ADSL Router

Installation Guide

GS-R250S

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GREATSPEED

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Safety Information for Home Electronic Devices

FCC Statement

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 measure:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into a different outlet circuit than the receiver.
- Consult an experienced radio/TV technician for help.
- Shielded cables must be used to comply with FCC regulations.

Compliance Certification

- FCC Part 15 Class B
- UL approved

Environmental Requirements

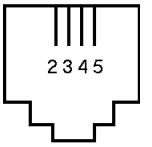
- Operating Temperature: 0º C to 55º C with airflow
- Non-operating Temperature: -10º C to 85º C
- Operating Humidity: 10% to 90% non-condensing
- Non-operating storage humidity: 5% to 95% non-condensing

Power Requirements

- Input: Input: 100-240VAC, 60Hz, 0.5A
  Output: +5V 1.0A

Connector Pin-out

The GS-R250S ADSL Router is equipped with a RJ-11 jack for connection to the ADSL data port. The center two pins, pins 3 and 4, are used for ADSL data. For the router to make a proper ADSL connection, the installed ADSL data port should also use pins 3 and 4 for data. If the ADSL data port installation uses pins 2 and 5 for data, then a wiring converter will be required. Do not alter or remove the wiring converter if present. Consult with your ADSL provider before attempting any wiring changes.



About This Manual

This manual provides a comprehensive user's guide and installation manual for GreatSpeed's GS-R250S ADSL Router. It has been organized in such a way to make it easy to follow by users worldwide. In the manual, there are many examples given in the commands, largely IP addresses and other values. Please realize that these are for example only and you must use the values provided by your ADSL service provider to achieve a connection. In order to ensure optimal comprehension, the following list provides brief descriptions of the formatting styles used throughout this manual.

Commands: Commands are always referred to by using the words "type" or "click" before them. These commands are always shown as bold-faced words. For example, click **Next**, click **OK,** or type: **command**.

Names of Windows (Dialog Boxes): The names of the windows (also referred to as dialog boxes) that appear on the PC screen are always referred to in quotes. For example, the "Setup Complete" window.

Names of Options in Windows: The names of options to choose from inside the windows that appear on the PC screen are always referred to in italics. For example, choose the *Yes*, *I want to restart my computer now option from the window.*

NOTES: In some cases, preparatory or cautionary information is needed before proceeding onto the next step in an installation process. This kind of information is provided in the form of notes, which are always referred to in bold-faced and italicized letters. For example, **NOTE:** ***To access the Control Panel Application, the driver must be running.***

Congratulations!

Your new GreatSpeed GS-R250S ADSL Router is a multi-functional broadband access device. It conveniently interfaces with your computer system for configuration. The router connects directly to your telephone line via a standard connector.

This guide is designed to walk you through installation of your GreatSpeed GS-R250S ADSL Router in the easiest and quickest way possible. Please follow the instructions carefully and in no time you'll be able to experience the Internet @ GreatSpeed.

System Requirements

- Intel PII/AMD K6 or above CPU
- Windows 95/98/ME/2000/NT4.0
- Mac OS 8.0 or above
- Red Hat Linux 6.2 or above
- Ethernet 10BaseT LAN card
- Netscape 4.0/IE 4.0 or above
- 32Mbytes system memory or more
- 20Mbytes available hard disk space or more

Product Features

- Ethernet interface
- Four (4) LED indicators
- Supports: ANSI T1.413 issue 2, G.992.1 (Full-Rate DMT), G.992.2 (G.Lite), G.994.1 (Multimode), G.994.1 (G.sh)
- Supported Protocols: Bridged RFC1483, Routed RFC1483, RFC1577, RFC2364, RFC2516
- ATM supports AAL5. AATM Traffic shaping supports CBR and UBR
- Transparent Bridging features conformance to IEEE 802.1d and supports spanning tree protocol and bridge filters
- NAT functionality

Package Contents

- One (1) GreatSpeed GS-R250S ADSL Router
- One (1) power adapter
- One (1) RJ-11 ADSL cable
- One (1) RJ-45 Ethernet cable (straight connect)
- One (1) RJ-45 Ethernet cross connector
- One (1) RS-232 serial cable
- One (1) Installation Guide
- One (1) Getting Started Guide
- One (1) Unit base stand

All packages have been carefully checked for completeness and functionality before shipping. Please contact your place of purchase should any of the above items be missing or damaged.

Front Panel

ADSL LED - Flashing= establishing link; Solid= link established

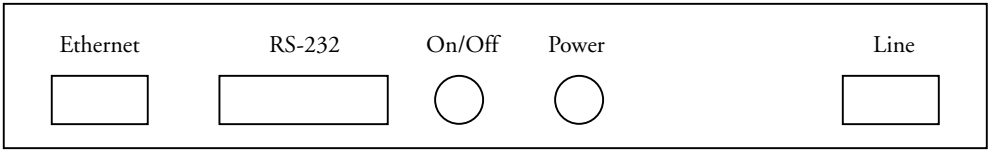
Ethernet LED - On= Ethernet link is connected

Data LED - Flashing= data is being transferred

Power LED - On= power to the unit

Reset Button- Warm reboot of the router

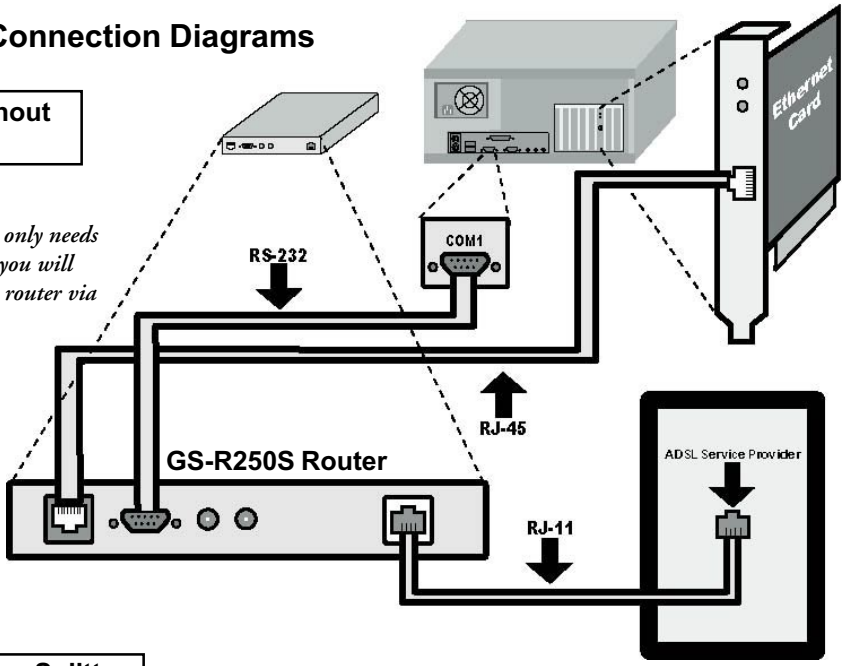
Rear Panel



Hardware Connection Diagrams

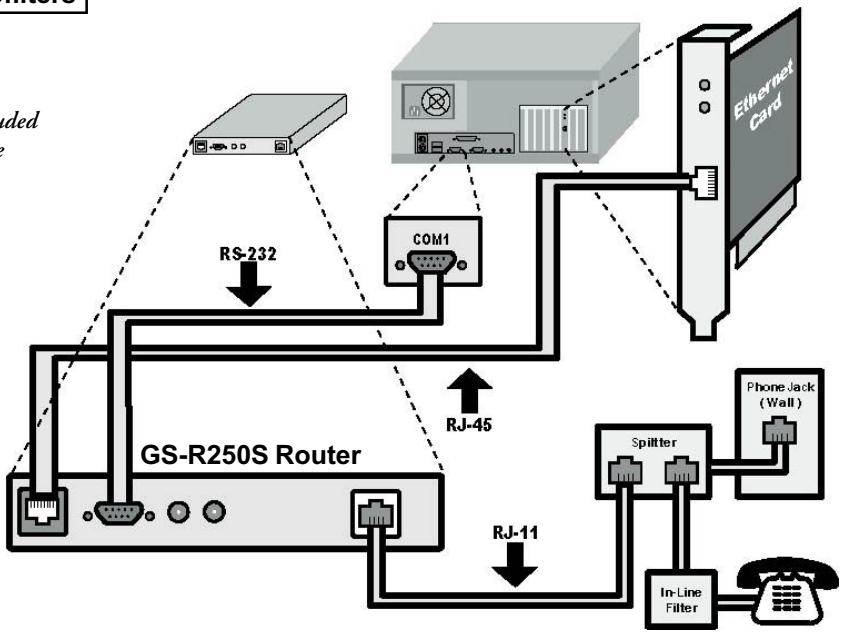
A Setup Without a Splitter

NOTE:
The RS-232 cable only needs to be connected if you will be configuring the router via command line.



A Setup With a Splitter and In-Line Microfilters

NOTE:
The splitter and in-line microfilters are not included in this package. They are supplied by your ADSL Service Provider.



Installing and Configuring your ADSL Router

The major functions of the ADSL Router are performed by using the Ethernet network interface. Your computer must have an Ethernet Network Interface Card (NIC) installed and set up with the TCP/IP protocol before beginning to use the router. The router also provides a serial console port for monitoring and configuring the router via the built-in command line interface. This will be covered largely in the rest of this manual.

Preparation

Before beginning the hardware installation, please gather the following materials for the setup you will be using.

You will need to know the Internet Protocol supported by your ADSL provider to successfully connect to the Internet. For future troubleshooting or reinstallation, it is important that you retain these details. **Please turn to page 44 of this manual to record your connection information in the space we have provided for you.**

Setup 1 - Connecting directly to one computer

• ADSL service, provided by your ISP/NSP. Also have your connection information ready.
• Computer running a supported operating system, with a Ethernet NIC installed.
• TCP/IP protocol installed for your NIC (See the TCP/IP Configuration section).
• RJ-45 Ethernet cable *
• RJ-45 Ethernet cross connector *
• RJ-11 ADSL cable *
• RS-232 serial cable * (Only used if configuring via command line)
• Power adapter *
*Included in package

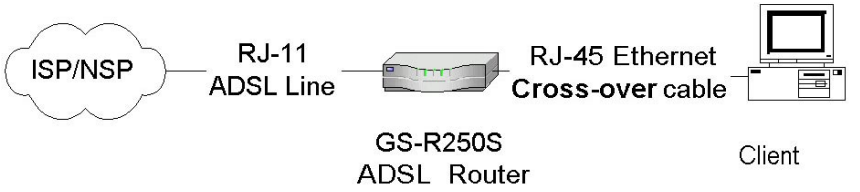
Proceed to Page 10

Setup 2 - Connecting to multiple computers - You will need all the above listed items plus the following:

• Additional computer(s) running a supported operating system with an Ethernet NIC installed
• Additional RJ-45 Ethernet cable (one for each additional computer).
• One Ethernet hub supporting the number of computers you will be connecting
• RJ-45 Ethernet cross connector *. Only required if your hub's uplink port does not have a cascade switch.
*Included in package

Proceed to Page 12

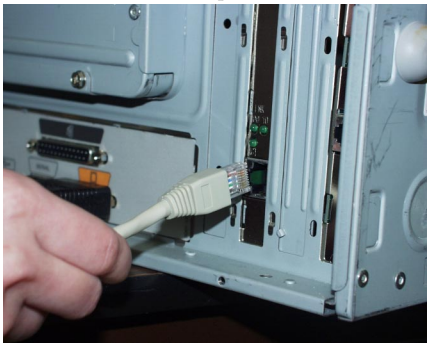
Hardware Installation - Single Computer Connection



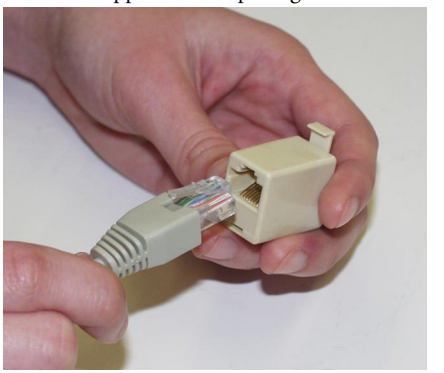
1. Be sure the power switch, marked **ON/OFF**, on the rear of the unit is depressed, in the OFF position.

