Wireless ADSL 2 + ROUTER
WA41R

User's Manual

March 2010

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 communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
-Reorient or relocate the receiving antenna.
-Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-Consult the dealer or an experienced radio/TV technician for help.

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 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.

REMARK□
IEEE 802.11b or 802.11g operation of this product in the U.S.A. is firmware-limited to □ channels 1 through 11.□
REMARK□
IEEE 802.11b or 802.11g operation of this product in the Canada is firmware-limited to □ channels 1 through 11.

CE 0984 ⓘ

E=10.49221 V/m is the maximum E-Field strength when safety distance between the EUT and human body is maintained at least 20cm, which is below 61V/m as required in Annex III table 2 of EC Council Recommendation (1999/519/EC). This proves that the unit complies with the EN 62311 for RF exposure requirement.

Is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility (2004/108/EC), Low-voltage Directive (2006/95/EC), the procedures given in European Council Directive 99/5/EC and 2004/104/EC.

The equipment was passed. The test was performed according to the following European standards:

- EN 300 328 V.1.7.1
- EN 301 489-1 V.1.8.1 / EN 301 489-17 V.2.1.1

- EN 62311
- EN 60950-1

Regulatory statement (R&TTE)

- European standards dictate maximum radiated transmit power of 100mW EIRP and frequency range 2.400-2.4835GHz;
- In France, the equipment must be restricted to the 2.4465-2.4835GHz frequency range and must be restricted to indoor use.

Operation of this device is subjected to the following National regulations and may be prohibited to use if certain restriction should be applied.

D=0.020m is the minimum safety distance between the EUT and human body when the E-Field strength is 61V/m.

Contents

1. Introduction

1.1 Introduction to Wireless LAN ADSL2+ router

This full rate ADSL2+ router is an all-in-one Wireless ADSL2+ router for Home and SOHO applications. This gateway are with full-featured ADSL router that provides high-speed Internet access, 1-port Ethernet switch direct connections to individual PCs or local area network with 10/100 Base-T Ethernet and a 150Mbps IEEE802.11n wireless connectivity. WA41R uses advanced ADSL chipset solution with complete set of industry standard features for high-speed Internet access. Also built-in 150 Mbps IEEE802.11n wireless service can provide you easy and convenient way to connect the PCs and Internet. User can enjoy higher quality multimedia and real-time applications such as online gaming, Video-on-Demand, VoIP and other bandwidth consuming services. Also the feature-rich routing functions are seamlessly integrated to ADSL service for existing corporate or home users. This product is made in ISO9001 approved factory and complies with FCC part15 regulations and CE approval.

1.2 Product Features

◆ High Speed Internet Access

This ADSL router complies with ADSL / ADSL2 / ADSL2+ standards. It can support downstream rates of up to 24Mbps and upstream rates of up to 1Mbps. This ADSL router is compliant with the following standards.

- ANSI T1.413 issue 2
- ITU-T G.992.1 (G.dmt)
- ITU-T G.992.2 (G.lite)
- G.994.1 (G.hs, Multimode)
- ITU-T G.992.3 (ADSL2 G.dmt.bis)

- ITU-T G.992.4 (ADSL2 G.lite.bis)
- ITU-T G.992.5 (ADSL2+; Annex A, B, L & M)
- Reach Extended ADSL (RE ADSL)

◆ Multi-connection protocol support

- Support up to 8 PVCs
- ATM forum uni 3.1/4.0 PVC
- Multi Protocol over AAL5 (RFC1483 / 2684)
- VC and LLC Multiplexing
- PPP over Ethernet (RFC 2516)
- PPP over ATM (RFC 2364)
- Traffic shaping (ATM QoS) UBR, CBR, VBR, VBR-rt, VBR-nrt
- OAM F4 and F5 segment end-to-end loop-back, AIS, and RDI OAM cells
- VPI is 0-255 and VIC is 32-65535

◆ Bridging / Routing support

- Ethernet to ADSL self-learning Transparent Bridging (IEEE 802.1d)
- IP routing-RIPv2 (backward compatible with RIPv1)
- Static IP routing
- Routing (TCP/IP/UDP/ARP/ICMP)
- IP Multicast IGMP v1/v2

◆ IP Management

- NAT (Network Address Translation)
- NAPT (Network Address and Port Translation)
- DHCP Server / Relay / Client (WAN port)
- VPN (IPSec, PPTP, L2TP) Pass-Through
- DNS Proxy
- Dynamic DNS
- UPnP support
- Virtual Server (Port forwarding & DMZ host)

◆ WLAN Network

- Compatible with IEEE 802.11n/b/g
- 64/128 bits WEP Encryption
- WPA-PSK, TKIP / WPA2-AES, PSK

