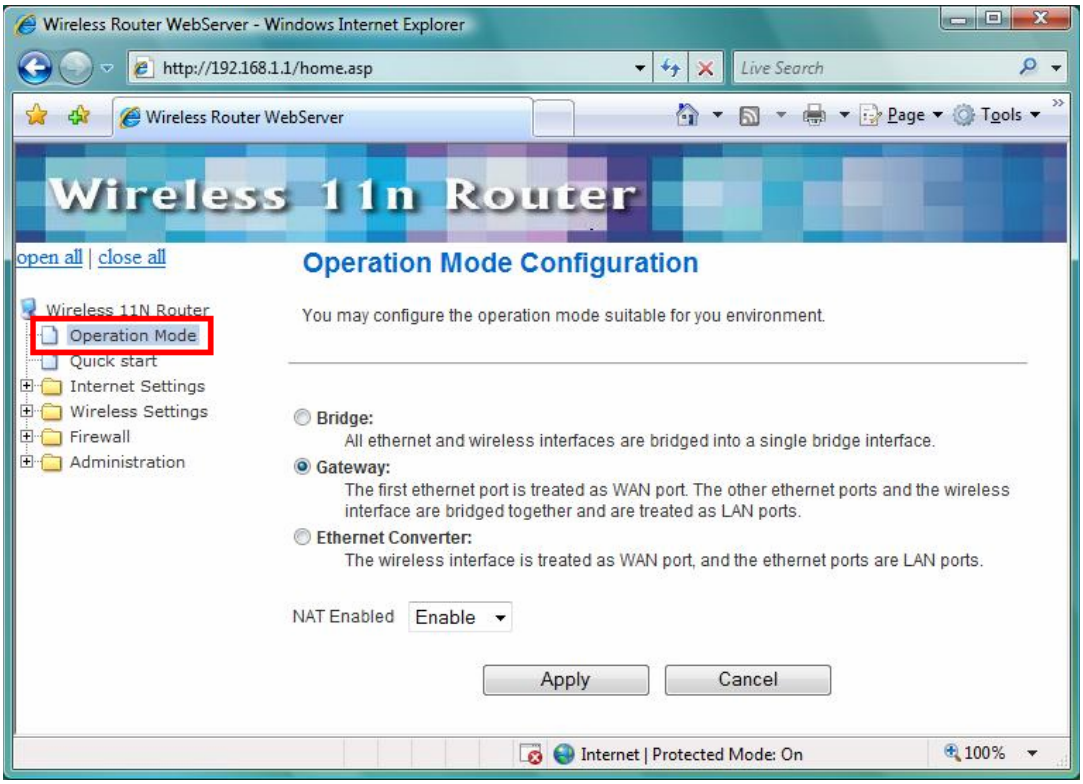
3.2 Operation Mode

In this option, you can configure the operation mode which suitable for your environment. The default setting is **Gateway**. There have three modes is provided:

-- Bridge: All Ethernet and wireless interfaces are bridged into a single bridge interface. When Bridge mode is applied, there have some functions change in Internet Settings section. As you can see in below, Internet Settings section only has "LAN", "DHCP Client", "VPN Passthrough", "DNS", and "Advanced Routing" for Bridge Mode's configuration.



-- Gateway: The first Ethernet port is treated as WAN port. The other Ethernet ports and the wireless interface are bridge together and are treated as LAN ports.



-- Ethernet Converter: The wireless interface is treated as WAN port and the Ethernet ports are LAN ports. After Ethernet Converter mode is applied, the WAN will change from Ethernet type to wireless type. There will be five LAN ports and one wireless WAN port. User must configure wireless encryption connection and set the necessary protocols.