2. Connect the power adapter to the power receptacle on the rear of the unit marked **PWR**, then plug the AC end into the wall electrical outlet.

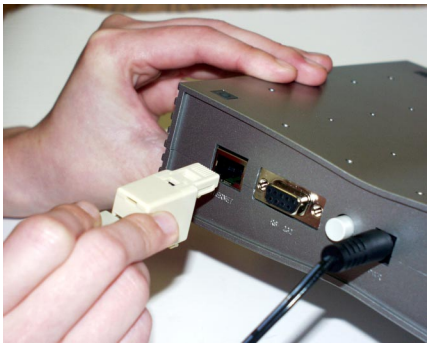
3. You will now connect the RJ-45 Ethernet cable. Connect one end of the RJ-45 Ethernet straight connect cable to the Ethernet jack on the NIC in the back of your computer.



4. Then connect the other end to the RJ-45 cross connector supplied in the package.



5. Then connect the cable, with the RJ-45 cross connector attached, to the connector marked **Ethernet** on the back of the router.

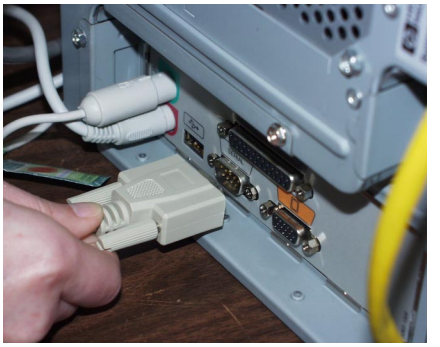


6 Connect one end of the RJ-11 ADSL cable to the ADSL line jack, marked **Line**, on the rear of the router. Then connect the other end to the ADSL line outlet that your ADSL service provider has installed.

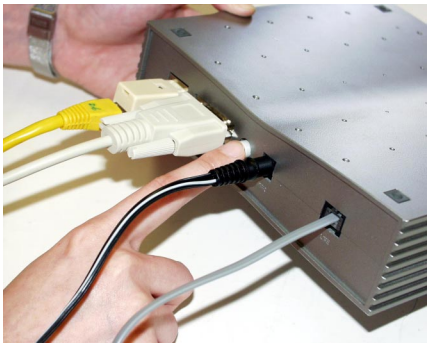
NOTE: ***Step 7 and Step 8 are optional. Proceed with these steps only if you will be configuring ther router using command line. Otherwise, skip to Step 9.***

7 Connect the male (9-pin) end of the RS-232 serial cable to the connector marked **RS-232** on the rear of the router.

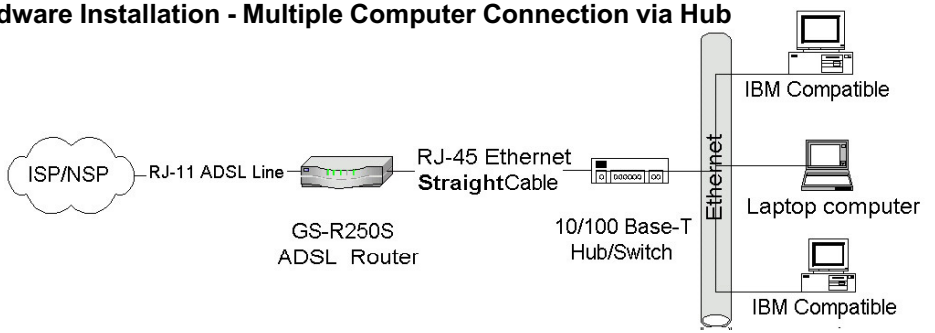
8 Then plug the other end of the RS-232 cable into the serial port of your computer.



9 Turn the power on by pressing the power switch, marked **ON/OFF** on the rear of the unit. The router will perform a self-test and then will be ready for use.



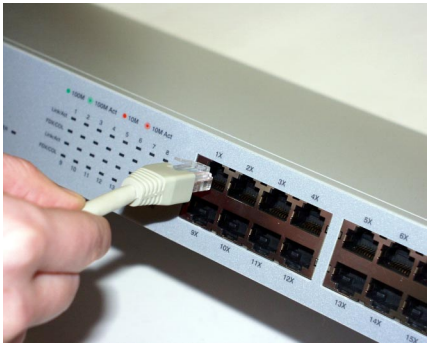
Hardware Installation - Multiple Computer Connection via Hub



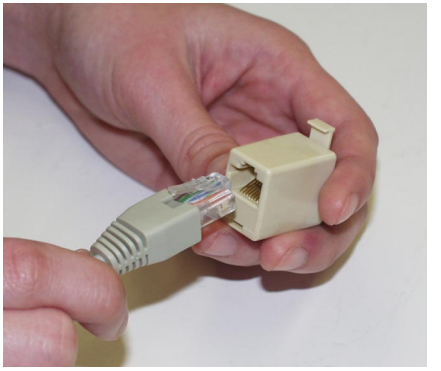
1. Be sure the power switch, marked **ON/OFF**, on the rear of the unit is depressed, in the OFF position.

2. Connect the power adapter to the power receptacle on the rear of the unit marked **PWR**, then plug the AC end into the wall electrical outlet.

3. Connect one end of the RJ-45 Ethernet cable to any available port on the Ethernet hub.



4. If you do not use the Uplink port on the hub, skip this step. If you connect the RJ-45 Ethernet cable to the Uplink port on your hub and the hub does not have cascade switch, you must connect the RJ-45 Ethernet cable to the supplied cross connector and then into the Uplink port.



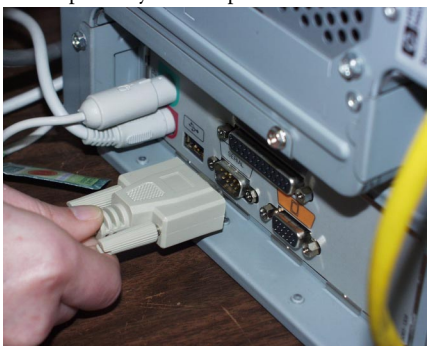
5. Connect the other end of the RJ-45 Ethernet cable to the connector marked **Ethernet** on the back of the router.

6. Connect one end of the RJ-11 ADSL cable to the ADSL line jack, marked **Line**, on the rear of the router. Then connect the other end to the ADSL line outlet that your ADSL service provider has installed.

NOTE: ***Step 7 and Step 8 are optional. Proceed with these steps only if you will be configuring ther router using command line. Otherwise, skip to Step 9.***

7. Connect the male (9-pin) end of the RS-232 serial cable to the connector marked RS-232 on the rear of the router.

8. Then plug the other end of the RS-232 cable into the serial port of your computer.



9. Turn the power on by pressing the power switch, marked **ON/OFF** on the rear of the unit. The router will perform a self-test and then will be ready for use.

Configuration

NOTE: ***The factory default settings for the GS-R250S ADSL Router are as follows:***

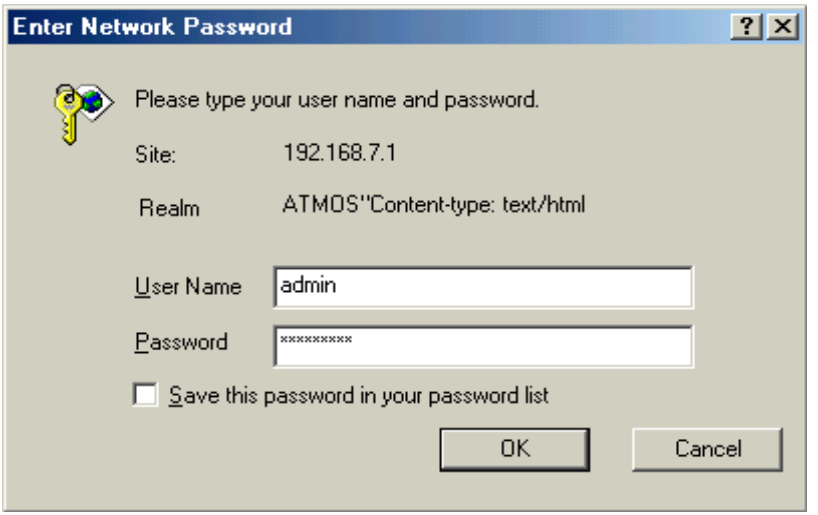
WAN Port:	RFC1483 Bridged Mode LLC Encapsulation VPI: 0 VCI: 35	**LAN Port:** **Telnet/SNMP:**	IP Address: 192.168.7.1 Subnet Mask: 255.255.255.0 Password: adsl

DHCP Server: IP Range: 192.168.7.10 - 192.168.7.20
Subnet: 192.168.7.0
Netmask: 255.255.255.0
DNS: 206.13.28.11
206.13.29.11
Lease Time: 1 day

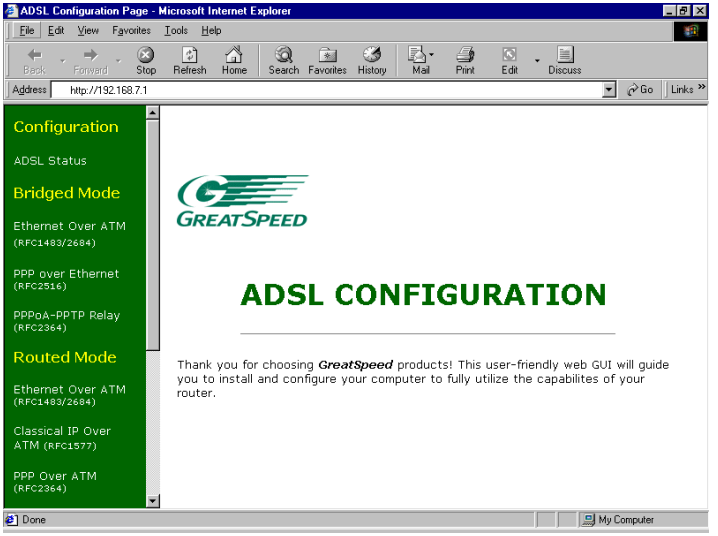
If your required configuration matches the above settings, the router will work for you as preconfigured. In order to establish a connection, you must change the IP address of your computer to be within the same subnet as the router, e.g. 192.168.7.2. For detailed instructions on modifying TCP/IP settings, see page 25.

1. In your Internet Browser window, type the default IP address of the GS-R250S ADSL Router, **192.168.7.1** into the URL bar and click **GO** or hit the **Enter** key. You will then be prompted to enter a **User Name** and **Password**. The default User Name and Password are:
   User Name: admin
   Password: broadband

   To change the User Name and Password, please refer to page 23.