- Supports Quality of Service (QoS), 802.11e, WMM
- MAC Address Filtering

◆ Security

- PPP over PAP (Password Authentication Protocol; RFC1334)
- PPP over CHAP (Challenge Authentication Protocol; RFC1994)
- DOS Protection
- Stateful Packet Inspection (SPI)
- Built-in NAT Firewall
- IP-based Packet filtering
- Password Protected System Management

◆ Web-Based Management

- Web-Based GUI configuration / Management
- CLI (Command Line Interface) via serial interface or Telnet over Ethernet
- Telnet Remote Management
- Firmware upgrade via FTP / TFTP
- SNMP Support
- HTTPS Support
- Built-in Diagnostic Tool
- TR-069 support

◆ Network Address Translation (NAT)

Network Address Translation (NAT) allows the translation of an Internet protocol address used within one network (for example a private IP address used in a local network) to a different IP address known within another network (for example a public IP address used on the Internet).

◆ Universal Plug and Play (UPnP)

Universal Plug and Play is a standard that uses Internet and Web protocols to enable devices such as PCs, peripherals, intelligent appliances, and wireless devices to be plugged into a network and automatically know about each other. This protocol is used to enable simple and robust connectivity among stand-alone devices and PCs.

◆ Dynamic DNS Support

With Dynamic DNS support, you can have a static hostname alias for a dynamic IP address, allowing the host to be more easily accessible from various locations on the Internet. You must

register for this service with a Dynamic DNS client.

◆ DHCP Support

DHCP (Dynamic Host Configuration Protocol) allows individual clients to obtain TCP/IP configuration at start-up from a centralized DHCP server. The ADSL router has built-in DHCP server capability enabled by default. It can assign IP addresses, an IP default gateway and DNS servers to DHCP clients. It can also act as a surrogate DHCP server (DHCP Relay) where it relays IP address assignment from the actual real DHCP server to the clients.

◆ SNMP (Simple Network Management Protocol) Support

It's an easy way to remote control the router via SNMP.

◆ Multiple PVC (Permanent Virtual Circuits) Support

- Supports OAM F4/F5 loop-back, AIS and RDI OAM cells.
- ATM Forum UNI 3.1/4.0 PVC
- Support up to 8PVCs.

2. Hardware Installation

2.1 System Requirements

- Pentium III 266 MHz processor or higher
- 128 MB RAM minimum
- 20 MB of free disk space minimum
- RJ-45 Ethernet Port
- CD-ROM drive

2.2 Package Contents

- ADSL Ethernet Router
- RJ-45 Ethernet cable
- RJ-11 Phone cable
- Power Adapter
- Software driver CD

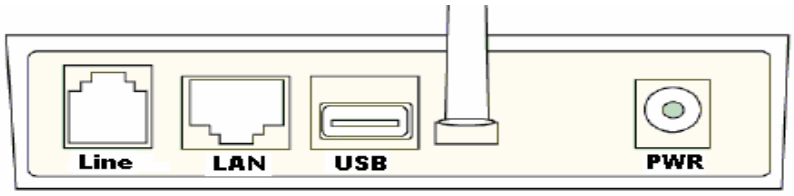
2.3 Front Panel Indicators and Description

Front panel of ADSL router has LED indicators to display router's operating status.

Descriptions of LED status

ON/OFF	**ON/OFF Button**	Click **On/Off** button to enable Wireless ADSL Router.
	WPS	**Blinking:** The WPS function is establishing.
	WLAN	**Slow Blinking:** WLAN is successfully connected. **Blinking:** The data is being sent or received.
	LAN	**Light up:** LAN connection with end user is established. **Blinking:** Router is transferring data between the router and end user.
	Internet	**Blinking:** Router is transferring data between Internet and router
ADSL	**ADSL (WAN)**	**Light up:** WAN Port is successfully connected. **Blinking:** NO ADSL physical is connected.
USB	**USB**	When an active USB cable is connected with router, this LED will light up.
	Power	**ON:** Wireless Router is powered on. **OFF:** Wireless Router is powered off.
WPS	**WPS Button**	Click **WPS** button about 3-5 seconds while you are connecting a PC of wireless adapter with WPS function.

2.4 Back Panel



Descriptions of All Connectors

Line	Ethernet RJ-11 phone cable
LAN	Ethernet RJ-45 Connector, connect to PC with a RJ-45 Ethernet cable.

USB	Connect with USB cable to PC.
PWR	Connect with power adapter

2.5 Connect Related Devices

1) Connect Router to **LINE**

   Plug the provided **RJ-11 phone cable** into **LINE port** on the back panel of the router and insert the other end into splitter or wall phone jack.

2) Connect Router to **LAN**

   Plug **RJ-45 Ethernet Cable** into **LAN port** on the back panel of the router and insert the other end of the Ethernet cable on your PC's Ethernet port or switch / hub.

3) Connect Router to Power Adapter

   Plug **Power Adapter** to **PWR** port on the back panel of the router and the other end to a power outlet.