❷ In the Internet Browser window, the "ADSL Configuration Page" message appears.

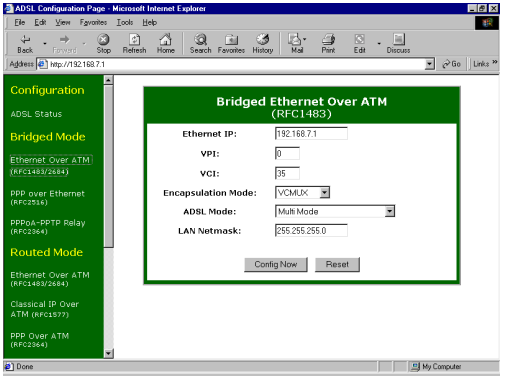


❸ Using the links in the left frame, click on the proper connection mode you will be using and proceed to configure the GS-R250S ADSL Router. Enter all values, as provided by your ADSL Service Provider, for the selected connection mode. Then click **Config Now**. Following are screenshots from each connection mode. Refer to the proper one for your connection.

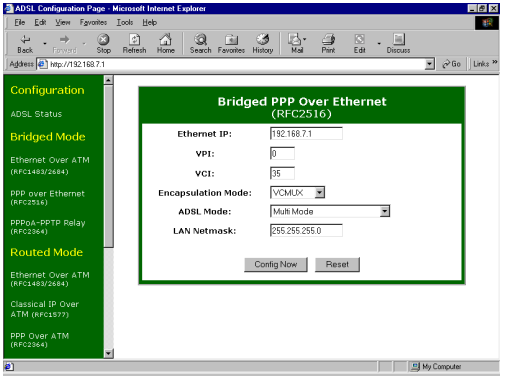
NOTE: *After configuring the router for your selected protocol, you have the option to then configure the DHCP functionality of the router. See the diagram on page 24 for a summary of the steps required for each protocol.*

Bridged Mode

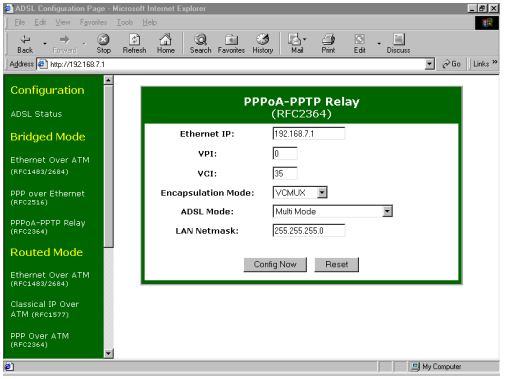
Ethernet over ATM (RFC1483)



PPP over Ethernet (RFC2516)

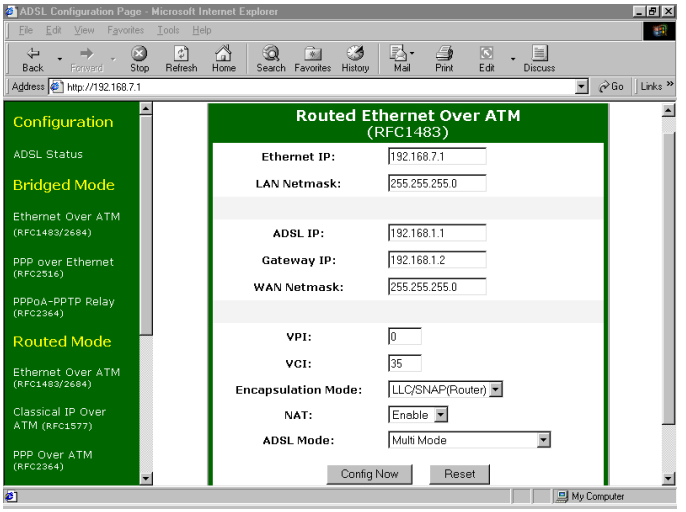


PPPoA-PPTP Relay (RFC2364)

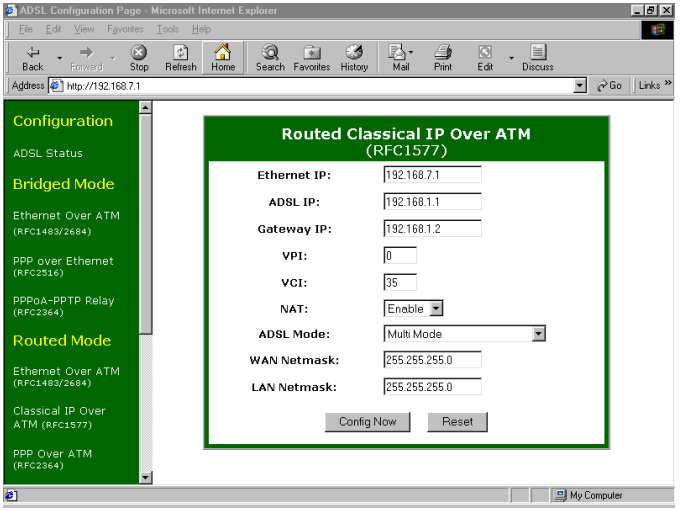


Routed Mode

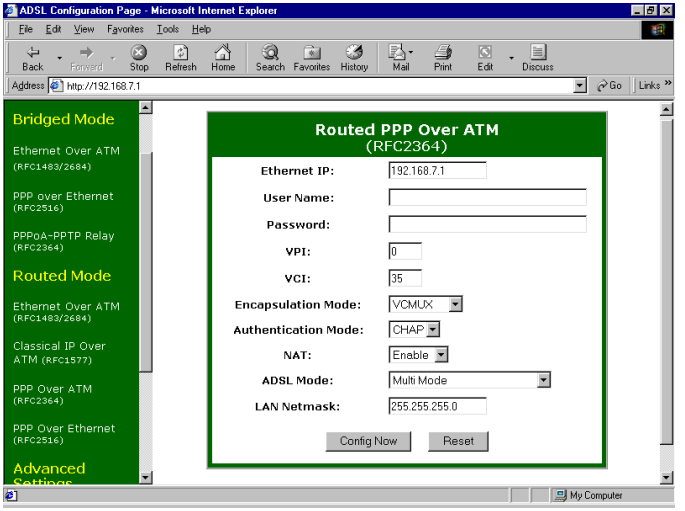
Ethernet over ATM (RFC1483)



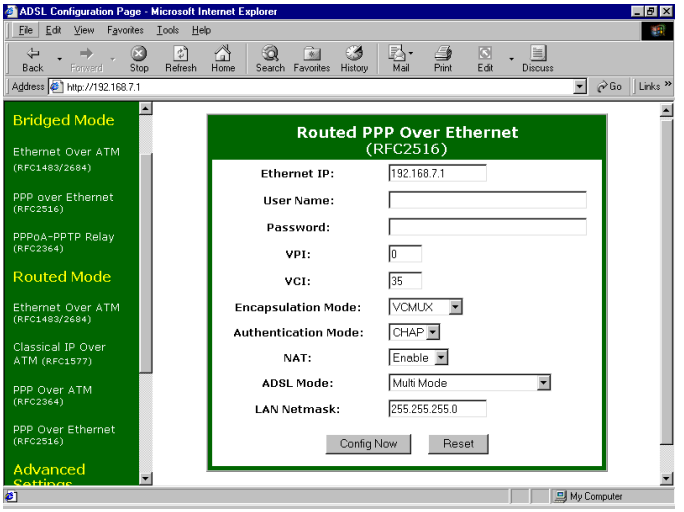
Classical IP over ATM (RFC1577)



PPP over ATM (RFC2364)

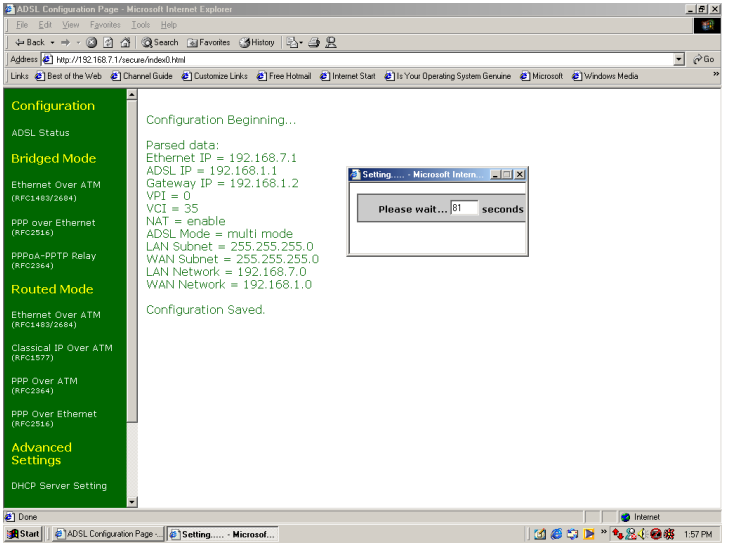


PPP over Ethernet (RFC2516)



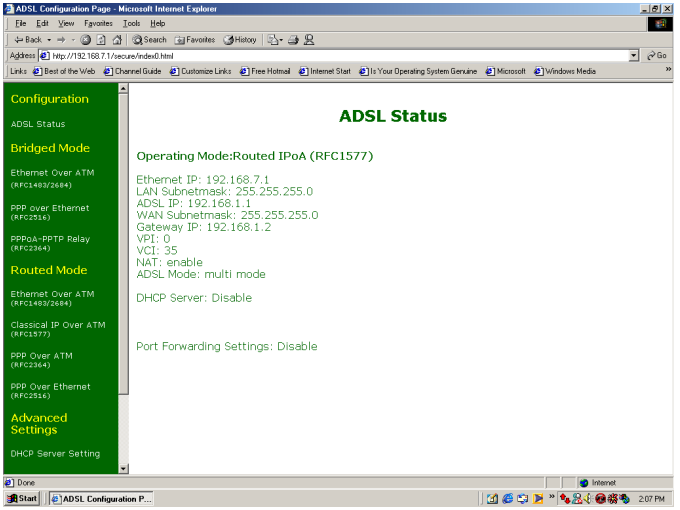
NOTE: *When using PPPoE (RFC2516), you must download a utility to change your maximum MTU settings. You can use the DrTCP utility found at this URL: http://www.dslreports.com/front/drtcp.html. Run the utility, select your Ethernet adapter in the drop-down menu, then change the value in the MaxMTU box next to your selected Ethernet adapter to 1492. Click Apply and restart your computer. You must run this utility on each computer that is connected to the GS-R250S ADSL Router.*

❹ Upon clicking **Config Now** the application will begin to program the router with your settings. You will see a countdown window indicating that configuration is in progress. During this process, be sure to not interrupt the application or router.



❺ Upon finishing the configuration, you will see a "Update Completed" message. Click **OK**.

6 Verify the ADSL Router status by clicking on the **ADSL Status** link in the left frame. Then click **Read ADSL Status** to show the current configuration.