4) Press **ON/OFF** button to start the router

Warning! Only use the power adapter provided in the package, otherwise it may cause hardware damage.

3. Connecting Wireless LAN ADSL2+ Router via Ethernet

You can connect Wireless LAN ADSL2+ router with PC through either Ethernet cable. You can change the settings via WEB browser.

3.1 Setup ADSL2+ router via Ethernet Cable

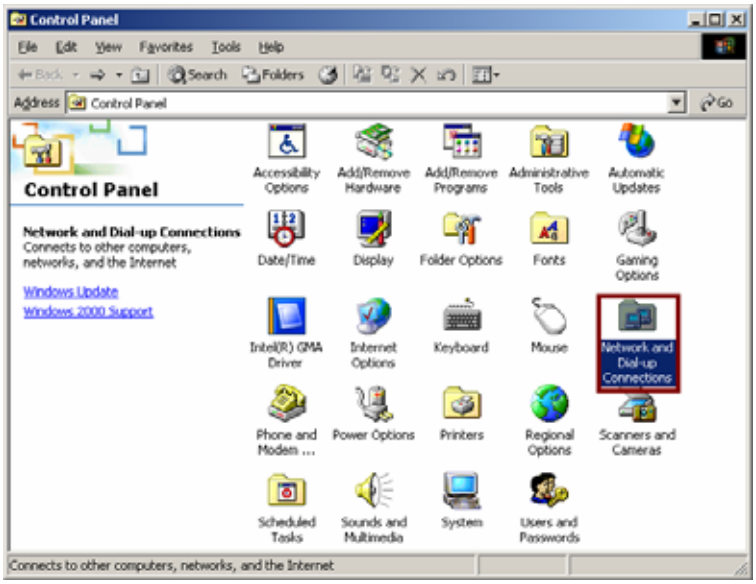
If there is an available LAN card present on your PC, you just simply connect ADSL router and PC through the Ethernet cable. Once you establish Internet connection, you could browse the Web through the Ethernet cable.

3.2 Configure TCP/IP

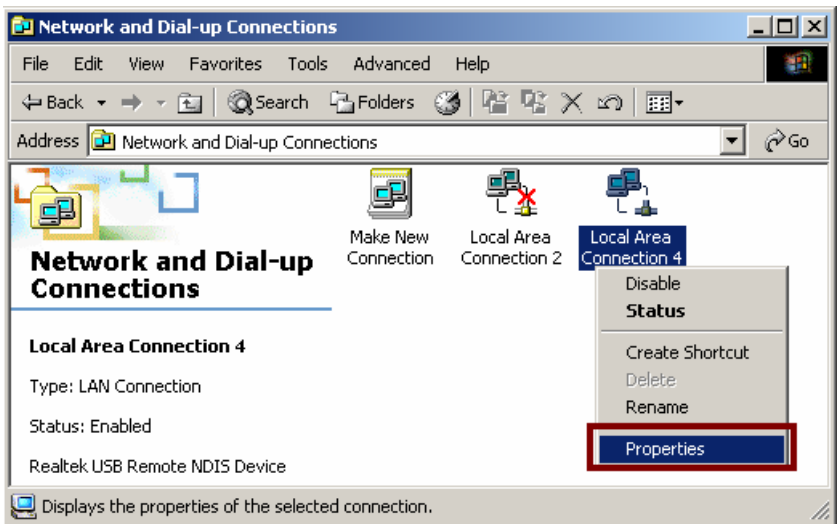
For Windows 2000

Step 1: (a) Right-click **My Network Places** and select **Properties** in the main window screen

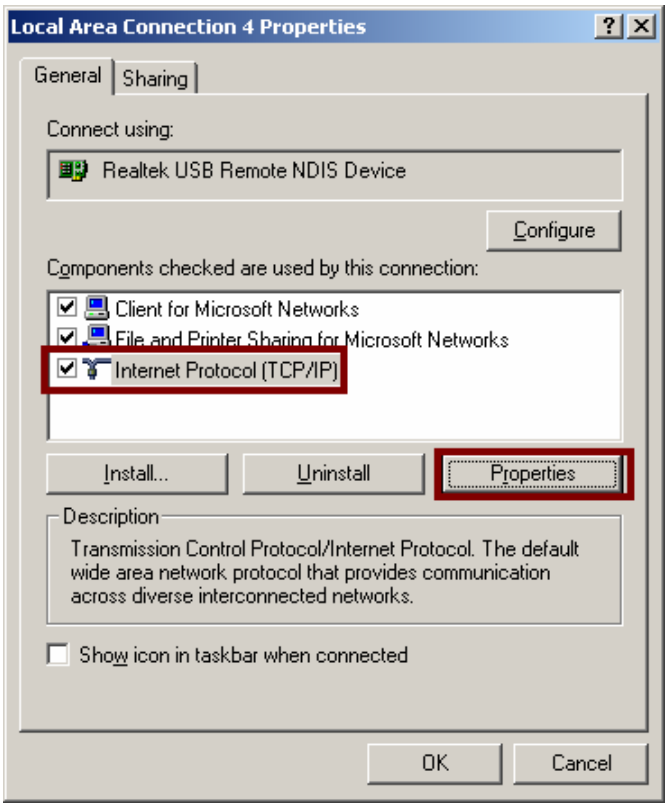
(b) Or, go to **Start / Settings / Control Panel.** In the **Control Panel**, double-click on **Network and Dial-up Connections**.



Step 2: Right click **Local Area Connection** (your local network hooked up with ADSL router) and select **Properties**:

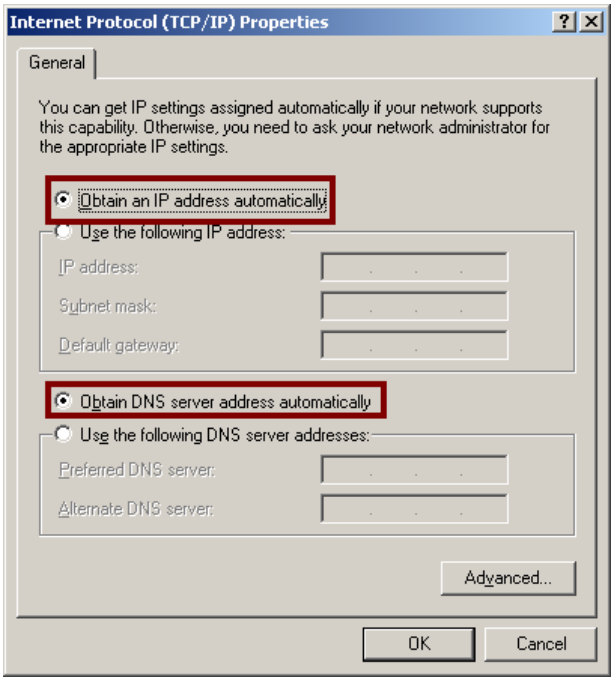


Step 3: Select **Internet Protocol (TCP/IP)** then click **Properties**:



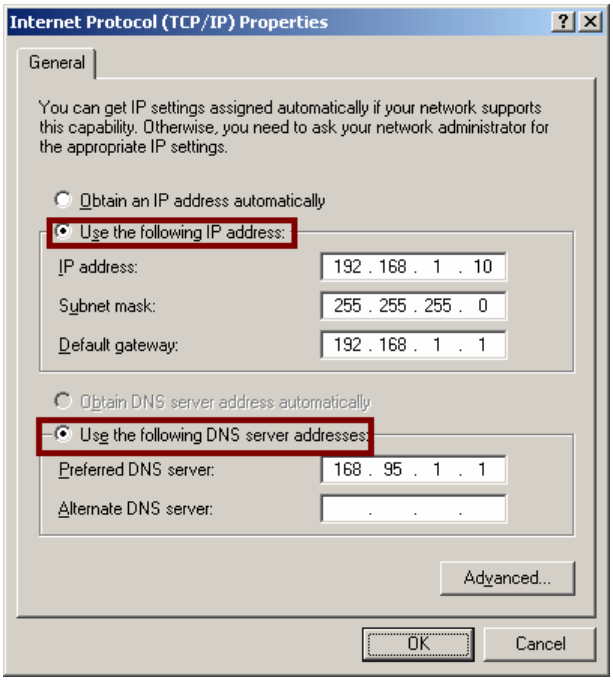
Configure IP Automatically:

Step 4: Select **Obtain an IP address automatically** and **Obtain DNS server address automatically** then click **OK** to complete IP configuring process.



Configure IP Manually:

Step 4: Select **Use the following IP address** and **Use the following DNS server addresses**.



IP address: Fill in IP address 192.168.1.x (x is a number between 2 to 254).

Subnet mask: Default value is 255.255.255.0.

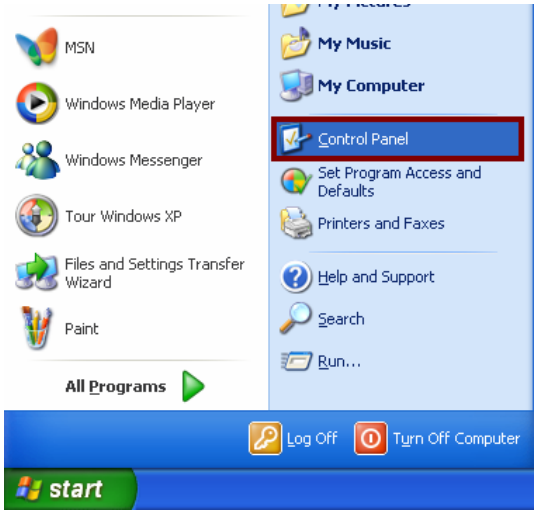
Default gateway: Default value is 192.168.1.1.