NOTE: *You may now proceed to the following section and configure DHCP functionality for your router if required.*

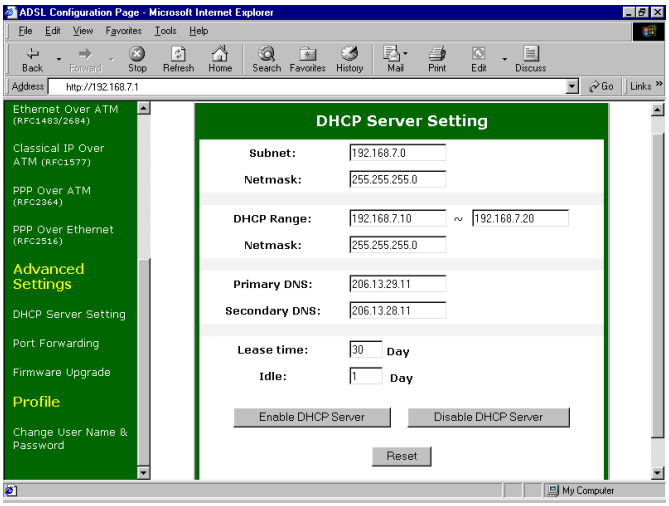
NOTE: *If you have changed your router's IP address during configuration, be sure to also change your computer's IP address to be on the same subnet. For example, if you changed the router's IP address to 192.168.8.1, you should change your computer's IP address to 192.168.8.2.*

DHCP Setup

NOTE: ***When configuring DHCP after configuring PPPoA or PPPoE protocols, you may leave the DNS fields of the DHCP configuration screen blank and the router will automatically set this up for you.***

1. If you are not logged in already, then launch your Internet Browser, type the default IP address of the GS-R250S ADSL Router, **192.168.7.1**, into the URL bar and click **GO** or hit the **Enter** key. You will then be prompted to enter the **User Name** and **Password**. Enter these and Click **OK**.

2. In the left frame of the ADSL Configuration Utility, scroll down and click on **DHCP Server Setting**. You will then see the following page:



3. Enter the required values and click **Enable DHCP Server**.

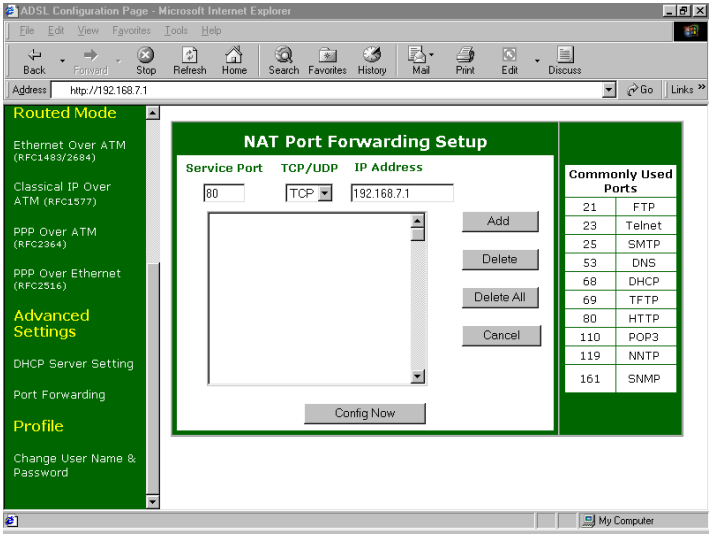
NOTE: ***To disable the DHCP Server, simply click Disable DHCP Server.***

Port Forwarding

You may follow the steps below to setup the NAT port forwarding settings for your GS-R250S ADSL Router.

1. In your Internet Browser window, type the default IP address of the GS-R250S ADSL Router, **192.168.7.1** into the URL bar and click **GO** or hit the **Enter** key. You will then be prompted to enter the default **User Name** and **Password**. Enter these and Click **OK**.

2. In the left frame of the ADSL Configuration Utility, scroll to the bottom and click on **Port Forwarding**. You will then see the following page:



3. Enter the **Service Port**, the **IP address** and select **TCP** or **UDP**. Click **Add** to include these settings. Repeat this step if more settings are to be setup.

4. To remove a port forwarding setting, select the setting you wish to remove from the menu list, and click **Delete**. To remove more than one setting at one time, press **Ctrl** while selecting the settings you wish to remove, and then click **Delete**. To delete all settings, simply click **Delete All**. You may also click **Cancel** at any time to abort the procedure.

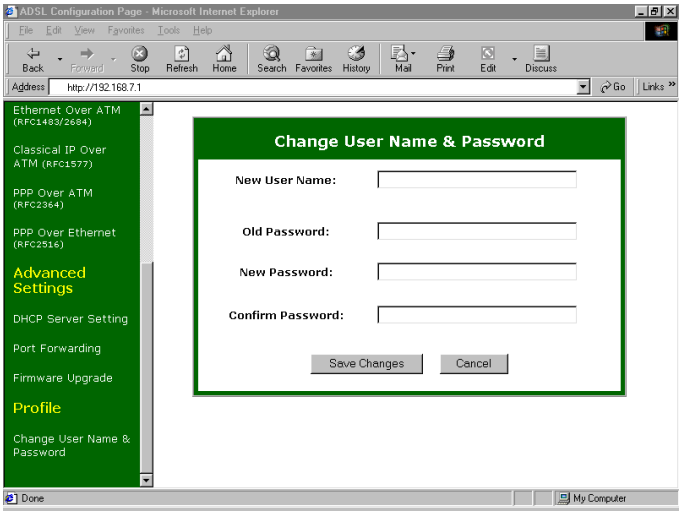
5. When all settings are entered, click **Config Now**.

Change User Name and Password

For security reasons, you may follow the steps below to change the User Name and Password of your GS-R250S ADSL Router.

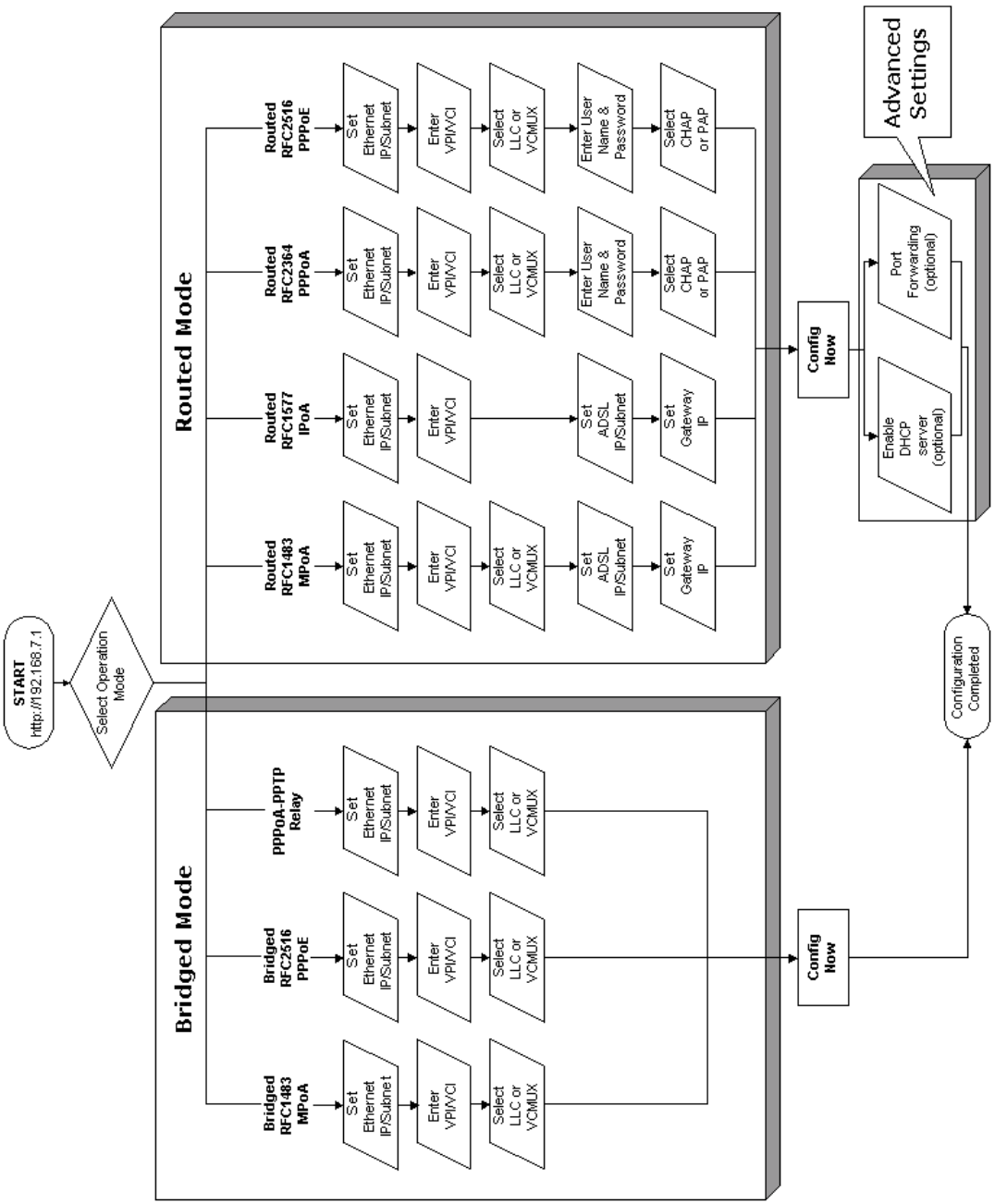
1. In your Internet Browser window, type the default IP address of the GS-R250S ADSL Router, **192.168.7.1** into the URL bar and click **GO** or hit the **Enter** key. You will then be prompted to enter the default **User Name** and **Password**. Enter these and Click **OK**.

2. In the left frame of the ADSL Configuration Utility, scroll to the bottom and click on **Change User Name & Password**. You will then see the following page:



3. Enter the **New User Name**, the **Old Password**, and then the **New Password**. Enter the **New Password** again in the **Confirm Password** box and then click **Save Changes**. You may click **Cancel** at any time to abort the procedure.

Web Configuration Flowchart



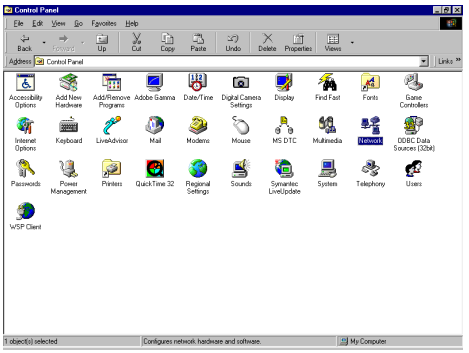
TCP/IP Configuration

To connect to the Internet or configure the router via Ethernet, the TCP/IP protocol must be installed and configured correctly. Follow the steps below to determine if you have TCP/IP installed and configured correctly for Windows 95/98.

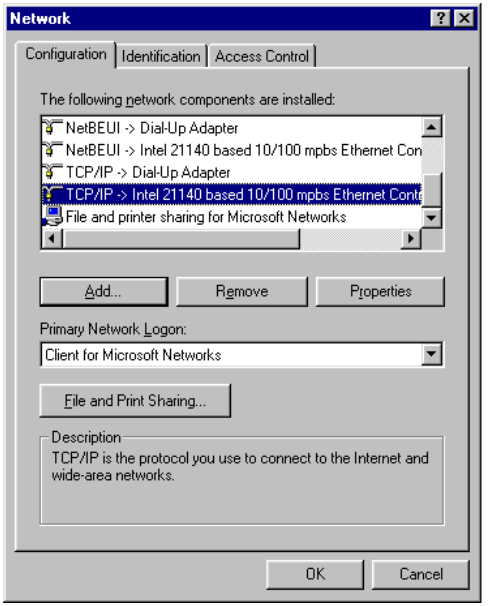
Step 1 - Check if TCP/IP is installed

To check if TCP/IP is properly installed, use the following steps:

1. Double-click on **My Computer**, then **Control Panel**, and then double-click the **Network** icon.



2. In the "Network" window, check that TCP/IP is installed and setup for the Ethernet NIC that is installed in your computer (for example, TCP/IP->Intel 21140 based 10/100mbps Ethernet Controller).

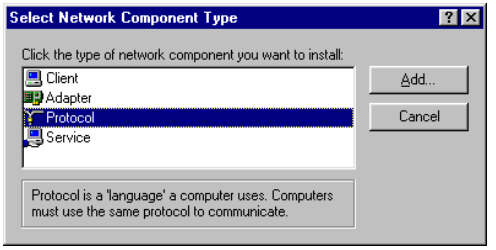


3. If TCP/IP has been properly installed, proceed to the TCP/IP configuration on page 27. If TCP/IP has not been properly installed for your NIC, proceed to the next page.

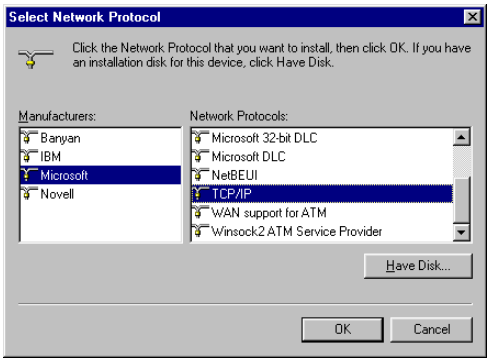
Step 2 - Install TCP/IP if necessary

Install TCP/IP now if it is not previously installed. You may need the Windows Installation CD-ROM.

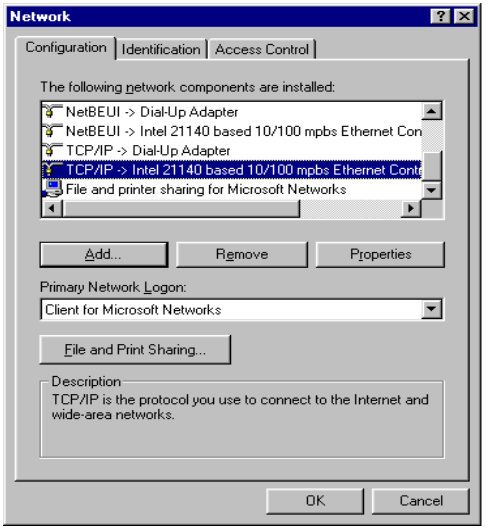
❶ Still in the "Network" window, click the **Add** button. The "Select Network Component Type" window will appear. Select *Protocol* by clicking on it once. Then click **Add**.



❷ The "Select Network Protocol" window will appear. Choose *Microsoft* in the "Manufacturers" panel and then *TCP/IP* in the "Network Protocols" panel. Click **OK**.



❸ Confirm that the TCP/IP protocol has been correctly set up with your Ethernet card.



Step 3 - Setup TCP/IP

You will now configure the TCP/IP settings of your Ethernet NIC for use with your new GreatSpeed ADSL Router. Please refer to the page indicated in the table below for the setup procedures of your selected protocol.

NOTE: ***When connecting your ADSL Router with an existing LAN, consult your network administrator for the correct configurations.***

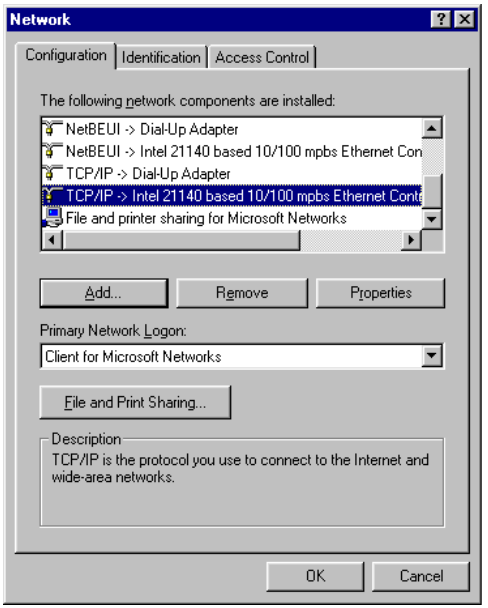
	Protocols	See page:
Bridged Mode	Ethernet over ATM (RFC1483)	28
	PPP over Ethernet (RFC2516)	28
	PPPoA-PPTP Relay (RFC2364) for Win 95/98	30
	PPPoA-PPTP Relay (RFC2364) for Win 2000	35
	Protocols	**See page:**
Routed Mode with DHCP Server	Ethernet over ATM (RFC1483)	28
	Classical IP over ATM (RFC1577)	28
	PPP over ATM (RFC2364)	28
	PPP over Ethernet (RFC2516)	28
	Protocols	**See page:**
Routed Mode without DHCP Server	Ethernet over ATM (RFC1483)	38
	Classical IP over ATM (RFC1577)	38
	PPP over ATM (RFC2364)	38
	PPP over Ethernet (RFC2516)	38

Step 3 - Setup TCP/IP

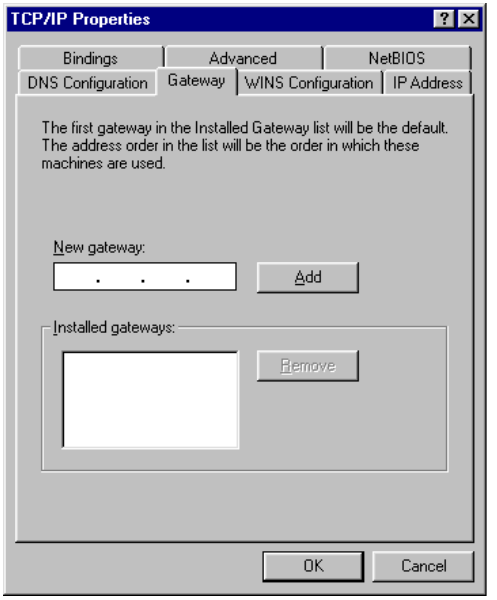
- **Bridged Mode:** Ethernet over ATM (RFC1483) PPP over Ethernet (RFC2516)
- **Routed Mode with DHCP Server:** Ethernet over ATM (RFC1483) Classical IP over ATM (RFC1577) PPP over ATM (RFC2364) PPP over Ethernet (RFC2516)

---

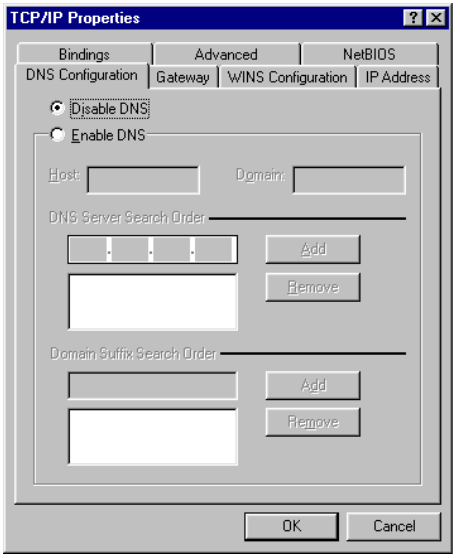
1. In the "Network" window, double-click the **TCP/IP component for your Ethernet NIC** (for example, **TCP/IP->Realtek RTL8029(AS) PCI Ethernet NIC**).



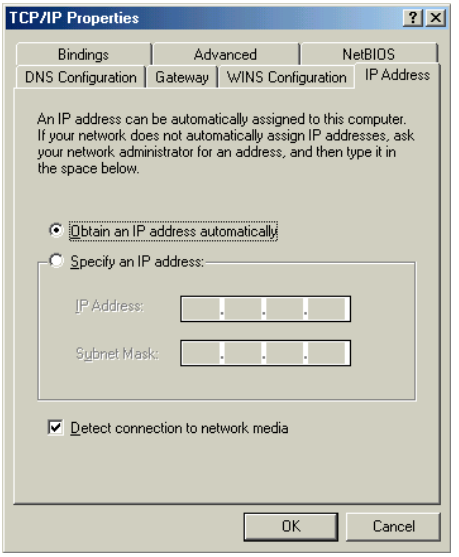
2. In the "TCP/IP Properties" window, click the **Gateway** tab. Remove any installed Gateways by selecting them and click **Remove**.



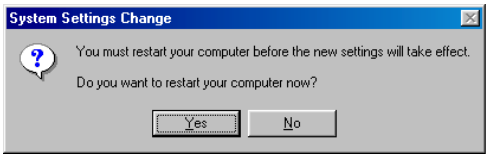
❸ Click the **DNS Configuration** tab, and then click the **Disable DNS** button.



❹ The "TCP/IP Properties" window will appear. Click the **IP Address** tab. Choose *Obtain an IP address automatically* and click **OK**.



❺ The "System Settings Change" window appears. Click **Yes** to reboot your system.



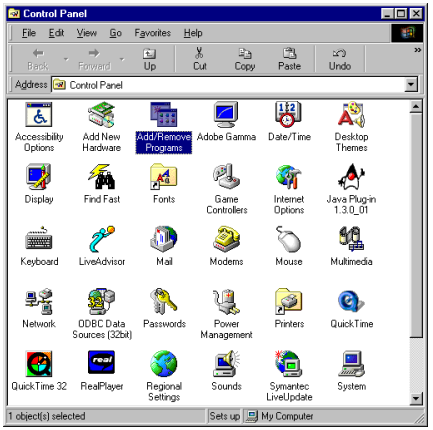
NOTE: ***When using PPP over Ethernet (RFC2516), please install the PPPoE software provided by your Internet Service Provider after rebooting your system.***

Step 3 - Setup TCP/IP

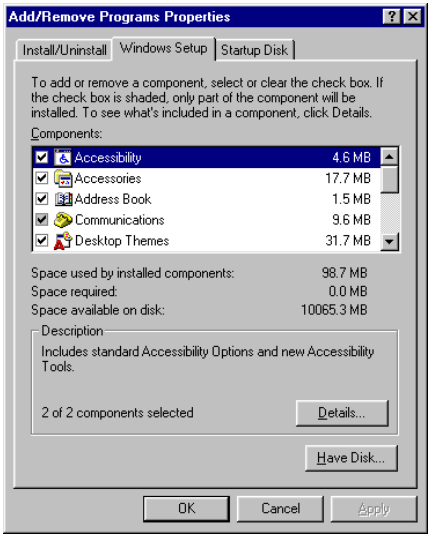
- **Bridged Mode:** PPPoA-PPTP Relay (RFC2364) for Windows 95/98

NOTE: ***In order to use PPPoA-to-PPTP Relay, you must have Virtual Private Networking installed on your computer.***

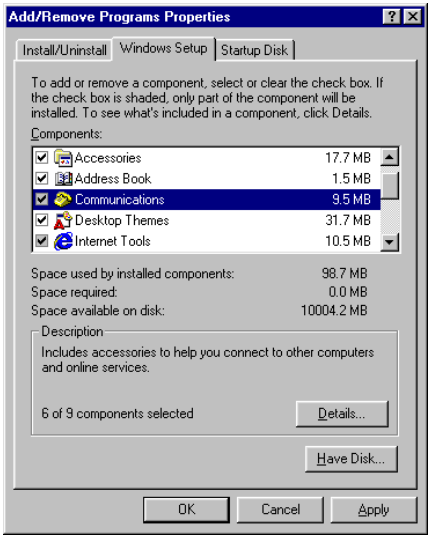
❶ From your desktop, click **Start**, then **Settings**, then **Control Panel**. The Control Panel window will appear. Double-click **Add/Remove Programs**.