Preferred DNS server: Fill in preferred DNS server IP address.

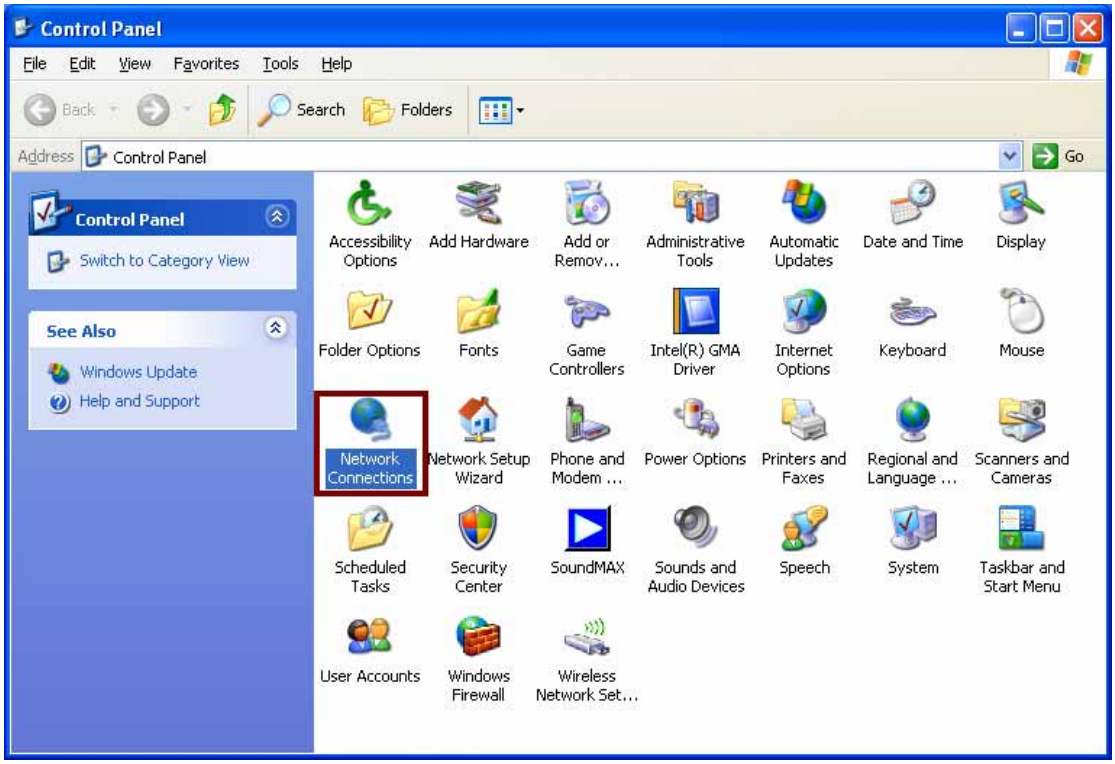
Alternate DNS server: Fill in alternate DNS server IP address.

For Windows XP

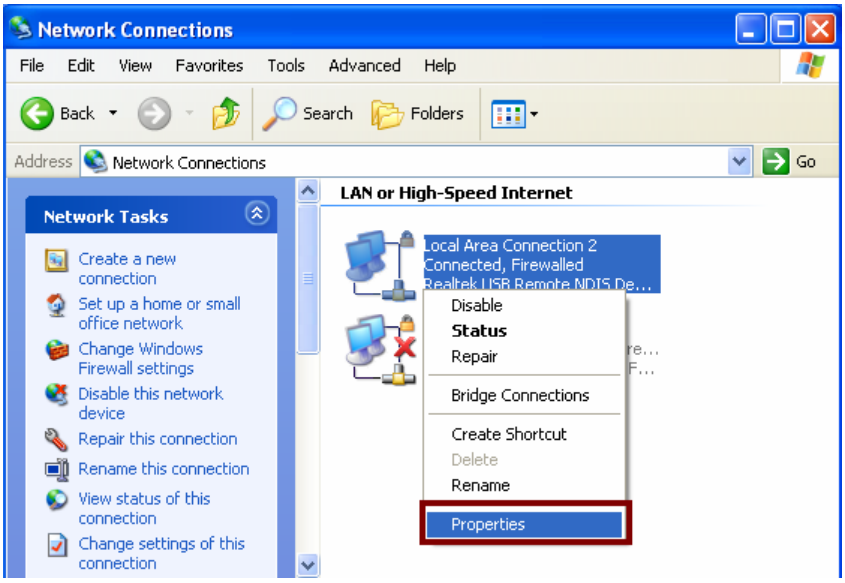
Step 1: Click **Start** then select **Control Panel (in the Classic View)**.