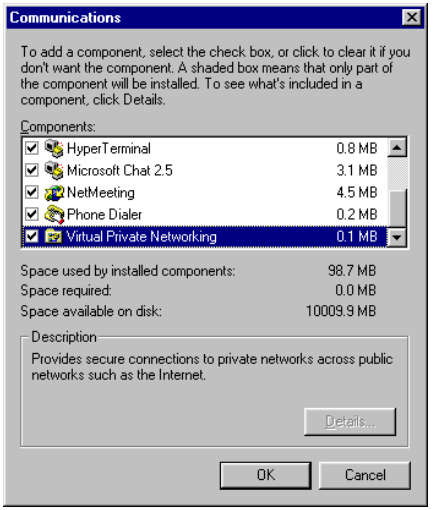
❷ The "Add/Remove Programs Properties" window will appear. Click the **Windows Setup** tab.



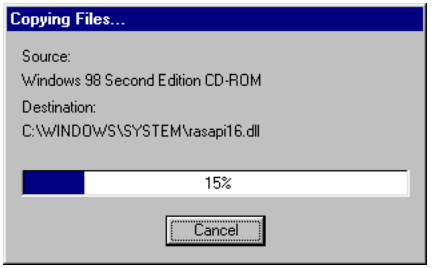
3 Double-click the **Communications** option.



4 Scroll to the bottom of the "Communications" window and **check** the box next to *Virtual Private Networking*. Click **OK**.

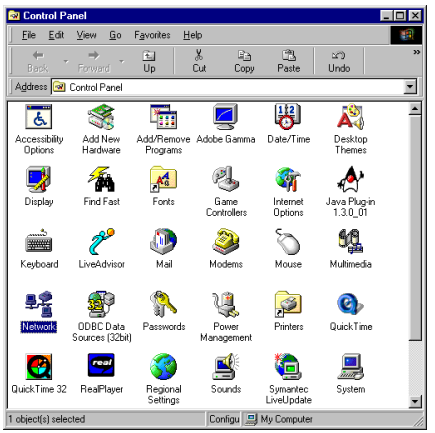


5 You will be back at the "Add/Remove Programs Properties" window. Click **OK**. You will see the "Copying Files" window as your system installs the VPN components. Restart your computer if you are prompted to do so.

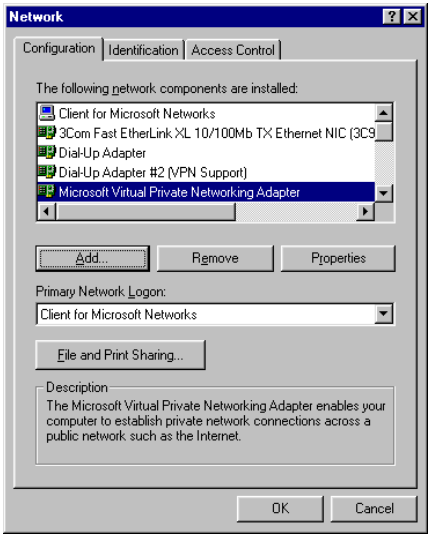


Note: *You may need your Windows Installation CD-ROM for accessing the required files. If prompted, insert the CD into your system's CD-ROM drive and click* ***OK****.*

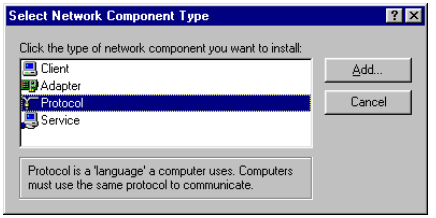
6 Next, launch the "Control Panel" again by clicking **Start**, then **Settings**, then **Control Panel**. Double-click the **Network** icon.



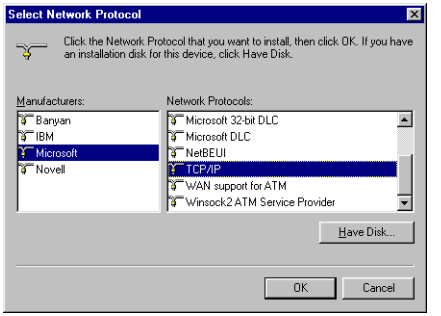
7. The **Network** window will appear. In the *Configuration* tab, scroll down and find *Microsoft Virtual Private Networking Adapter*. Click on it to select it, then click **Add**.



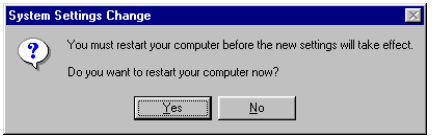
8. The "Select Network Component Type" window will appear. Click on **Protocol** and then click **Add**.



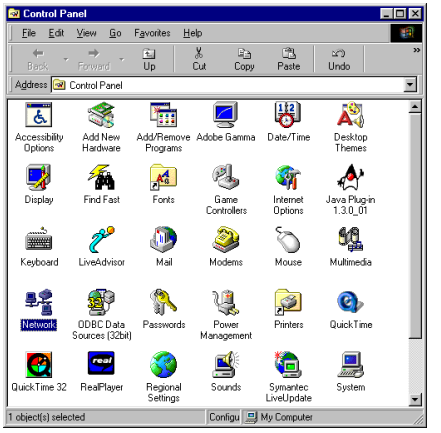
9. The "Select Network Protocol" window will appear. In the "Manufacturers" box, click on **Microsoft**. In the "Network Protocols" box, click on **TCP/IP**. Then Click **OK**.



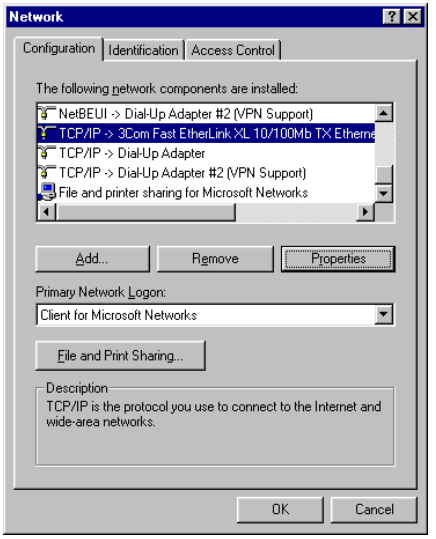
10. You will be returned to the "Network" window. Click **OK**. You will be prompted to restart your computer. Click **Yes**.



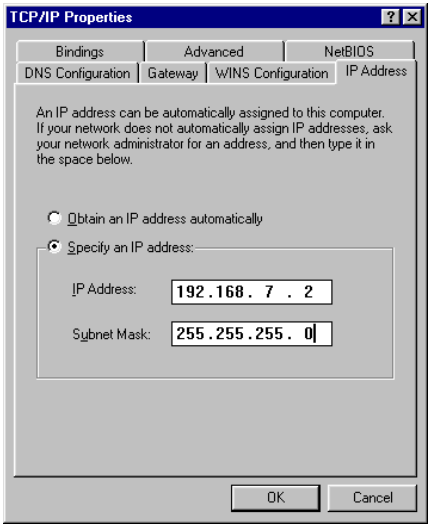
11. Upon restarting, launch the Network control panel again by clicking **Start**, then **Settings**, then **Control Panel**. Double-click the **Network** icon.



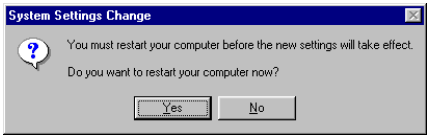
⓬ The "Network" window will appear. In the configuration tab, select the TCP/IP protocol installed for your Network card (Ethernet adapter), and click **Properties**.



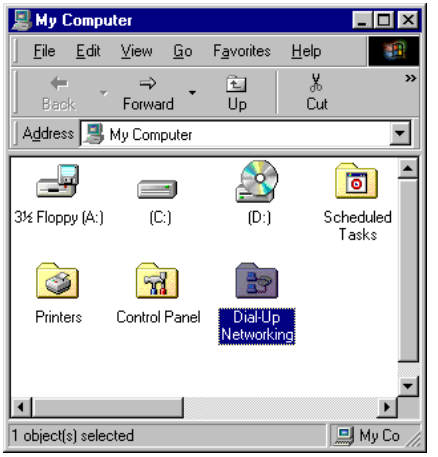
⓭ The "TCP/IP Properties" window will appear. Click **Specify an IP address**. Enter 192.168.7.2 as your IP address and 255.255.255.0 as your Subnet Mask. Click **OK**.



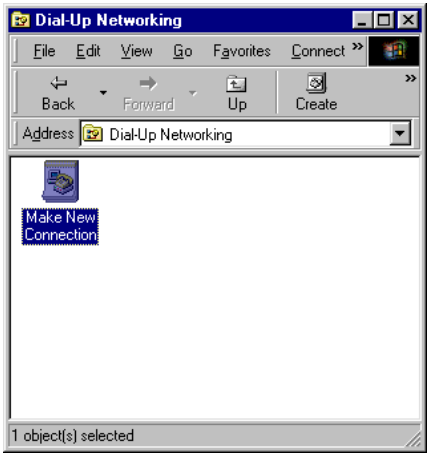
⓮ You will be returned to the "Network" window. Click **OK**. You will be prompted to restart your computer. Click **Yes**.



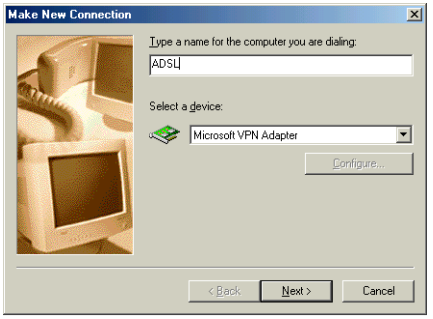
⓯ Upon restart, double-click the My Computer icon on your desktop. The "My Computer" window will appear. Double-click the **Dial-Up Networking** icon.



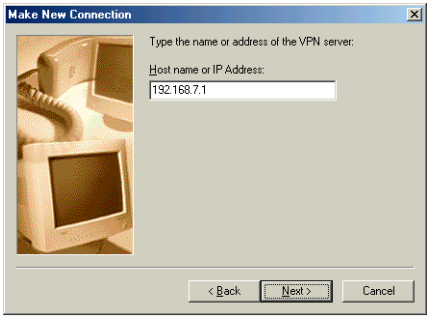
⓰ The 'Dial-Up Networking" window will appear. Double-click **Make New Connection**.



17 The "Make New Connection" window will appear. You can enter a name for your connection. Be sure to select *Microsoft VPN Adapter* from the device drop-down menu. Click **Next**.



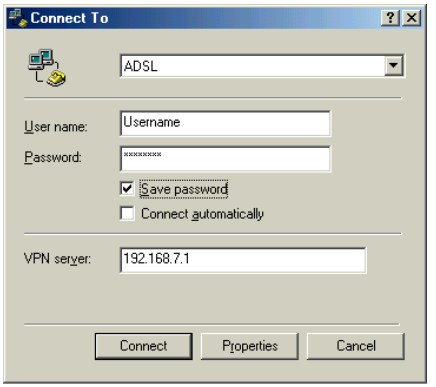
18 Enter the IP Address of the router, 192.168.7.1, as the address of the VPN server. Click **Next**.