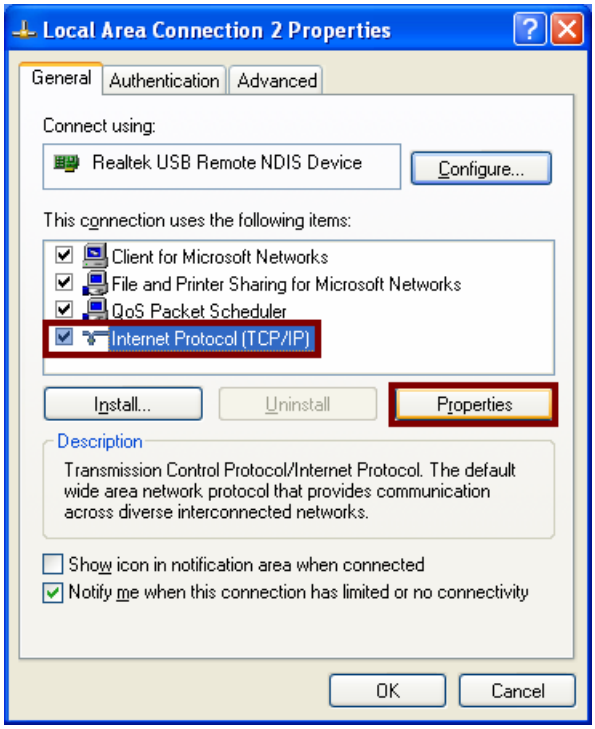
Step 2: Double-click **Network Connections** icon.



Step 3: Right-click **Local Area Connection** (local network your ADSL hooked up with) and select **Properties**:

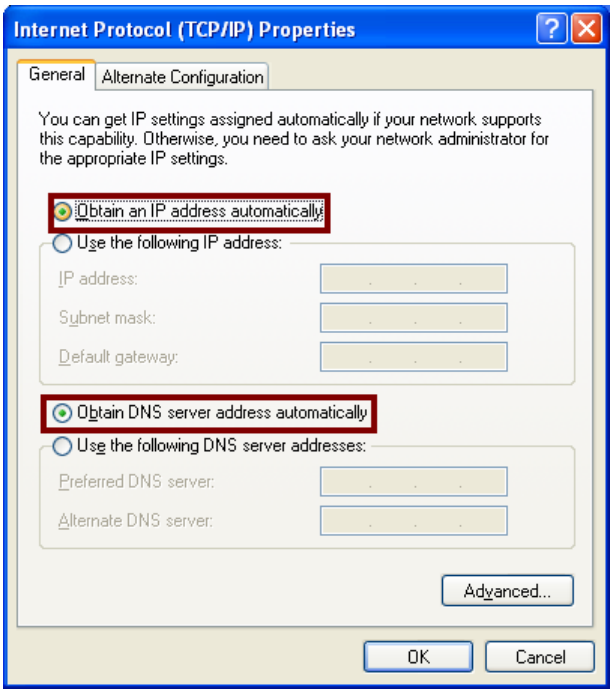


Step 4: Select **Internet Protocol (TCP/IP)** then click **Properties**:



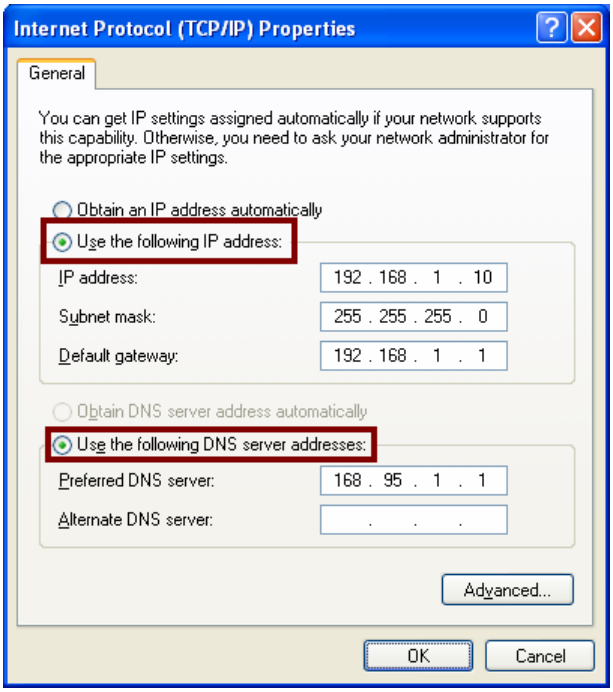
Configure IP address Automatically:

Step 5: Select **Obtain an IP address automatically** and **Obtain DNS server address automatically**. Click **OK** to finish the configuration.



Configure IP Address Manually:

Step 5: Select **Use the following IP address** and **Use the following DNS server addresses**.



IP address: Fill in IP address 192.168.1.x (x is a number between 2 to 254).