19 The "Make New Connection" window will indicate that you have successfully created a new Dial-Up Networking connection. Click **Finish**.

20 To connect to your newly made connection. Double-click the icon with the name of your new connection.

21 The "Connect To" window will appear. Enter your username and password. Check the *Save password* box to have Windows remember your password for you. Click **Connect**.

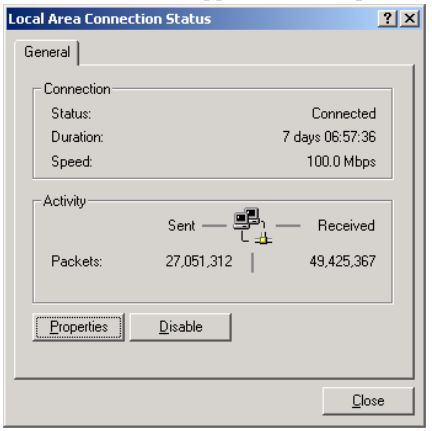


22 The "Connecting to" status window will appear. It will dock itself in the toolbar upon connecting.

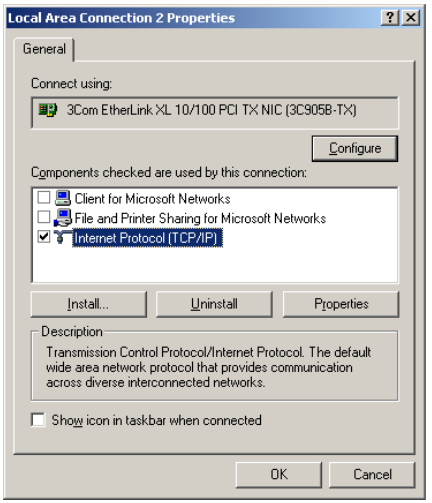
Step 3 - Setup TCP/IP

- **Bridged Mode:** PPPoA-PPTP Relay (RFC2364) for Windows 2000

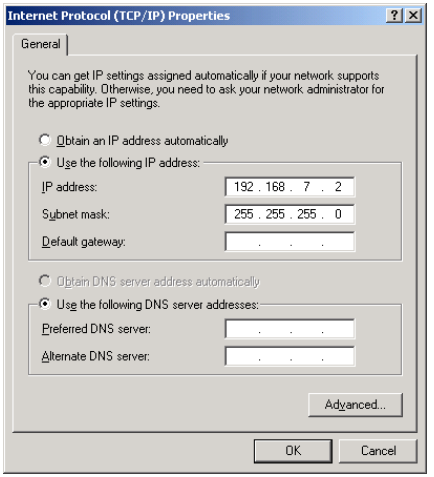
1. From your desktop, click **Start**, then **Settings**, then **Network and Dial-up Connections** and finally select **Local Area Connection**. The "Local Area Connection Status" window will appear. Click **Properties**.



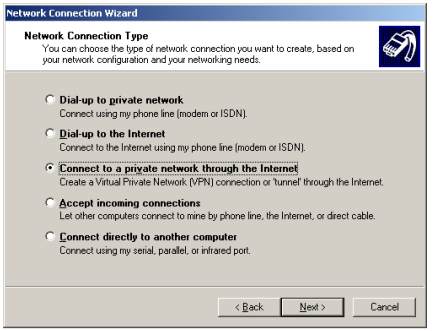
2. The "Local Area Connection Properties" window will appear. Select *Internet Protocol (TCP/IP)* and click Properties. (If *Internet Protocol (TCP/IP)* is not displayed in your window, click Install and follow the steps. Then return to this step).



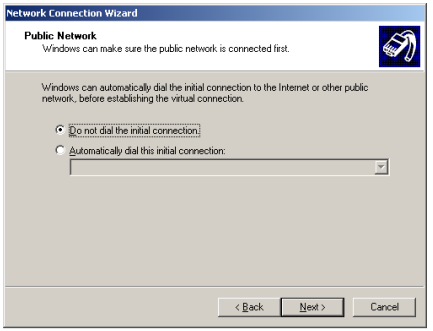
3. The "Internet Protocol (TCP/IP) Properties window will appear. Choose *Use the following IP address* and enter 192.168.7.1 as the IP address and 255.255.255.0 as the Subnet mask. Click **OK**. You will be taken back to the "Local Area Connection Properties" window. Click OK.



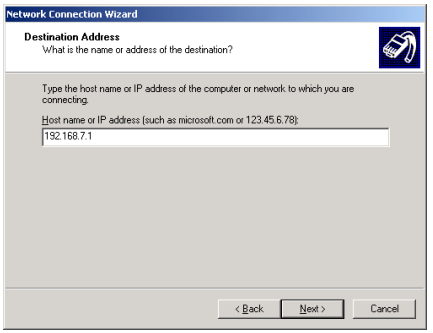
4. From your desktop, click **Start**, then **Settings**, then **Network and Dial-up Connections** and finally select **Make New Connection**. The "Network Connection Wizard will appear. Click **Next**. On the next screen, choose *Connect to a private network through the Internet* and click **Next**.



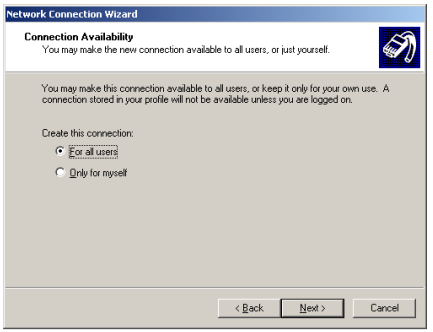
5 The "Network Connection Wizard" will then ask you if it should dial the initial connection before establishing the virtual connection. Choose *Do not dial the initial connection* and click **Next**.



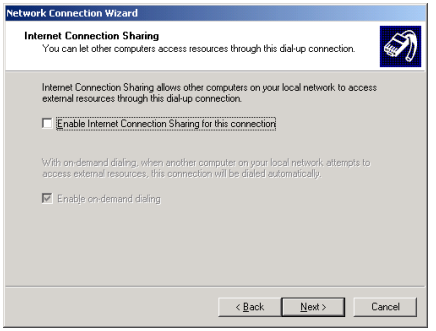
6 The "Network Connection Wizard" will then ask you to enter the host name or address. Enter "192.168.7.1" and click **Next**.



7 The "Network Connection Wizard" will now ask you if you would like your new connection to be available to all users or only for yourself. Choose *For all users* and click **Next**.

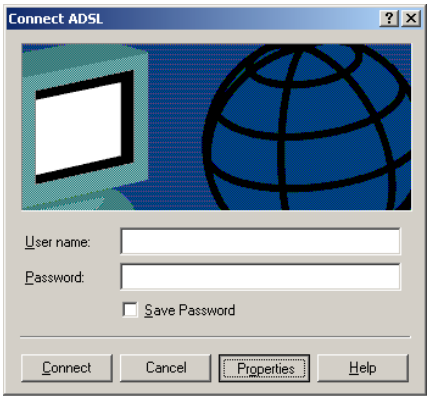


8 The "Network Connection Wizard" will now ask you if you would like to share the connection with other computers. Do not enable Internet Connection Sharing and be sure the box next to *Enable Internet Connection Sharing for this connection* is not checked. Click **Next**.

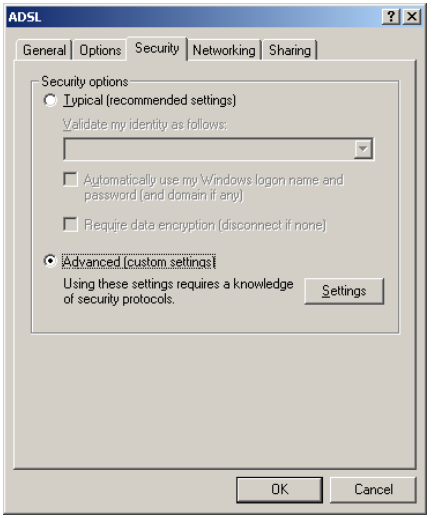


9 The "Network Connection Wizard" will now allow you to name your connection and gives you an option to add a shortcut to your desktop. Name the connection and be sure the box next to *Add a shortcut to my desktop* is checked. Click **Finish**.

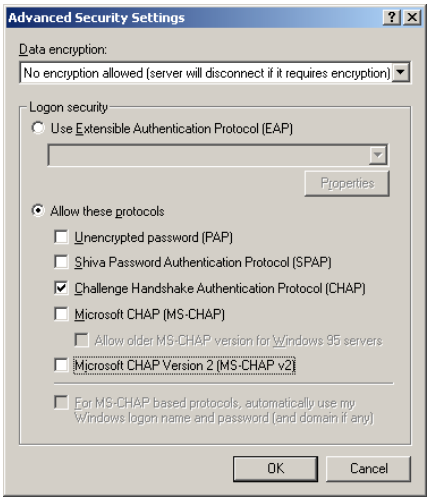
⑩ The "Connect" window will appear. Click the **Properties** button.



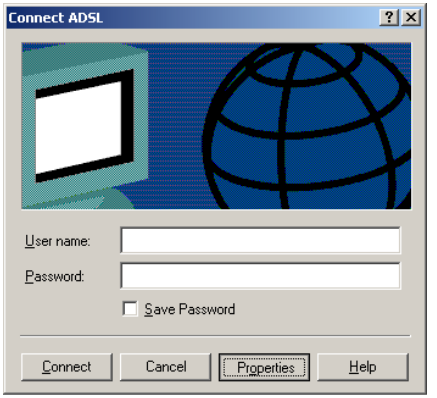
⑪ The connection's "Properties" window will appear. Click the **Security** tab. Choose *Advanced (custom settings)* and click the **Settings** button.



⑫ The "Advanced Security Settings" window will appear. Under Data encryption, choose *No encryption allowed (server will disconnect if it requires encryption)*. In the Logon security section, choose *Allow these protocols* and then select the authentication method that your Internet Service Provider requires. Click **OK**.



⑬ You will be taken back to the connection's "Properties" window. Click **OK**. You will be back at the "Connect" window. Enter your User Name and Password and click **Connect** to use your new connection.



Step 3 - Setup TCP/IP

- **Routed Mode without DHCP Server:** Ethernet over ATM (RFC1483), Classical IP over ATM (RFC1577), PPP over ATM (RFC2364), PPP over Ethernet (RFC2516)

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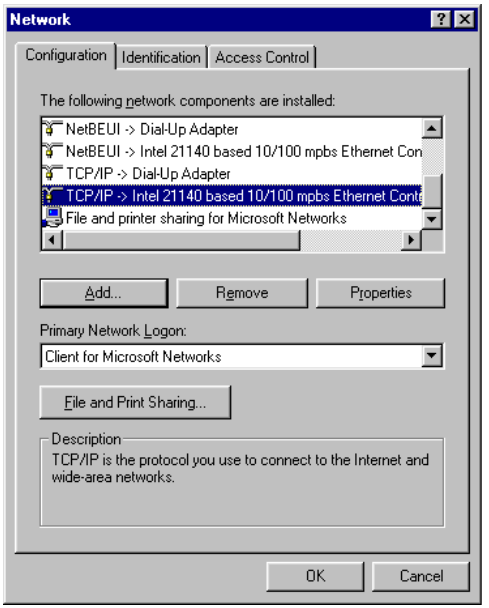
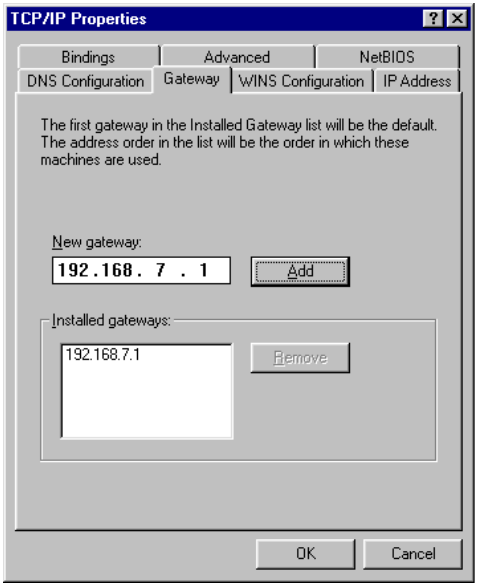
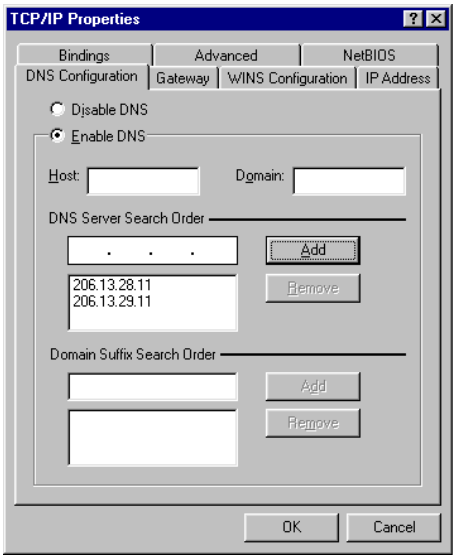
❶ In the "Network" window, double-click the **TCP/IP component for your Ethernet NIC** (for example, **TCP/IP->Realtek RTL8029(AS) PCI Ethernet NIC**).



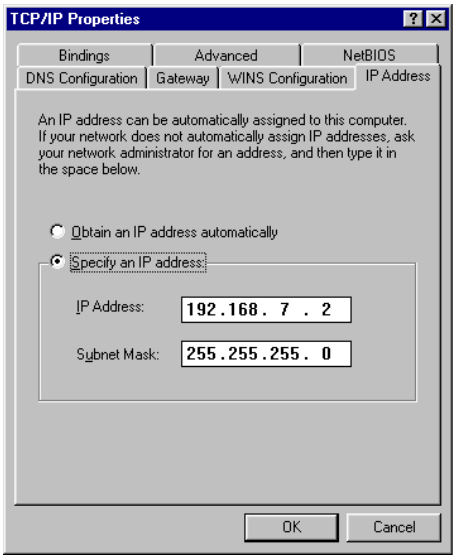
❷ In the "TCP/IP Properties" window, click the **Gateway** tab. Enter the **New gateway**, and click **Add**.



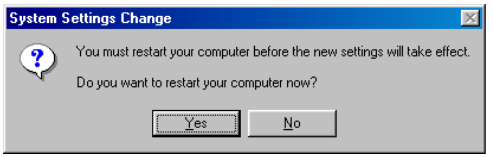
❸ Click the **DNS Configuration** tab, and select ***Enable DNS***. Enter **Host**, **Domain**, and the **DNS** to be added under *DNS Server Search Order*. Click **Add**, and then click **OK**.



❹ The "TCP/IP Properties" window will appear. Click the **IP Address** tab. Choose *Specify an IP address* and enter the **IP Address** and **Subnet Mask**. Click **OK**.



❺ The "System Settings Change" window appears. Click **Yes** to reboot your system.



Product Specifications

Multimode ADSL:	ANSI T1.413 Issue 2, ITU 992.1 (G.dmt), ITU 992.2 (G.Lite) ITU G.994.1 (G.hs) automatic mode sensing
Data Transfer Rate:	Full Rate: Up to 8Mbps downstream/800Kbps upstream G.Lite: Up to 1.5Mbps downstream/512Kbps upstream
Line Reach:	Up to 18,000ft on a 26 AWG
ATM Attributes:	ATM Adaptation Layer 5 (AAL5) ATM Forum UNI 3.0, 3.1, 4.0 ATM Forum ILMI v.4.0 Up to 8 VPI/VCI UBR, CBR, VBR Traffic Management OAM F4/F5 Loopback
Data Encapsulation:	LLC Encapsulation/VC Multiplexing RFC2364 PPP over ATM RFC1577 Classical IP over ATM RFC1483/2684 Multiprotocol over ATM RFC2516 PPP over Ethernet
Routing / Bridging:	TCP/IP, UDP, RIP1, RIP2, ICMP DHCP Client & Server BootP Server DNS Relay NAPT/ IP Masquerading IEEE 802.1d Transparent Bridging Spanning Tree Algorithm (STA) Up to 4096 Learning MAC addresses Address Resolution Protocol (ARP)
Network Management:	Web based GUI configuration tool Console Command Line access - Microsoft HyperTerminal - Linux Minicomm - Macintosh Claris Work Telnet remote login TFTP firmware upgrade SNMP/MIB LEN Emulation Client

Network Security:	CHAP/PAP user authentication
Tunneling:	Local PPTP/L2TP to PPPoA VCC PPPoE client and bridging
Hardware Interfaces:	LAN: Ethernet 10BaseT WAN: RJ-11 ADSL Line Console: RS-232 serial
LED Status Indicators:	ADSL Ethernet Data Power
Power Requirement:	Input: 100 ~ 240 VAC, 60Hz, 0.5A Output: +5 VDC, 1.0A
Agency Approval:	FCC part 15 class B, UL
System Requirements:	Intel PII/AMD K6 or above CPU Windows 95/98/ME/2000/NT4.0 Mac OS 8.0 or above Red Hat Linux 6.2 or above Ethernet 10BaseT LAN card Netscape 4.0/IE 4.0 or above 32MB system memory or more 20MB available hard disk space or more

Troubleshooting

This section is intended to help you troubleshoot problems you may encounter while setting up and using your GS-R250S ADSL Router. It also describes some common hardware and software problems and gives some suggestions to troubleshoot them.

Diagnostics with the LED indicators

Most hardware problems can be diagnosed and solved by checking the LEDs on the front panel of the router.

- If the Power LED is dark:
  - -Make sure the power cord is firmly plugged into the back panel of the router and the other end into an active AC wall or power strip outlet.
  - -Make sure the power switch is depressed to the "on" position.

- If the Ethernet LED is dark:
  - -Make sure your RJ-45 Ethernet cable is firmly plugged into the back panel of your router and the other end into your computer or hub.
  - -Make sure you are using the correct RJ-45 Ethernet cable for your application (Cross-connect or straight-through).
  - -Make sure your Ethernet card is installed properly in your system by pinging the IP address of your computer.

Problems when configuring the Router via the console port

- If you cannot see any message for the configuration screen:
  - -Make sure the cable connection from the router's console port to the computer being used as a console is securely connected.
  - -Make sure the terminal emulation software is accessing the correct port on the computer that is being used as a console.
  - -Make sure flow control on serial connections is turned "off".
- Junk characters appear on the configuration screen:
  - -Make sure the terminal emulation software is configured correctly. Check that the port settings are set to **9600bps**, **No** parity, **8** data bits, **1** stop bit, and **No** flow control.

Problems when connecting to the Router via Ethernet

- Cannot connect your computer to the router for configuration via Ethernet:
  - -Make sure the Ethernet LED is lit.
  - -Make sure the router's IP address matches the IP address previously stored into the router's configuration. You must have previously set the router's Ethernet IP address and subnet mask, saved the Ethernet configuration changes, and rebooted the router for the new IP address to take effect.
  - -Make sure the computer and the router are on the same IP sub network or the target router is reachable through a router on your LAN.
  - -Make sure the TCP/IP properties are set correctly in your computer.
  - -Make sure the DATA LED on the router's front panel blinks when pinged.

Problems when accessing the Internet or remote network

• Cannot access the Internet or remote network:

-There are four possible causes to this problem.

1. The connection between the computer and the router.
2. The connection between the router and your NSP.
3. The connection between your NSP and your ISP.
4. The connection between your ISP and the Internet.

To isolate the problem, you can verify IP connectivity with the following steps by running a **ping <IP address>** command. For example, **ping 192.168.254.254**.

1. Ping the IP address of your computer. If you get a response back, proceed to the next step directly. If you do not get a response back, be sure that:
   - Your network interface card (NIC) is properly installed.
   - TCP/IP protocol is installed.
   - TCP/IP protocol is bound to the NIC.
2. Ping the IP address of your router. If you get a response back, the problem lies between your computer and your router.
   - Check the cables.
   - Check the hub.
   - Make sure that your computer and your router belong to the same IP sub network.
   - Watch the DATA LED to see if data traffic flow changes with configuration.
3. Ping the DNS server.

• If the router is configured to bridging mode:

- Be sure to reboot the router if you have made any changes to the configuration.
- All IP address must be in the same IP sub network.

• If the router is configured to routing mode:

- Check that IP Routing is enabled at the local and the remote end.
- Make sure the IP addresses of the local and remote networks belong to different IP sub networks.
- Make sure that there is an existing route to the remote network.
- Make sure that there is an existing route back from the remote network.
- Be sure to reboot the router if you have made any changes to the configuration.

Record Your Internet Protocol Details

In order to successfully connect with ADSL you must utilize the connection information provided by your Internet Service Provider.

For future troubleshooting or re-installation it is important that you retain these details. **Please record the details for your protocol in the space we have provided for you.**

Bridged Ethernet over ATM (RFC1483)

Ethernet IP:_____

VPI: _____ VCI: _____

Encapsulation Mode: ☐ VCMUX ☐ LLC/SNAP

Bridged PPP over Ethernet (RFC2516)

Ethernet IP:_____

VPI: _____ VCI: _____

Encapsulation Mode: ☐ VCMUX ☐ LLC/SNAP

PPPoA-PPTP Relay (RFC2364)

Ethernet IP:_____

VPI: _____ VCI: _____

Encapsulation Mode: ☐ VCMUX ☐ LLC/SNAP

Routed Ethernet over ATM (RFC1483)

Ethernet IP:_____ LAN Netmask:_____

ADSL IP:_____ WAN Netmask:_____

Gateway IP:_____

VPI: _____ VCI: _____

Encapsulation Mode: ☐ VCMUX Bridged ☐ VCMUX Routed
☐ LLC/SNAP Bridged ☐ LLC/SNAP Routed

Classical IP over ATM (RFC1577)

Ethernet IP:_____ LAN Netmask:_____

ADSL IP:_____ WAN Netmask:_____

Gateway IP:_____

VPI: _____ VCI: _____

Routed PPPover ATM (RFC2364)

Ethernet IP:_____ LAN Netmask:_____

User Name:_____ Password:_____

VPI: _____ VCI: _____

Encapsulation Mode: ☐ VCMUX ☐ LLC/SNAP

Authentication Mode: ☐ CHAP ☐ PAP

Routed PPP over Ethernet (RFC2516)

Ethernet IP:_____ LAN Netmask:_____

User Name:_____ Password:_____

VPI: _____ VCI: _____

Encapsulation Mode: ☐ VCMUX ☐ LLC/SNAP

Authentication Mode: ☐ CHAP ☐ PAP