Subnet mask: Default value is 255.255.255.0.

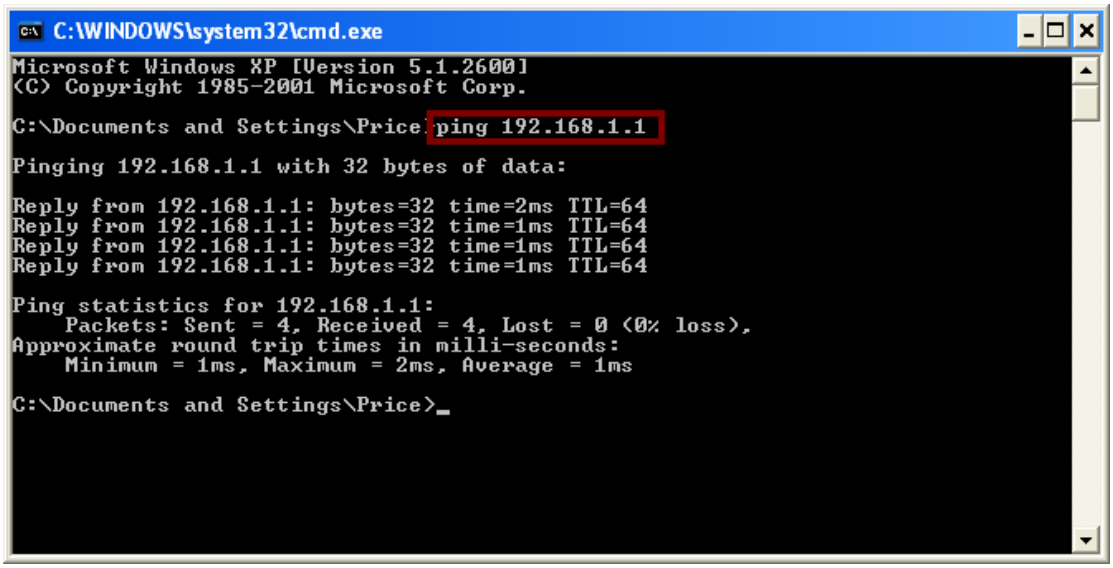
Default gateway: Default value is 192.168.1.1.

Preferred DNS server: Fill in preferred DNS server IP address.

Alternate DNS server: Fill in alternate DNS server IP address.

You can use ping command under DOS prompt to check if you have setup TCP/IP protocol correctly and if your computer has successfully connected to this router.

1) Type **ping 192.168.1.1** under DOS prompt and the following messages will appear:



If the communication link between your computer and router is not setup correctly, after you type **ping 192.168.1.1** under DOS prompt following messages will appear:

Pinging 192.168.1.1 with 32 bytes of data:

Request timed out.

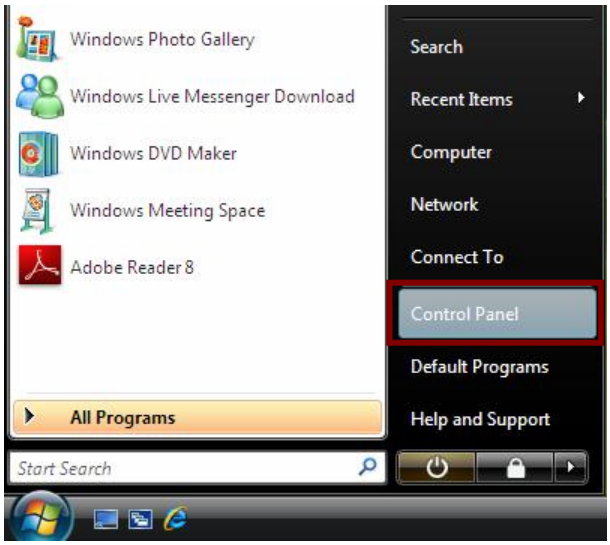
Request timed out.

Request timed out.

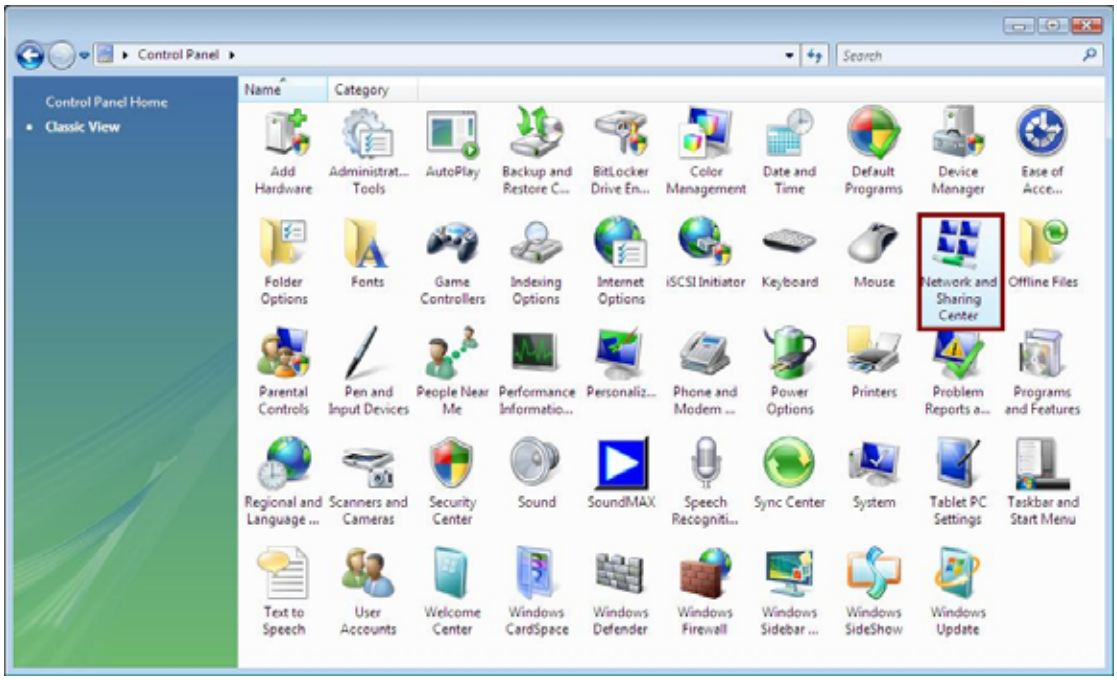
This failure might be caused by cable issue or something wrong in configuration procedure.

For Windows Vista

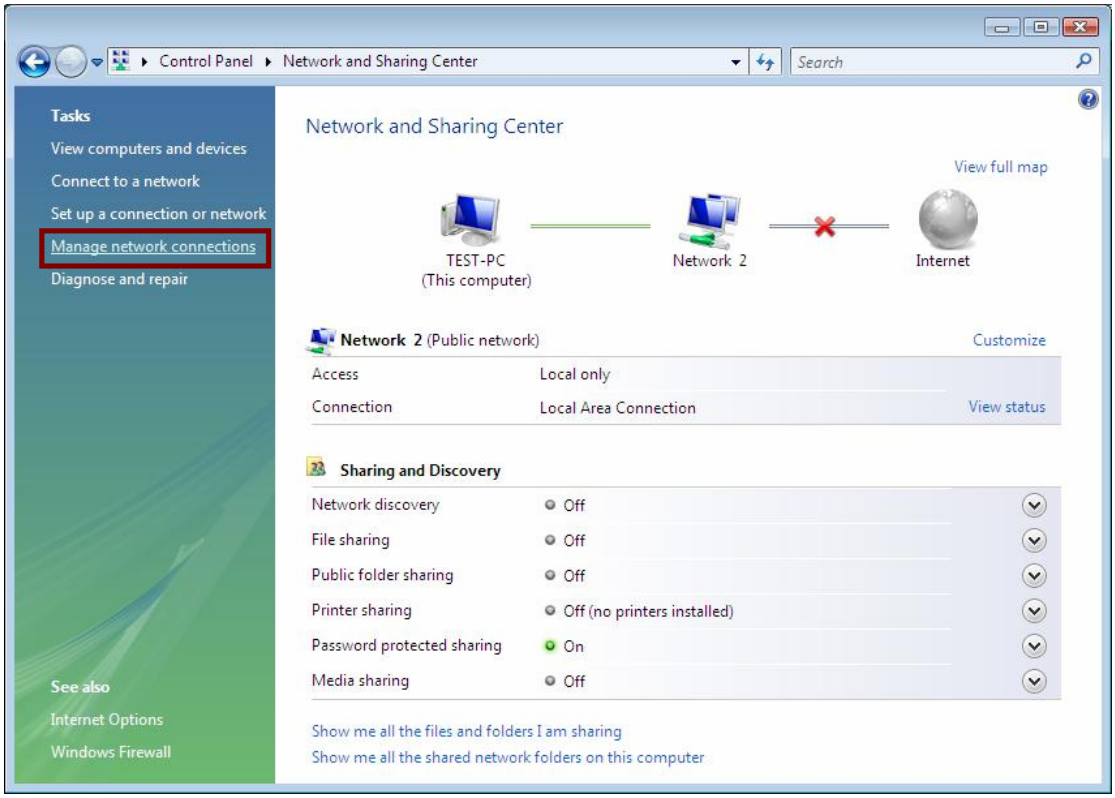
Step 1: Click **Start** then select **Control Panel (in the Classic View)**.



Step 2: Double-click **Network and Sharing Center** icon.



Step 3: Select "**Manage Network connections**".



Step 4: Right-click **Local Area Connection** (local network your ADSL hooked up with) and select **Properties**: