Cable Resident Gateway

User's Manual

Safety Notes

For Installation

- Use only the type of power source indicated on the marking labels.
- Use only the power adapter supplied with the product.
- Do not overload wall outlet or extension cords as this may increase the risk of electric shock or file. If the power cord is frayed, replace it with a new one.
- Proper ventilation is necessary to prevent the product overheating. Do not block or cover the slots and openings on the device, which are intended for ventilation and proper operation. It is recommended to mount the product with a stack.
- Do not place the product near any source of heat or expose it to direct sunshine.
- Do not expose the product to moisture. Never spill any liquid on the product.
- Do not attempt to connect with any computer accessory or electronic product without instructions from qualified service personnel. This may result in risk of electronic shock or file.
- Do not place this product on an unstable stand or table.

For Using

- Power off and unplug this product from the wall outlet when it is not in use or before cleaning. Pay attention to the temperature of the power adapter. The temperature might be high.
- After powering off the product, power on the product at least 15 seconds later.
- Do not block the ventilating openings of this product.
- When the product is expected to be not in use for a period of time, unplug the power cord of the product to prevent it from the damage of storm or sudden increases in rating.

For Service

Do not attempt to disassemble or open covers of this unit by yourself. Nor should you attempt to service the product yourself, which may void the user's authority to operate it. Contact qualified service personnel under the following conditions:

- If the power cord or plug is damaged or frayed.
- If liquid has been spilled into the product.
- If the product has been exposed to rain or water.
- If the product does not operate normally when the operating instructions are followed.
- If the product has been dropped or the cabinet has been damaged.
- If the product exhibits a distinct change in performance.

Warning

- This equipment must be installed and operated in accordance with provided instructions and a minimum 20 cm spacing must be provided between computer mounted antenna and person's body (excluding extremities of hands, wrist and feet) during wireless modes of operation.
- 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.
- **The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. "**

Caution

- Any changes or modifications not expressly approved by the party responsible for compliance could void the authority to operate equipment.

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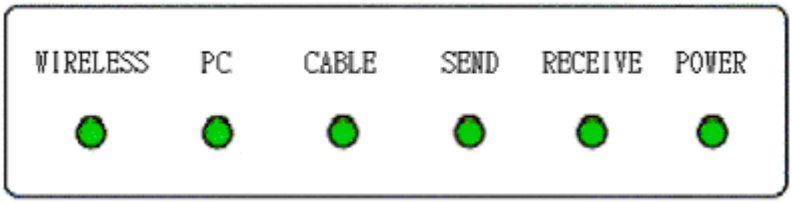
Chapter 1: Overview

1.1 Physical Outlook

1.1-1 Front Panel

The following illustration shows the front panel of the *Cable RG* .

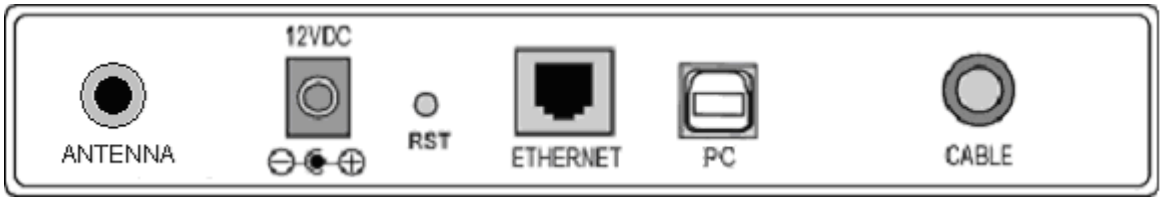


LED Indicators

The LEDs on the front panel are described in the table below (from left to right):

LED	Color	Status	Description
Wireless	Green	Off	Power off or the initial test is over.
		Blinking	To indicate wireless data traffic.
		On	Wireless interface is in use.
PC	Green	Off	Power off or the initial test is over.
		Blinking	To indicate PC data traffic.
		On	PC is connected.
Cable	Green	Off	Power off or the initial test is over.
		On	To indicate cable modem is on line.
SEND	Green	Off	Power off or the initial test is over.
		Blinking	To indicate transmit RF US traffic.
RECEIVE	Green	Off	Power off or the initial test is over.
		Blinking	To indicate transmit RF DS traffic.
POWER	Green	Off	Power off.
		On	Power on.

1.1-2 Rear Panel



12VDC: 12V Power connector
RST： Reset-to-Default push button

ETHERNET： Ethernet 10/100BaseT RJ-45 connector

USB： USB Connector

CABLE： F-Connector
ANTENNA: Standard 2.4GHz External ANTENNA

Chapter 2: Installation

2.1 Connecting the Cable RG to Your Computer

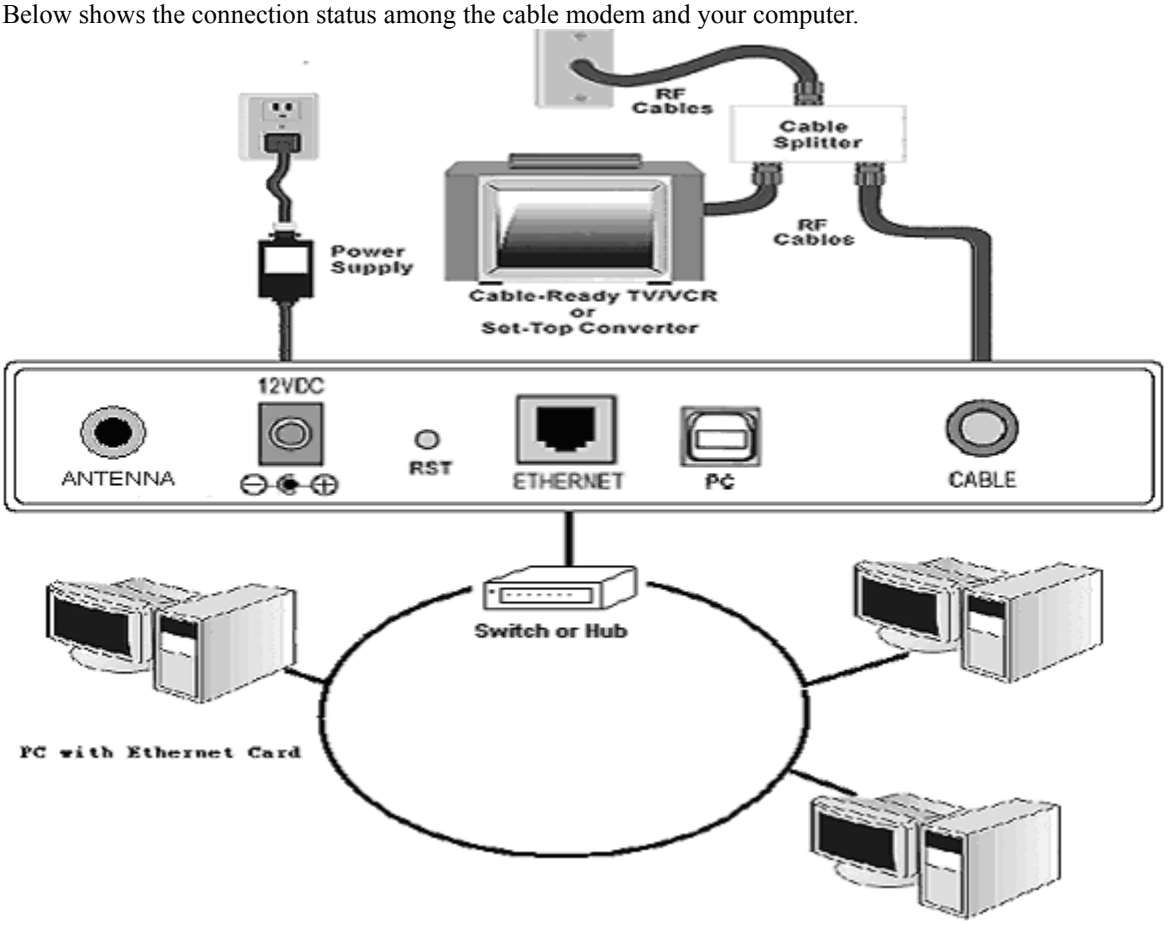
2.1-1 Installation Procedure for Ethernet Interface

Follow the steps below for proper installation:

1. Make sure your computer meets the system requirements.
2. Connect a coaxial cable (supplied by the local Cable Television Company) to the CABLE connector on the modem.
3. Plug the power adapter into the **POWER** connector of the modem.
4. Plug the other end of the power adapter into a power outlet.
5. Check CABLE LED. If it is solid ON, the Cable Modem is on-line now. If it is not, contact your service provider.
5. Connect the RJ-45 Ethernet cable to one of the **ETHERNET** connector on the modem, connect the other end with the 10/100BaseT Ethernet port on your computer.
6. When the connection is established, the client PCs can access the Internet or remote network through the ***Cable RG.***

Note: You can go to **Chapter 3.3 "Setting TCP/IP on client PC"** now

Below shows the connection status among the cable modem and your computer.



2.1-2 Installation Procedure for USB Interface

Follow the steps below for proper installation:

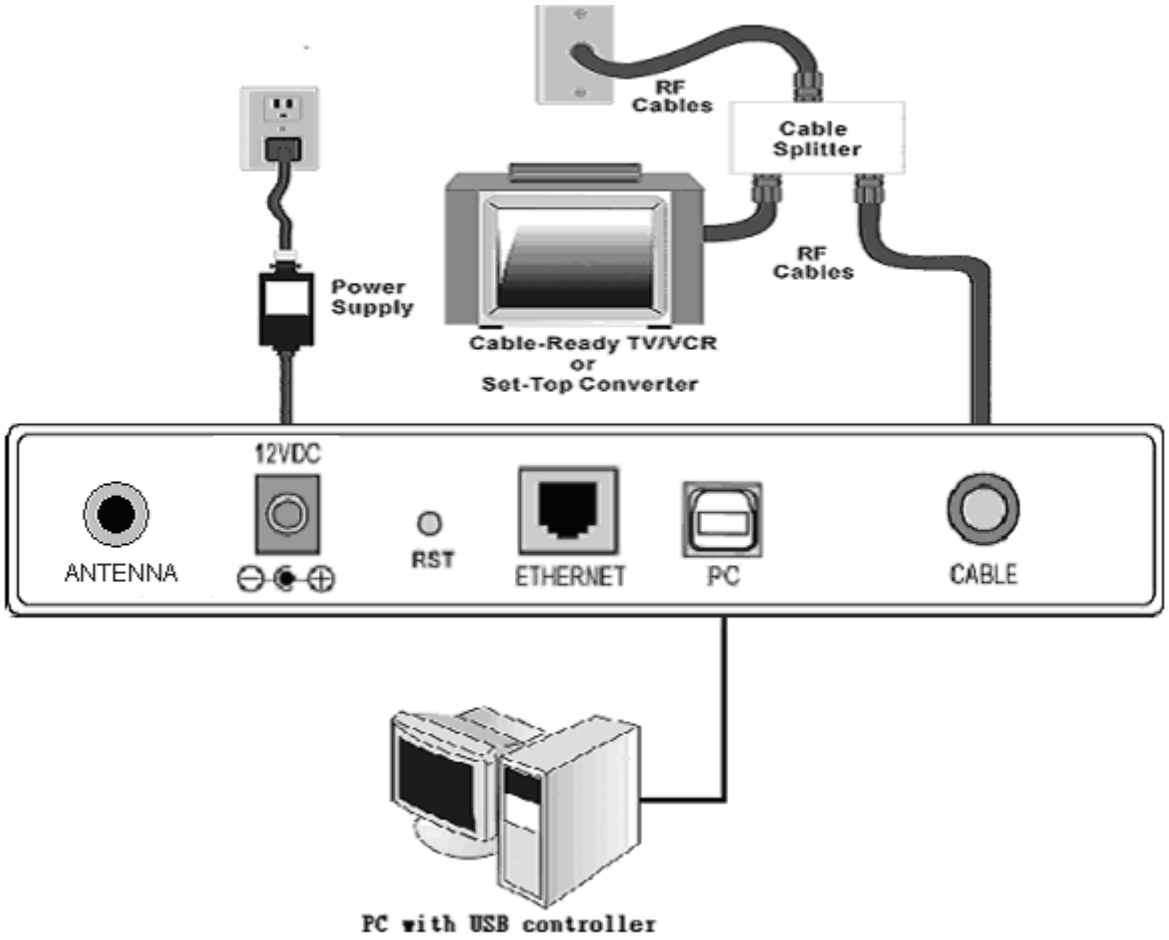
1. Make sure your computer meets the system requirements.
2. Connect a coaxial cable (supplied by the local Cable Television Company) to the CABLE connector on the modem.
3. Plug the power adapter into the **POWER** connector of the modem.
4. Plug the other end of the power adapter into a power outlet.
5. Check CABLE LED. If it is solid ON, the Cable Modem is on-line now. If it is not, contact your service provider.
6. Connect the USB cable to the **USB** connector on the modem.

Note: You can go to **Chapter 3.1** "**USB Driver installation**" now

7. When the connection is established, the client PCs can access the Internet or remote network through the ***Cable RG.***

Note: You can go to **Chapter 3.3 "Setting TCP/IP on client PC"** now

Below shows the connection status among the cable modem and your computer.



2.1-3 Installation Procedure for Wireless

1. Make sure your computer meets the system requirements.
2. Connect a coaxial cable (supplied by the local Cable Television Company) to the CABLE connector on the modem.
3. Plug the power adapter into the **POWER** connector of the modem.
4. Plug the other end of the power adapter into a power outlet.
5. Check CABLE LED. If it is solid ON, the Cable Modem is on-line now. If it is not, contact your service provider.
6. Install the wireless card driver and verify the wireless setting as below:

   ---The default SSID: **wireless**

   ---WEP encryption is **disabled**. Authentication Type is **Open System or Shared Key**.

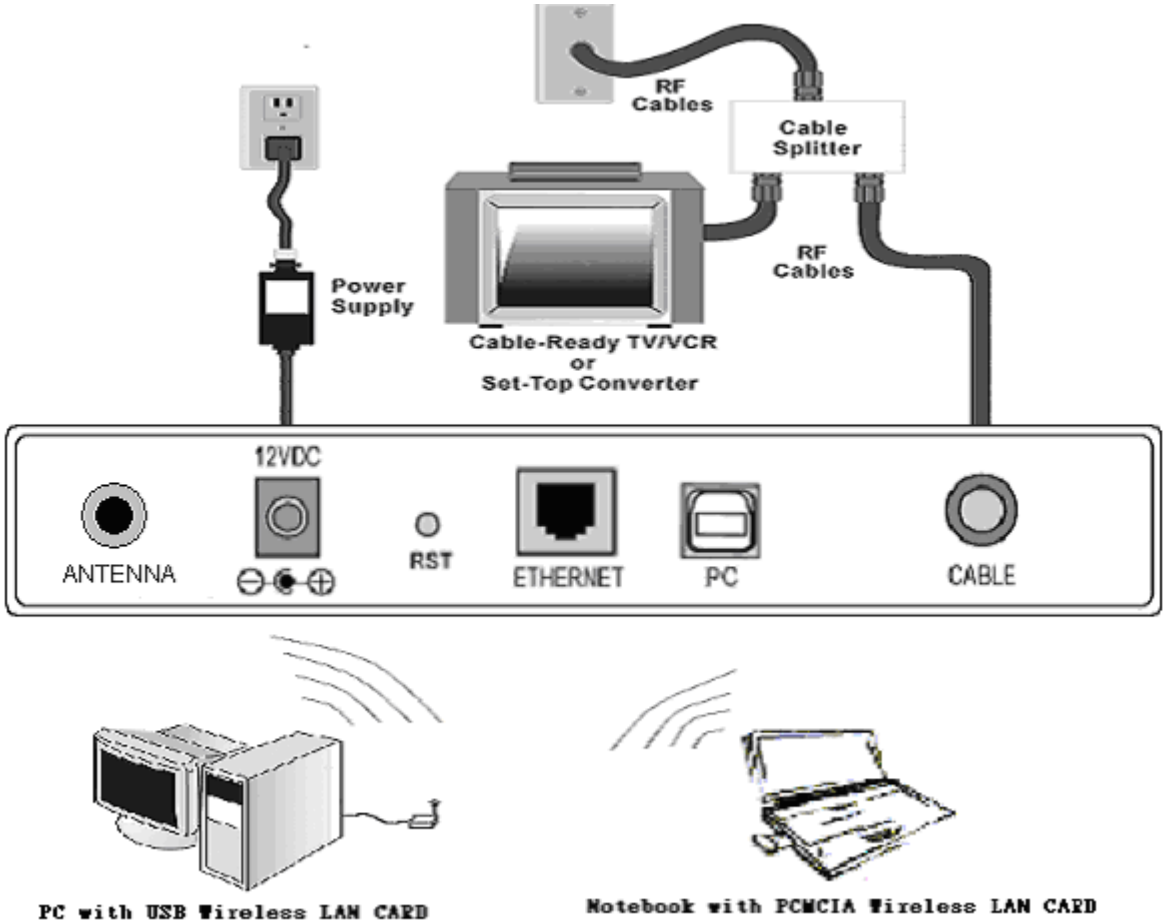
   ---Use Infrastructure connection mode.

7. Check that the TCP/IP protocol is installed on your wireless client PC. Configure it to get a dynamic IP from the ***Cable RG***

Note: You can go to **Chapter 3.3 "Setting TCP/IP on client PC"** now

8. When the connection is established, the client PCs can access the Internet or remote network through the ***Cable RG.***

Below shows the connection status among the cable modem and your computer.



Chapter 3: Software Installation and Configuration

3.1 USB Driver Installation

3.1-1 For Windows 98/Me

1. Wait for the cable modem is running in the operational state (registration O.K.). Plug the

USB cable into your PC USB port. You will see the next page. Click the "Next" button.

2. Select "Search for the best drivers for your device" and click the "Next" button.

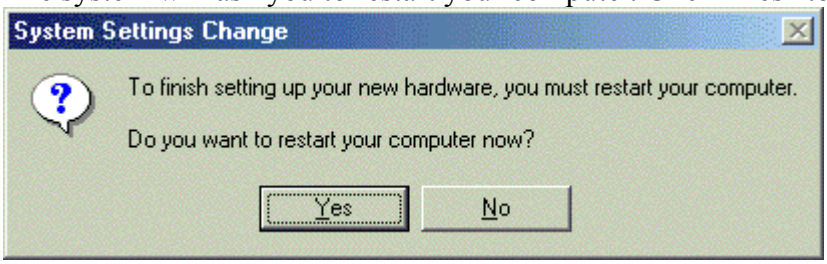
3. Check "Specify a location" and browse CD-ROM:\Win9x or WinME. Click the "Next" button.

4. Select "The updated driver..." and click the "Next" button.

5. Click the "Next" button.

6. Installation has been completed here. Click the "Finish" button.

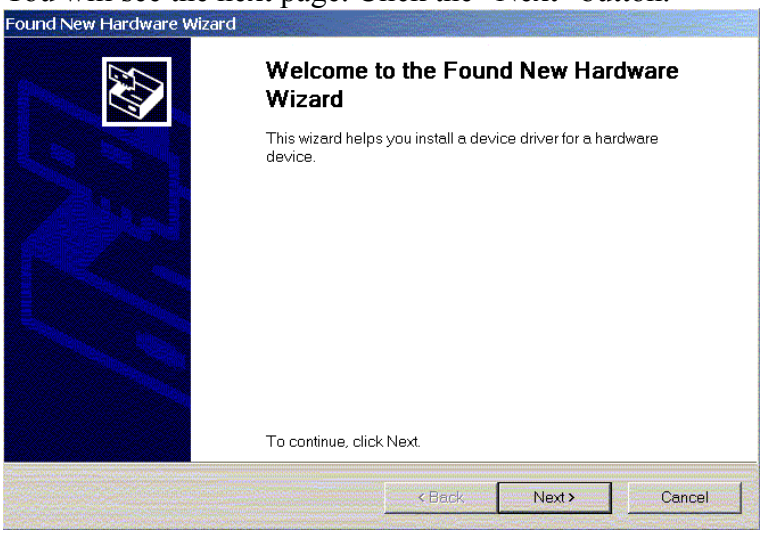
7. The system will ask you to restart your computer. Click "Yes" to complete the installation.



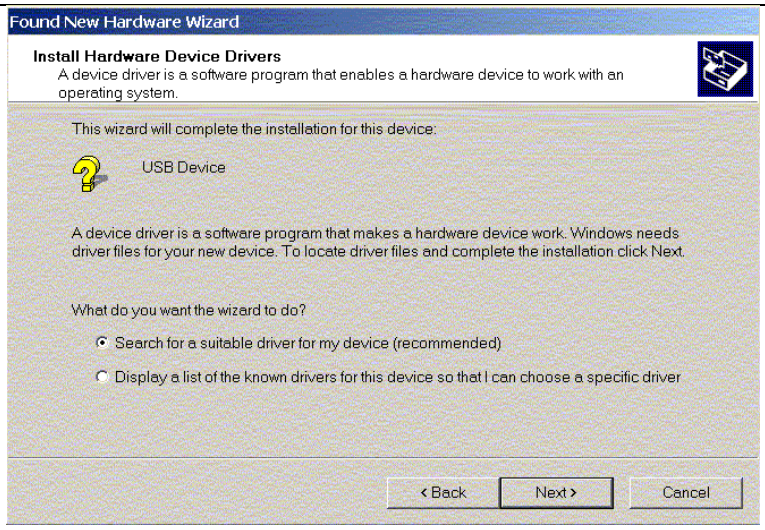
3.1-2 For Windows 2000/XP

1. Wait for the cable modem is running in the operational state (registration O.K.). Plug the USB cable into your PC USB port.

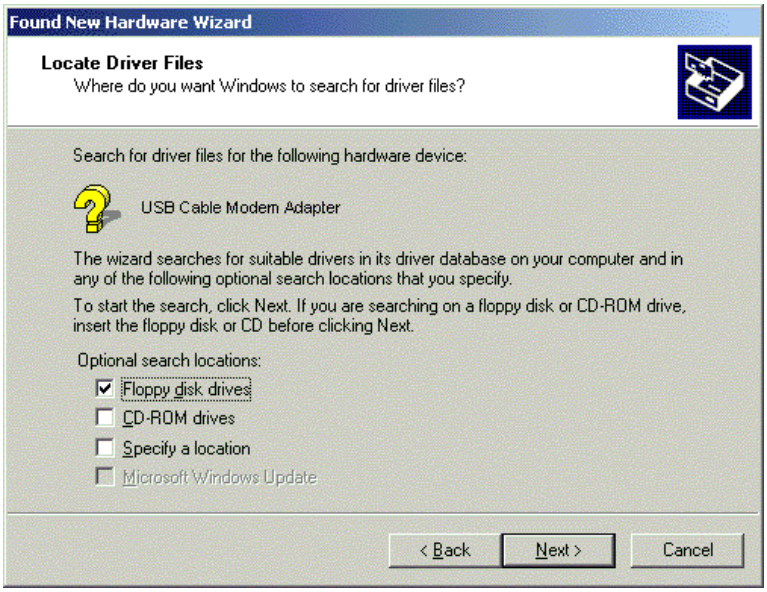
2. You will see the next page. Click the "Next" button.



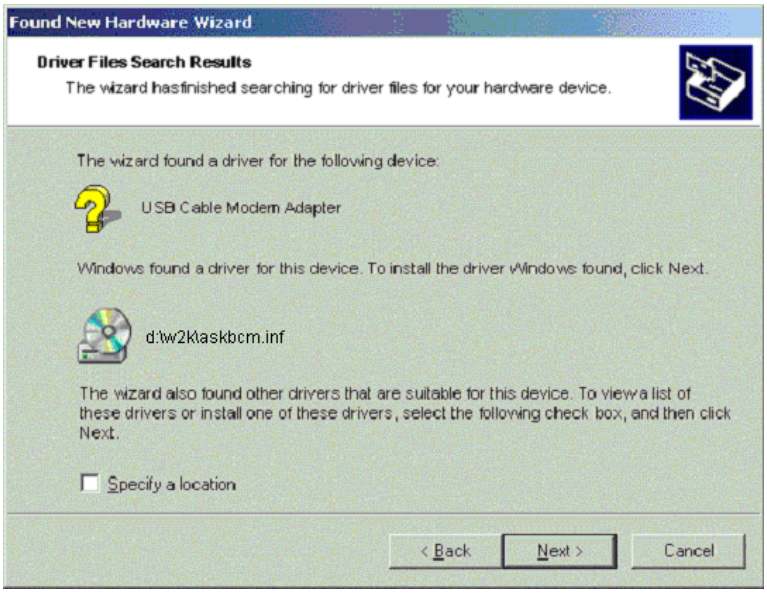
3. Select "Search for a suitable driver for my device" and click the "Next" button.



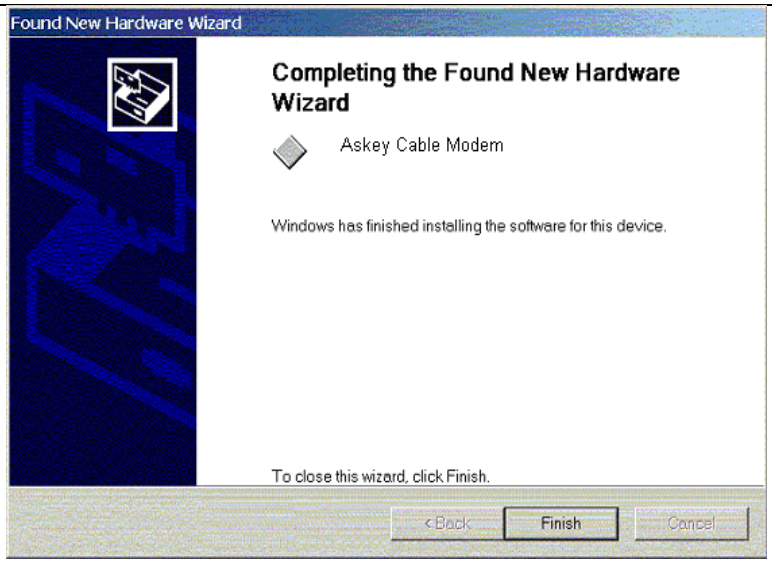
4. Insert the driver CD into CD-ROM. Select “CD-ROM drive” and clicks the “Next” button.



5. Click the “Next” button.



6. Installation has been completed here. Click the “Finish” button.



3.2 Uninstall USB Driver

3.2-1 For Windows 98/ME

1. Click “Start” button on your computer’s taskbar, point to “Settings”, and then click “Control Panel”.
2. Select **Add/Remove Programs**.
3. On the **Install/Uninstall** tab, select **USB Cable Modem Adapter** from the list box. Click the **Add/Remove** button.
4. A confirmation dialog appears. Click **Yes**.
5. A dialog box appears to ask you unplug USB cable, please unplug the cable and click **OK**.

3.2-2 For Windows 2000/XP

1 Click on the **Start** menu, point to **Settings** and click on **Control Panel**.
2 Select **Add/Remove Programs**.
3 Select **USB Cable Modem Adapter** from the list box.
4 Click the **Change/Remove** button.
5 Click **Yes** button.
6 A dialog box appears to ask you unplug USB cable, please unplug the cable and click **OK**.

3.3 Setting TCP/IP on Client PC

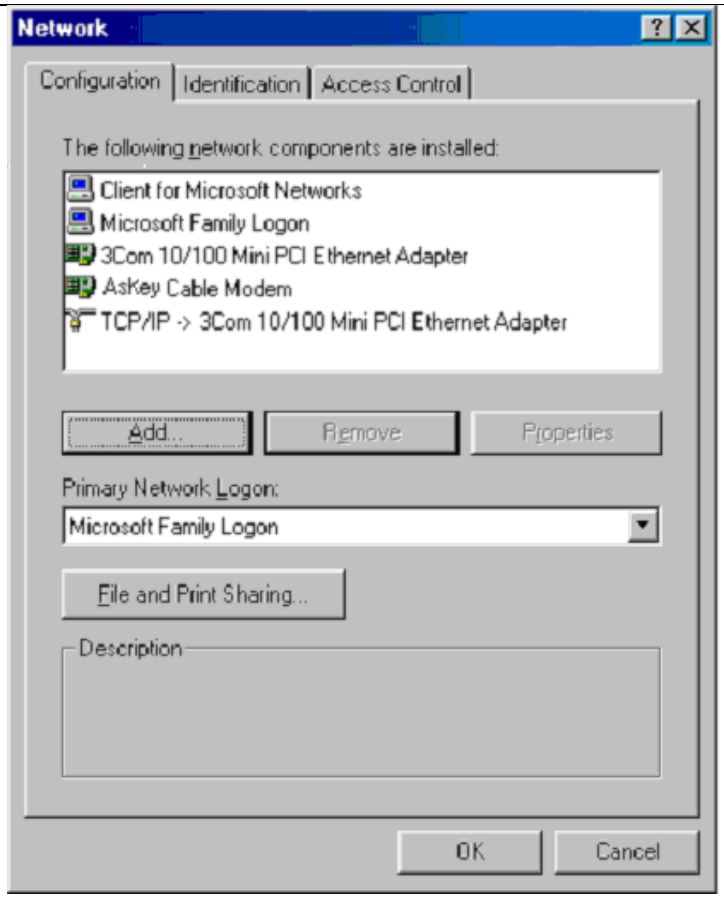
After you successfully complete the network interface card (Ethernet card) installation task, you need to make sure the TCP/IP communications protocol used by the Ethernet card is installed and correctly configured on your system.

3.3-1 For Windows 98/Me

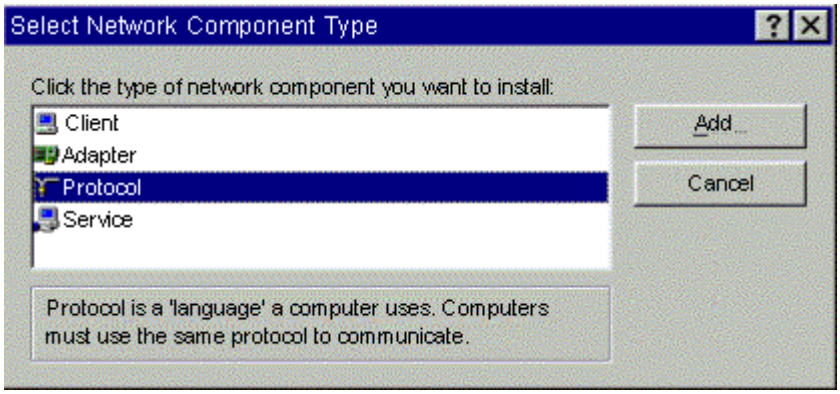
1. Click on the **Start** menu, point to **Settings** and click on **Control Panel**.

2. The Control Panel window will show up. Double-click the "Network" icon in the Control Panel window.

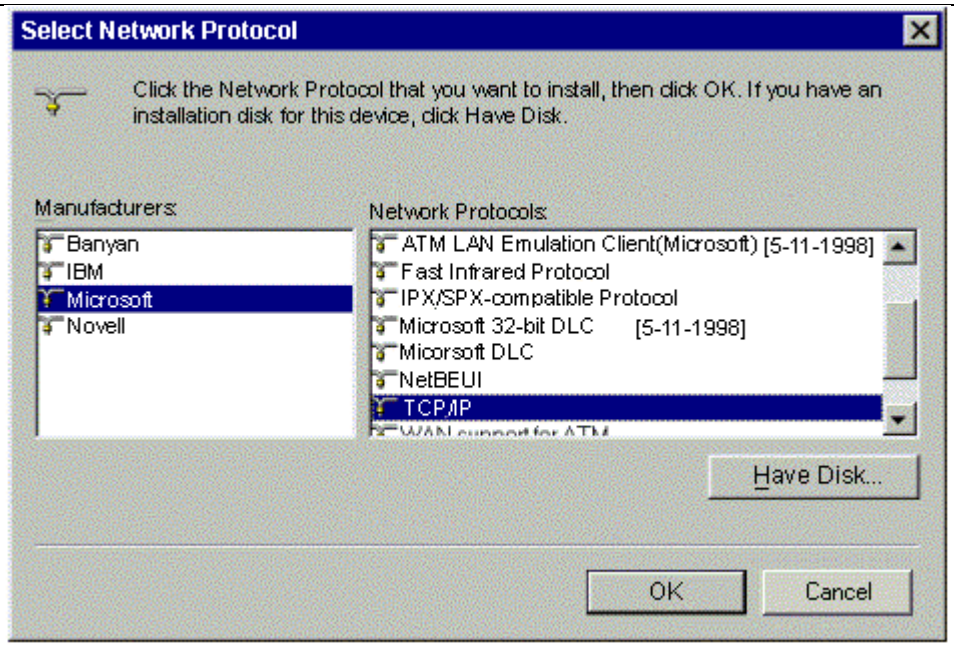
3. Windows will appear the Network dialog box. Click "Configuration" tab to bring it to the front, and on this tab, a list of installed network components appears.
   Option 1: If you have **no** TCP/IP protocol, click **Add**.
   Option 2: If you have TCP/IP protocol, go to Step 7.



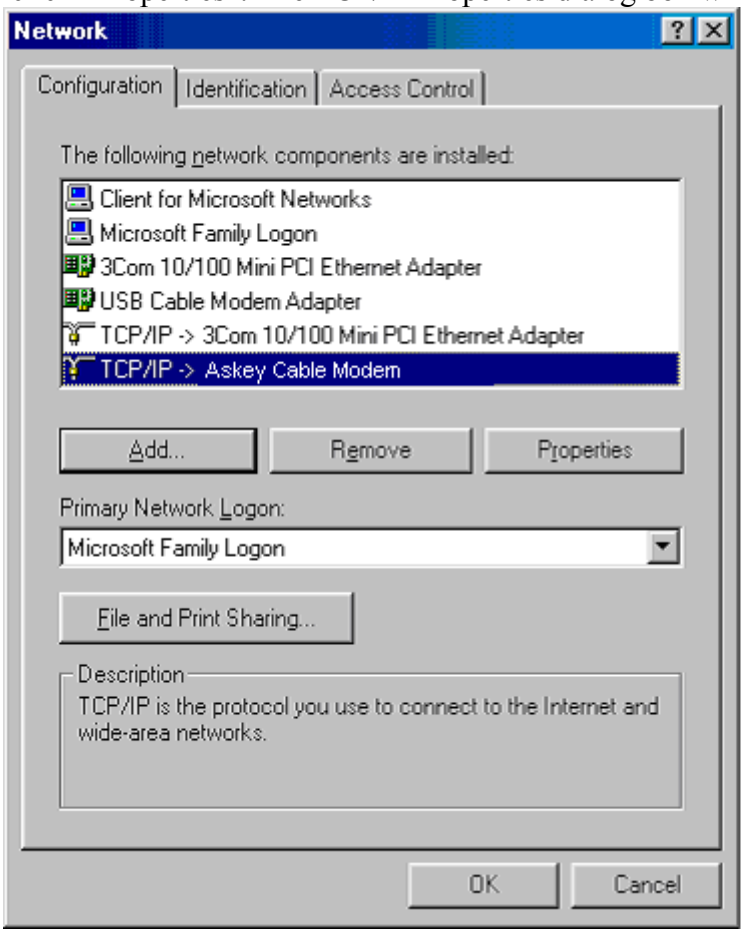
4. The Select Network Component Type dialog box will show up. Click ”Protocol”, and then click ”Add”.



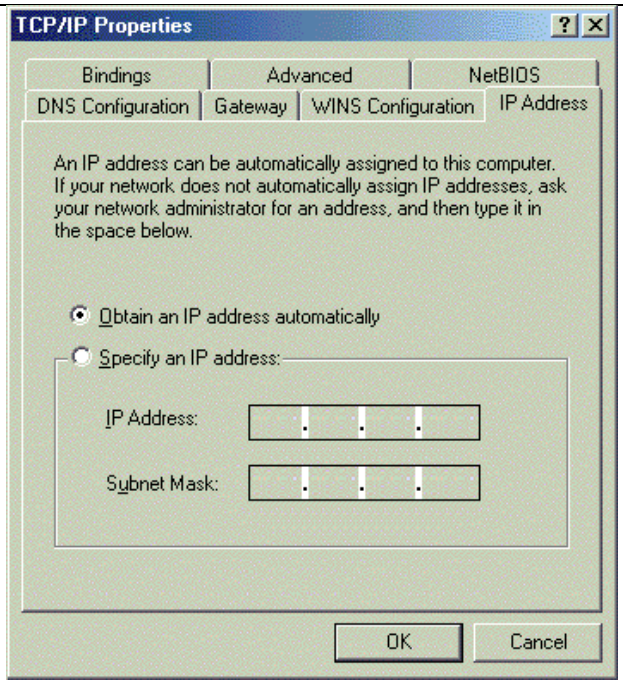
5. You will see the Select Network Protocol dialog box. Click “Microsoft” in the “Manufactures:” list, and then click “TCP/IP” in the “Network Protocols:” list. Click “OK”.



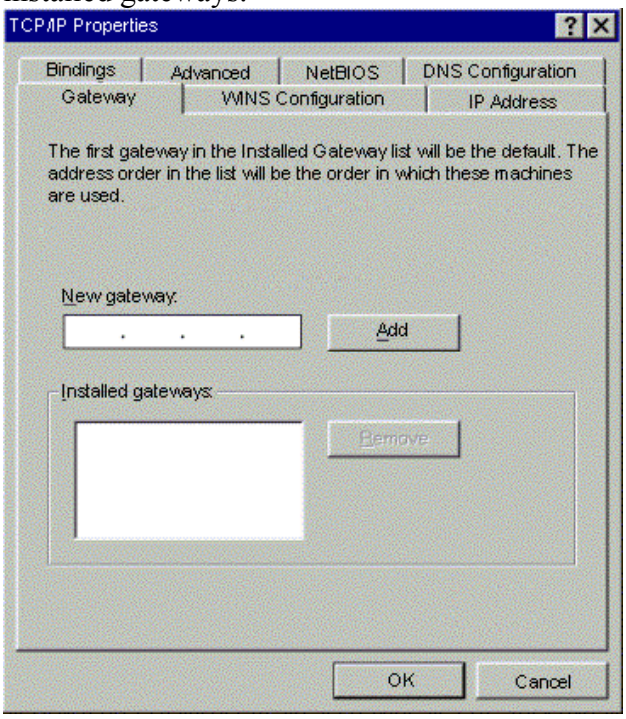
6. You will be directed back to the Network dialog box, and on the "Configuration" tab, the entry that includes TCP/IP -> followed by the Ethernet card installed in your computer will appear in the list of installed network components.
7. Click TCP/IP -> followed by the Ethernet card installed in your computer, and then click "Properties". The TCP/IP Properties dialog box will appear.



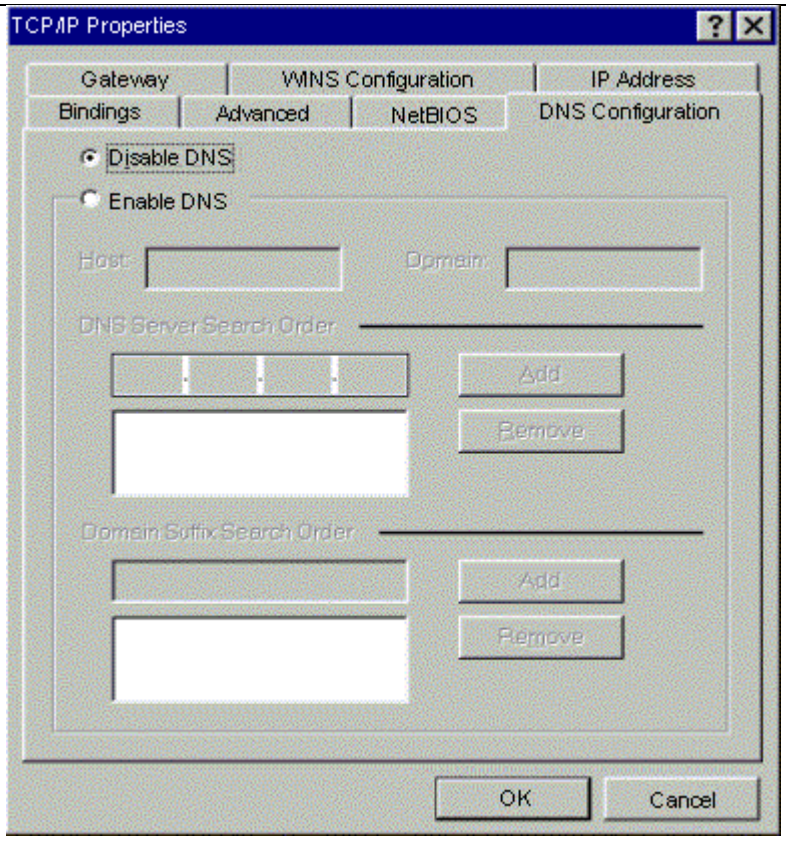
8. In the TCP/IP Properties dialog box, please follow the directions below: Click "IP Address" tab to bring it to the front, and then click "Obtain an IP address automatically" on the tab.



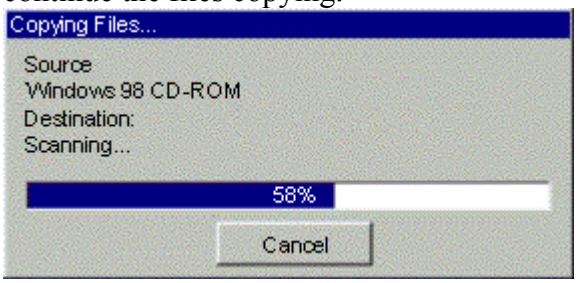
9. Click “Gateway” to bring it to the front. On this tab, leave the “New gateway:” blank. If there is the entry in the “Installed gateway:” list, click it and then click “Remove” to remove all installed gateways.



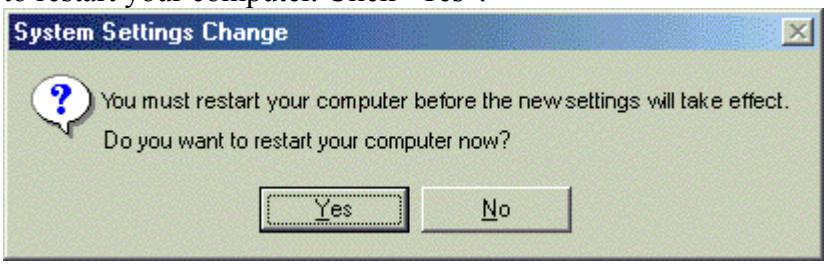
10. Click “DNS Configuration” tabs to bring it to the front, and click “Disable DNS”, then click “OK” to close the dialog box.



11. The Copying Files dialog box will pop up and the system will start copying files from Windows. At the first time you will be asked to insert the Windows 98 CD-ROM into the CD-ROM drive during the files copying, and follow the instructions when they show up, then click “OK”. It will prompt another Copying Files dialog box. Please type the command line that Windows files located in the dialog box (For example, D:\win98). Click “OK” to continue the files copying.

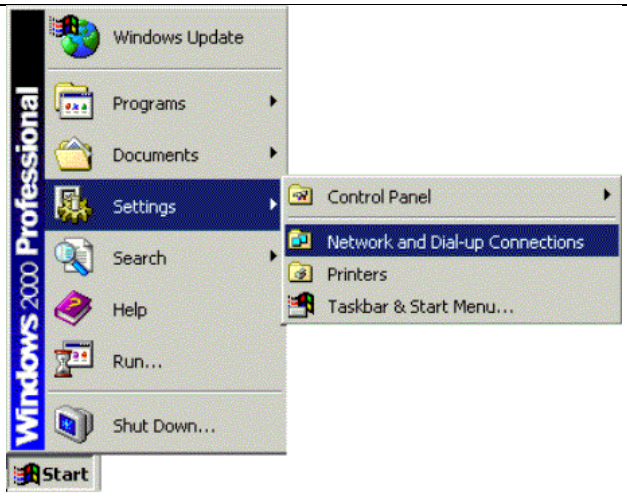


12. Windows will appear the System Settings Change dialog box and ask you if you would like to restart your computer. Click “Yes”.

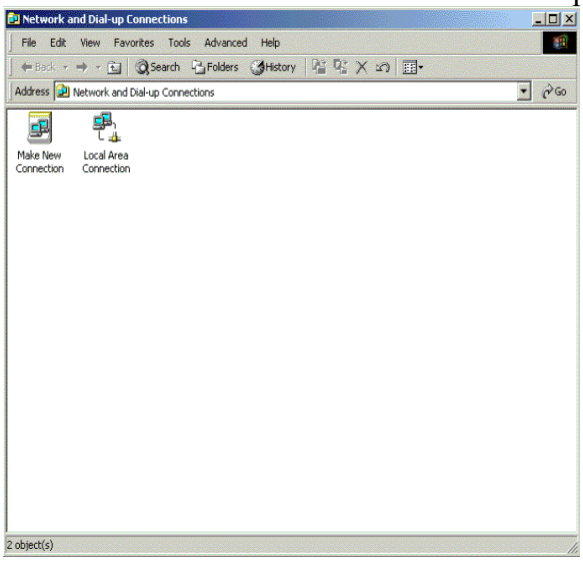


3.3-2 For Windows 2000/XP

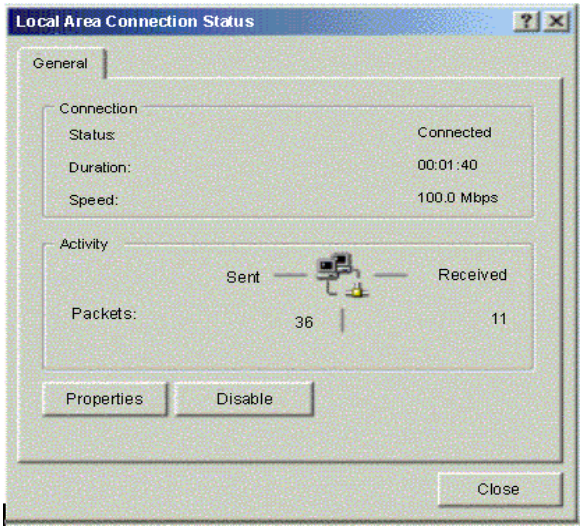
1. Click “Start” button on your computer’s taskbar, point to “Settings”, and then click ”Network and Dial-up Connections”.



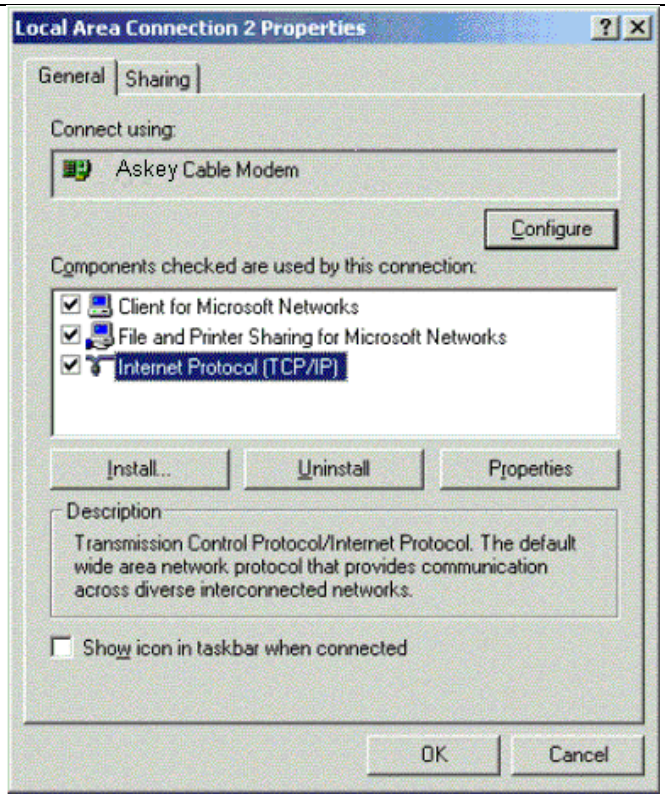
2. The Network and Dial-up Connections window will show up. Double-click “Local Area Connection” icon in the Network and Dial-up Connections window.



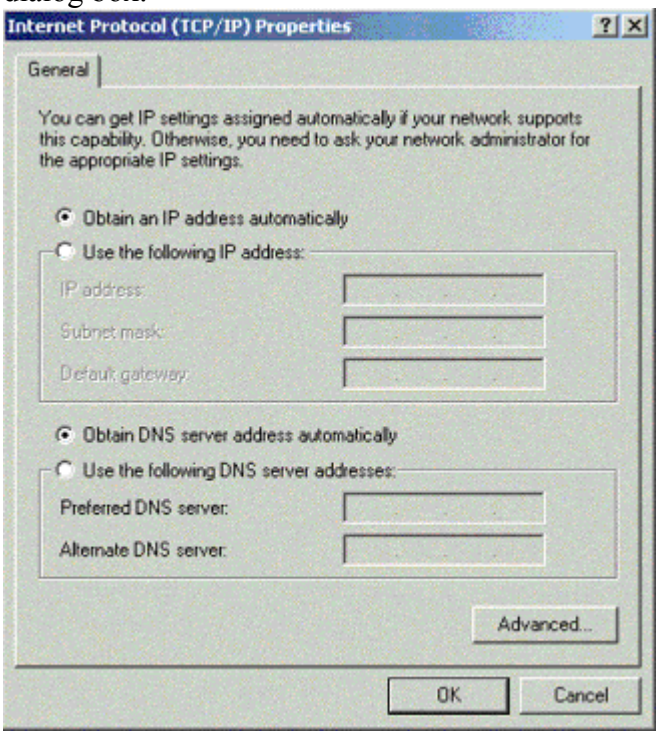
3. The Local Area Connection status window will show up. Click the “Properties” button.



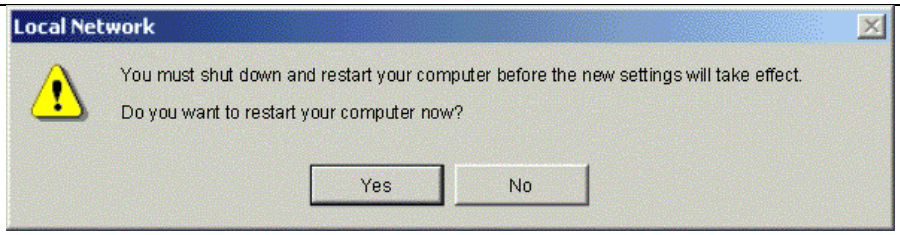
4. Click “Internet Protocol (TCP/IP)” and then click “Properties”.



5. The Internet Protocol (TCP/IP) Properties dialog box appears. Click “Obtain an IP address automatically”. Click “Obtain DNS server address automatically”. Click “OK” to close the dialog box.



6. Windows will appear the System Settings Change dialog box and ask you if you would like to restart your computer. Click “Yes”.

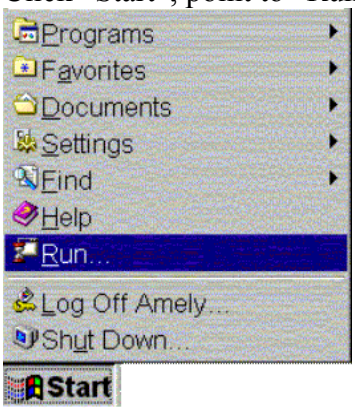


3.4 DHCP Server

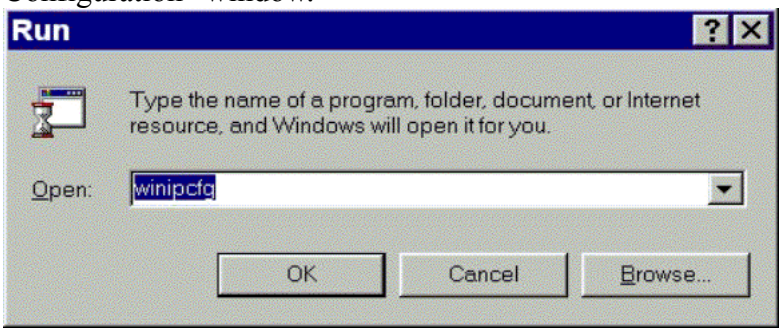
PC connected to the cable modem can automatically get a private IP address from the DHCP server of cable modem before cable modem is on line. The following steps will show you how to get an IP address from DHCP server of cable modem before cable modem is on line.

3.4-1 For Windows 98/Me

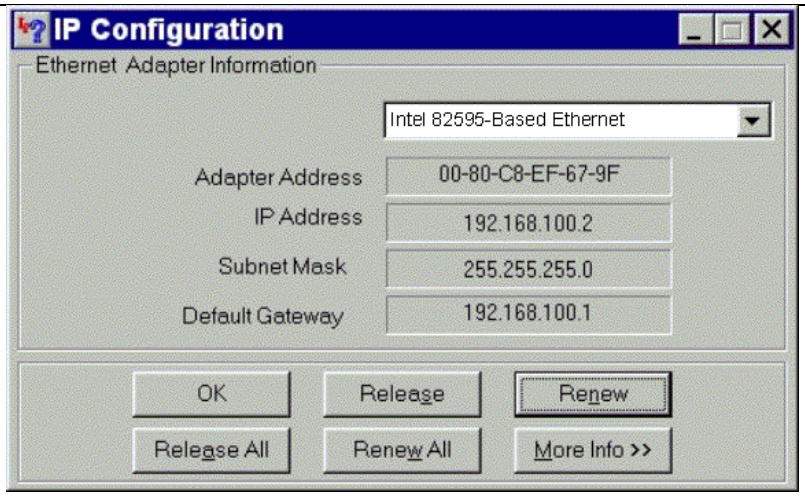
1. Click “Start“, point to “Run“, and click to open the “Run“ windows.



2. Enter “winipcfg“ in the “Open“ field. Click “OK“ to execute the winipcfg and show the “IP Configuration“ window.

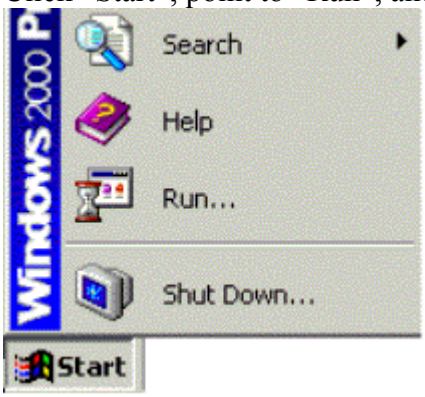


3. Select the “Ethernet adapter“ to show the IP address. Press “Release“ and “Renew“ if the PC is not accessing the Internet. After the cable modem is on line, you need to press the “Release“ and “Renew“ to get a new IP address from your ISP’s server.

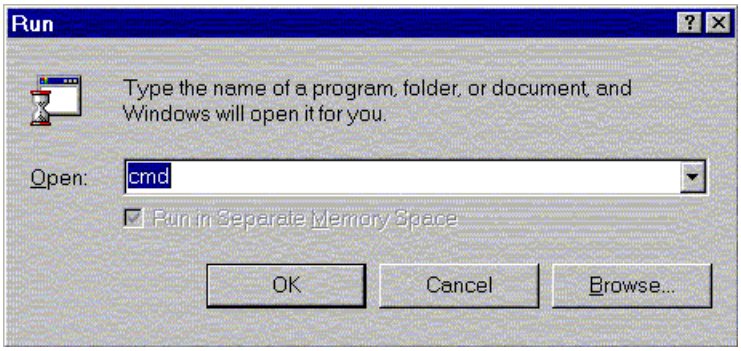


3.4-2 For Windows NT/2000/XP

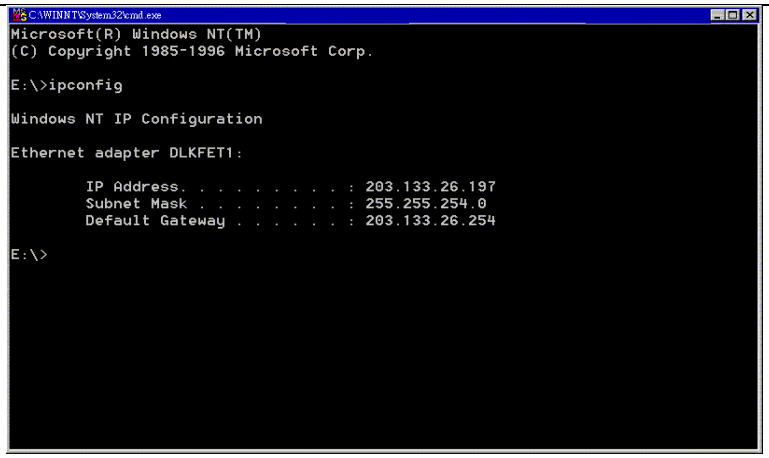
1. Click "Start", point to "Run", and click to open the "Run" windows.



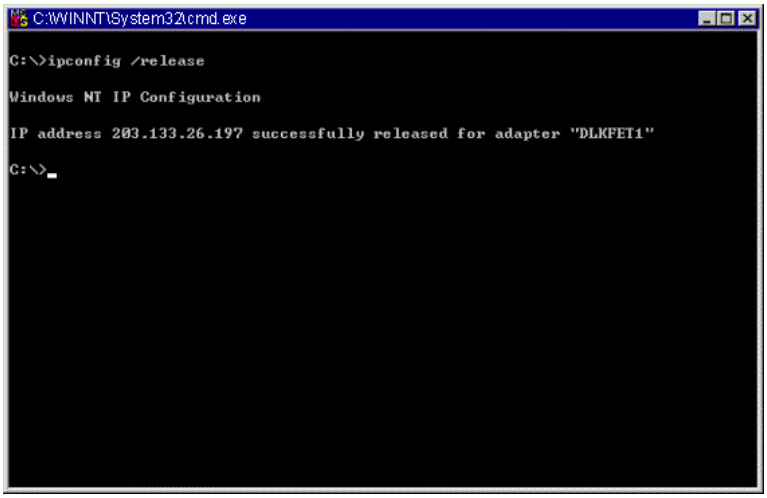
2. The Run dialog box appears. Type "cmd" in the "Open" field, and then click "OK" to execute the command.



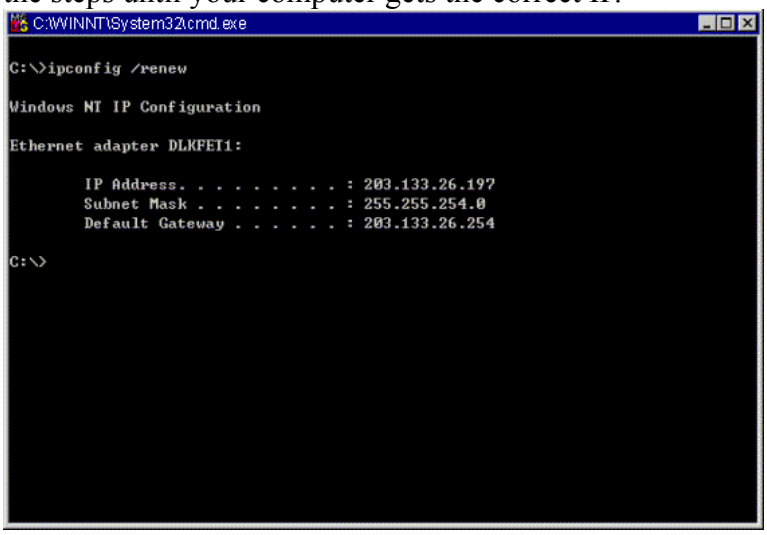
3. You will enter the dos mode, type "ipconfig", press "Enter" on your keyboard, and you will see the IP address your computer get from the cable modem.



4. If PC is not access Internet, type “ipconfig /release”, and press “Enter” on your keyboard to release the IP.

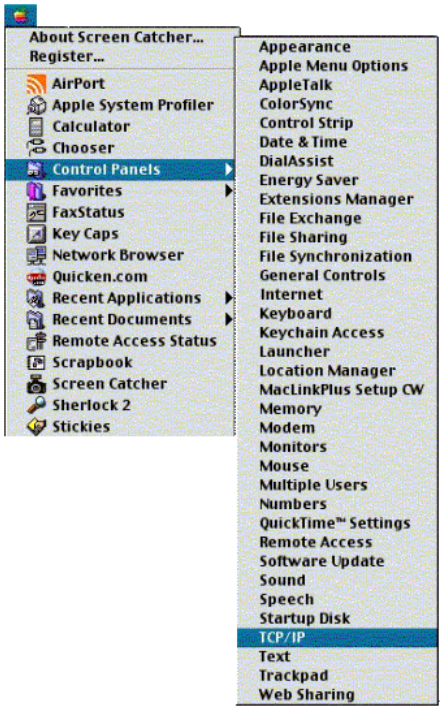


5. Type “ipconfig /renew”, and press “Enter” on your keyboard to renew the IP. You can repeat the steps until your computer gets the correct IP.

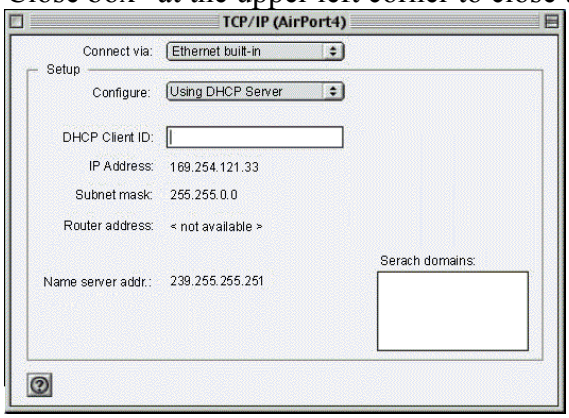


3.4-3 For Apple Macintosh

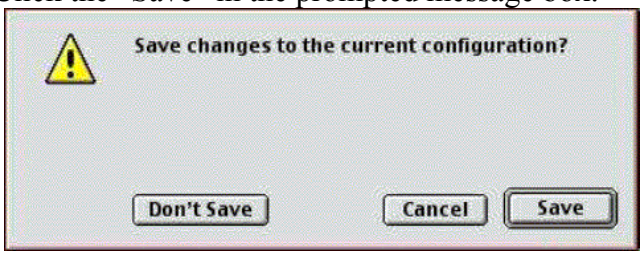
1. Click “Apple menu“, point to “Control Panels“, and click “TCP/IP” to open the “TCP/IP” window.



2. If the iMac gets an invalid IP, select "Using DHCP Server" in "Configure" field. Click the "Close box" at the upper left corner to close the "TCP/IP" window.



3. Click the "Save" in the prompted message box.

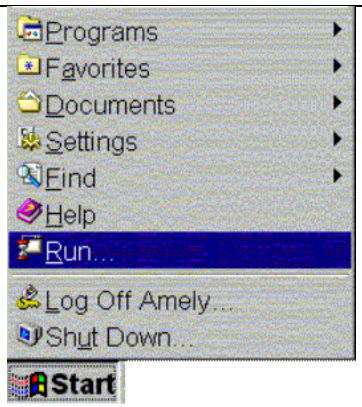


4. You need to wait about 2 minutes and open "TCP/IP" window to see the new TCP/IP status.

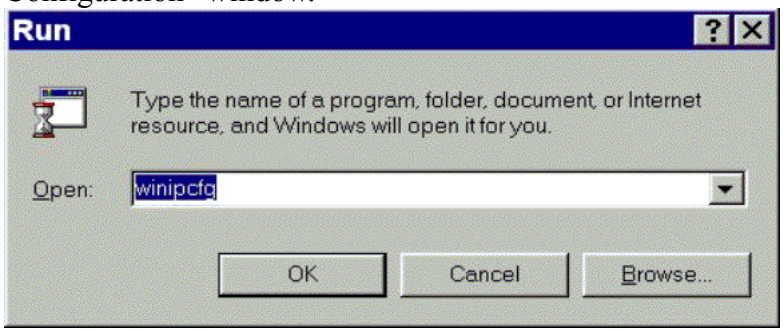
3.5 Renew PC IP Address

There is a chance that your PC does not renew its IP address after cable modem is on line and the PC cannot access the Internet. Please follow the procedures below to renew PC's IP address after the cable modem is on line.

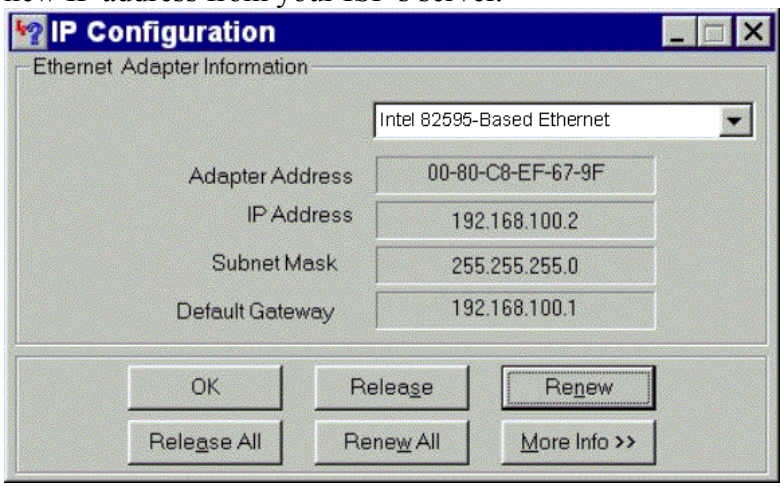
1. Click "Start", point to "Run", and click to open the "Run" windows.



2. Enter winipcfg in the “Open“ field. Click “OK“ to execute the winipcfg and show the “IP Configuration“ window.



3. Select the “Ethernet adapter“ to show the IP address. Press “Release“ and “Renew“ to get a new IP address from your ISP’s server.



4. Select the “OK“ to close the IP Configuration window.

Chapter 4: Access Internet through Cable Modem

For making sure that you can get into Internet successfully, please make sure the following first.

1. Make sure the connection (through Ethernet or USB) between the cable modem and your computer is OK.

2. Make sure the TCP/IP protocol is set properly.

3. Subscribe to Cable Television Company and get the license to access Internet.

4. Prepare wireless LAN Card if you would like to access Internet without Cat.5 UTP Cable.

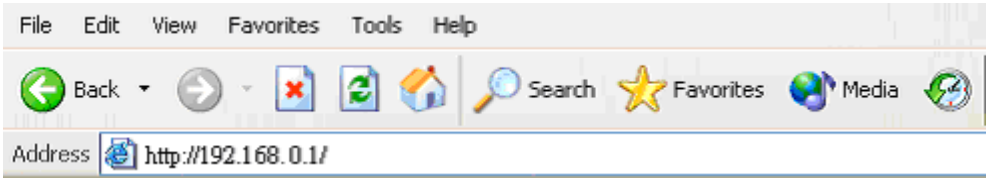
Accessing Internet

When you are sure all above is Ok, you can open the Browser (such as I.E.) to open the homepage for the browser. See the following example.

Chapter 5: Web Manager

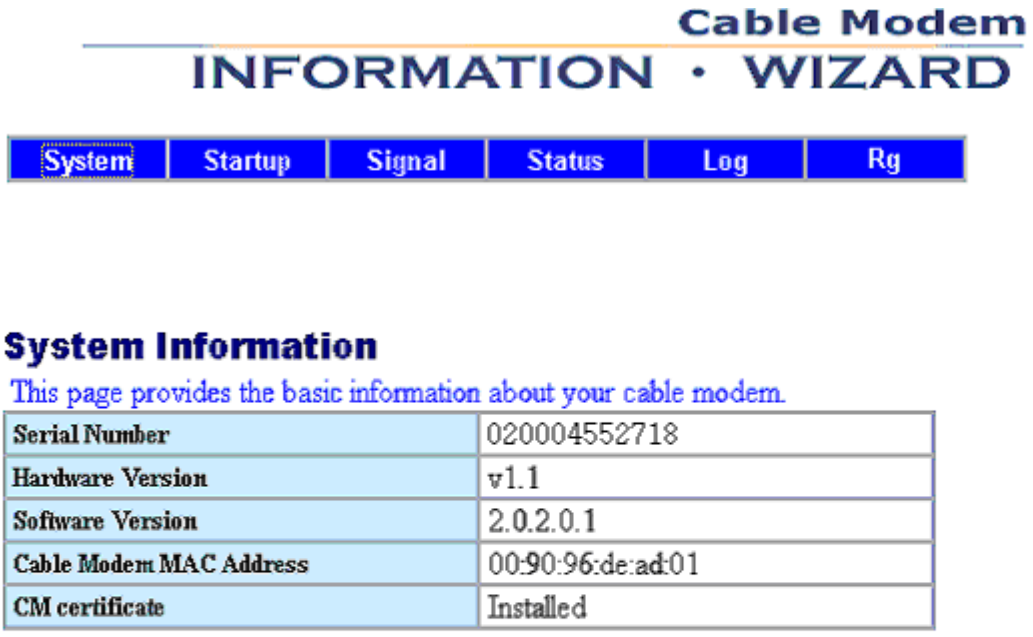
Once your host PC is properly configured, please proceed as follows:

Start your web browser and type the private IP address of the cable modem in the URL field: **192.168.0.1. Type the IP address as the figure shown below.**



After connecting to the device, you will be prompted to enter username and password. By default, the username is **admin** and the password is **k3757**, and click **OK** to enter the next step. See the following example for running under Windows XP.

5.1 System



In this page, it shows the **Serial Number, Hardware Version, Software Version, Cable Modem MAC Address, CM certificate**. You can check if your Cable RG is in the latest status.

5.2 Startup

Startup Procedure

The page provides information about the startup process of the cable modem. You may check this connection sequence to know the current status of your cable modem.

Procedure	Status	Comment
Acquire Downstream Channel	237000000 Hz	Locked
Connectivity state	Operational	Operational
Boot state	OK	Operational
Security	Disabled	Disabled

In this page, you can get the information of **Acquire Downstream Channel**, **Connectivity State**, **Boot State**, **Security**. According to **Acquire Downstream**, you can check if your channel is in the right frequency; if not, the **Downstream Channel** will not be locked. And if the **Connectivity state** is Operational, then it means that your Cable RG is successfully connected to the terminal machine. **Boot state** shows if your Cable RG is successfully booting or not.

5.3 Signal

Signal

This page provides important information about the status and quality of the communications between your cable modem and the cable modem network.

Downstream Channel

The data shown in the table below provides information about the signal coming from the network to your cable modem.

Lock Status	Locked	**Modulation**	QAM256
Channel ID	2	**Downstream Power**	11.9 dBmV
Downstream Frequency	237000000 Hz	**Symbol Rate**	0 Bytes/sec
SNR	38.6 dB		

Upstream Channel

The data shown in the table below provides information about the signal being transmitted to the network from your cable modem.

Lock Status	Locked	**Modulation**	QAM16
Channel ID	3	**Upstream Power**	36.0 dBmV
Upstream Frequency	18000000 Hz	**Symbol Rate**	0 Bytes/sec

This page shows the advanced information of **Downstream** and **Upstream Channel**. You can check if all the parameters are normal comparing to the **Appendix: Specification**-Page 51.

5.4 Status

Status

This page provides important information about the operational status of your cable modem and the device(s) you have connected to it.

Cable Modem

The data shown in the table below provides information about the operational status of your cable modem.

System Up Time	0 days 02h:33m:28s

You can get the **System Up Time** in this page. It shows how long the Cable RG has been operated. You can reset the **System Up Time** by removing the power of Cable RG.

5.5 Log

Log

This page provides important information that can be used to resolve problems with your cable modem.

Time	Priority	Description
WED JUN 11 00:27:45 2003	Critical (3)	Init RANGING Critical Ranging Request Retries exhausted
WED JUN 11 11:07:36 2003	Critical (3)	DHCP FAILED - Discover sent, no offer received
WED JUN 11 11:06:27 2003	Critical (3)	Received Response to Broadcast Maintenance Request, But no Un...
WED JUN 11 11:07:41 2003	Critical (3)	SYNC Timing Synchronization failure - Failed to acquire QAM/Q...
THU JUN 12 09:41:07 2003	Critical (3)	Started Unicast Maintenance Ranging - No Response received - ...
Time Not Established	Critical (3)	DHCP WARNING - Non-critical field invalid in response.
WED JUN 11 00:27:45 2003	Critical (3)	No Ranging Response received - T3 time-out
WED JUN 11 11:07:52 2003	Critical (3)	SYNC Timing Synchronization failure - Failed to acquire FEC f...

In this page, you can check the detail connection log of your Cable RG. It shows the **Time**, **Priority**, and **Description**. By the description you can diagnose whether your Cable RG is working properly.

5.6 RG Setup

This page enables you to set up and configure your cable modem's internal router and networking capabilities. Select one of the following links below to set up your network.

Basic Settings:

- Password Settings
- Network Configuration
- IP Address Management

Advanced Settings:

- Options
- IP Address Filtering
- MAC Address Filtering
- Port Filtering
- Port Forwarding
- Port Triggers
- DMZ Host
- Rip Setup

Firewall:

- Web Filters
- Time of Day Filters
- Event Logging

Wireless:

- Link Control
- Basic
- Privacy
- Access Control
- Advanced

There are many functions could be adjusted by users under RG setup. Here we will describe them in detail in the following pages. There are functions of **Basic Settings, Advanced Settings, Firewall, and Wireless**.

5.6-1 Basic Setting- *Password Settings*

Setup

Basic Settings - Password Settings

This page allows you to modify the password settings for this device.

Password ●●●●●

Re-Enter Password ●●●●●

Apply

Password Settings:

The Password screen allows you to change the password. If you do not change the password, all users on your network will be access the Cable RG simply by entering the unit's IP address into their web browser's location windows and entering the default password to access the Cable RG.

If you want to change the Web Access **Password**, type the new one and re-enter it.

Once you forget the password, just reset the machine and it's password will restore to default.

After the settings is done, click on Apply to enalbe it.

5.6-1 Basic Setting- *Network Configuration*

Setup
Basic Settings - Network Configuration
This page allows you to enter or modify the basic settings for your network.

LAN	IP Address:	192 . 168 . 0 . 1
	MAC Address	00:90:96:de:ad:05
WAN	IP Address:	10.6.85.101
	Duration	D: 02 H: 00 M: 00 S: 00
	Expires	SAT JUN 14 11:42:33 2003
		Renew WAN IP Address Lease
	Host Name	(Required by some ISPs)
	Domain Name	(Required by some ISPs)
	Static IP Address	0 . 0 . 0 . 0
	Static IP Mask	0 . 0 . 0 . 0
	Default Gateway	0 . 0 . 0 . 0
	Primary DNS (static IP only)	0 . 0 . 0 . 0
	Secondary DNS (static IP only)	0 . 0 . 0 . 0
	Spoofed MAC Address	00 : 00 : 00 : 00 : 00 : 00
		Apply

Network Configuration:

LAN IP Address: You have to provide a **LAN IP Address** for the Local Network. The **LAN IP Address** can be adjusted according to your local networks. Please consult the **TCP/IP** settings mannual, or use the default LAN IP Address.

Host Name & Domain Name: These fields allows you to supply a host and domain name for the Router. Some ISPs require these names as identification. You may have to check with your ISP to see if your Broadband Internet service has been configured with a host and domain name. In most cases, these fields may be left blank.

Renew WAN IP Address Lease: When you would like to relnew the Dynamic IP address provided by your ISP, click on this botton. Then you will get a new IP address from your ISP.

Without Dynamic IP Address or DHCP Function of your ISP, please follows the Settings shown blow.

Static IP Address: This is the Router's IP address, as seen from the Internet. Your ISP will provide you with the IP Address you need to specify here.

Static IP Mask: This is the Router's Subnet Mask, as seen by external users on the Internet. Your ISP will provide you with the Subnet Mask.

Default Gateway: You have to type a **Default Gateway** which must be provided by your ISP. The gateway IP serves as a outgoing tunnel for all LAN Networks.

Primary DNS: You have to type a **Primary DNS** which must be provided by your ISP.

Secondary DNS: You have to type a **Secondary DNS** which must be provided by your ISP.

Spoofed MAC Address: You have to type a **Spoofed MAC Address** which must be registered to your ISP.

After the settings is done, click on Apply to enalbe it.

5.6-1 Basic Setting- *IP Address Management*

Setup

Basic Settings - IP Management

This page allows you to configure how IP addresses are assigned and managed in your network.

DHCP Server ◉ Yes ○ No

Starting Local Address 192.168.0. 10

Number of CPEs 245

Apply

DHCP Client Lease Info

MAC Address	IP Address	Subnet Mask	Duration	Expires
000039fb5898	192.168.000.010	255.255.255.000	D:00 H:01 M:00 S:00	THU JUN 12 15:36:19 2003

Current System Time: THU JUN 12 14:47:38 2003

Force Available

IP Address Management:

DHCP Server: In this event, you can enable the DHCP server function of Cable RG. Once you enable it, your Cable RG will serves as a DHCP servers for your local network. Your local network will get the IP addresses automatically from the Cable RG. You just need to set up the starting local address and the CPE numbers

Starting Local Address: Give the starting **IP** address of CPE (Customer Premise Equipment) It usually starts from 2 to 254. In that, the 192.168.0.1 servers as the default IP address of your Cable RG.

Number of CPEs: Give the numbers of IP address pool, it ranges from 1~245.

Force Available: If you would like to forcely release one IP address which has been occupied for some time, just selet the IP address in the list and click on the **Force Available** botton to release it.

Ex1. *If your starting IP address is 192.168.0.10 and numbers of CPEs is 245, then your local networks' IP addresses will starting from 192.168.0.10 ~ 192.168.0.254. It provides 245 IP addresses accessably.*

Ex2. *If your starting IP address is 192.168.0.20 and numbers of CPEs is 200, then your local networks' IP addresses will starting from 192.168.0.20 ~ 192.168.0.219. It provides 200 IP addresses accessably.*

After the settings is done, click on Apply to enalbe it.

5.6-2 Advanced Settings- *Options*

Setup

Advanced Settings - Options

This page allows you to select which advanced features are enabled on your network.

WAN Blocking	☐ *Enable*
Ipsec PassThrough	☑ *Enable*
PPTP PassThrough	☑ *Enable*
Remote Config Management	☐ *Enable*
Multicast Enable	☑ *Enable*

Apply

Options:

WAN Blocking: This function provides you the security of your local network. It will block all the outcoming packages that might attack your local network. To fully block the outcoming packages, Click on **Enable**. Then yours Cable RG will enable WAN Blocking.

IPsec Pass/Through: This feature lets you use IPsec Pass Through. The IPsec Pass Through allows the certain packages to pass through the Cable RG. It gives more safety for your network. To use this feature, Click on **Enable.**

PPTP Pass/Through: Point to point Tunneling Protocol (PPTP) is a service that applies for connections in Europe only. And **PPTP** is the method used to enable **VPN**(Virtual Private Networking) tunnels. Click on **Enable** to enable **PPTP Pass/Through.**

Romote Config Management: You can manage your Cable RG through Internet. Click on **Enable** to enable **Romote Config Management.** Then you can control your Cable RG anywhere through I nternet. The remote control IP addess is the WAN IP address provides by your **ISP**.

Multicast Enable: It will allows all the multicast packages pass through your Cable RG, when you enable this function. There are many kind of multicast packages through internet, and they will be filtered by the Cable RG before coming into your local network. If you want to accept these multicast packages, then click on **Enable** to enable **Multicast.**

After the settings is done, click on Apply to enalbe it.

5.6-2 Advanced Settings- *IP Address Filtering*

Setup
Advanced Settings - IP Filtering
This page allows you to configure IP address filters.

IP Filtering		
Start Address	End Address	Enable
192.168.0.0	192.168.0.0	☐
192.168.0.0	192.168.0.0	☐
192.168.0.0	192.168.0.0	☐
192.168.0.0	192.168.0.0	☐
192.168.0.0	192.168.0.0	☐
192.168.0.0	192.168.0.0	☐
192.168.0.0	192.168.0.0	☐
192.168.0.0	192.168.0.0	☐
192.168.0.0	192.168.0.0	☐
192.168.0.0	192.168.0.0	☐

Apply

IP Filtering:

IP Filtering blocks specific internal users from accessing the Internet and enable VPN(virtual Private Network) tunnels. This is handled from the filtered tab shown above, and you can set up IP filtering by using IP address.

Start Address: Enter the Start IP address of the range.

End Address: Enter the End IP Address of the range.

Enable: Click on **Enable** to enable it. The range of the IP addresses will be filtered.

Ex. *If you set up Start Address as 192.168.0.20 and End Address as 192.168.0.25, then click on Enable. These IP addresses range from 192.168.0.20 to 192.168.0.25 can't access the Internet or using VPN tunnels.*

After the settings is done, click on Apply to enalbe it.

5.6-2 Advanced Settings- *Mac Address Filtering*

Setup
Advanced Settings - **MAC Filtering**
This page allows you to configure MAC address filters.

MAC Address Filters				
MAC 01	00 : 00 : 00 : 00 : 00 : 00	MAC 02	00 : 00 : 00 : 00 : 00 : 00	
MAC 03	00 : 00 : 00 : 00 : 00 : 00	MAC 04	00 : 00 : 00 : 00 : 00 : 00	
MAC 05	00 : 00 : 00 : 00 : 00 : 00	MAC 06	00 : 00 : 00 : 00 : 00 : 00	
MAC 07	00 : 00 : 00 : 00 : 00 : 00	MAC 08	00 : 00 : 00 : 00 : 00 : 00	
MAC 09	00 : 00 : 00 : 00 : 00 : 00	MAC 10	00 : 00 : 00 : 00 : 00 : 00	
MAC 11	00 : 00 : 00 : 00 : 00 : 00	MAC 12	00 : 00 : 00 : 00 : 00 : 00	
MAC 13	00 : 00 : 00 : 00 : 00 : 00	MAC 14	00 : 00 : 00 : 00 : 00 : 00	
MAC 15	00 : 00 : 00 : 00 : 00 : 00	MAC 16	00 : 00 : 00 : 00 : 00 : 00	
MAC 17	00 : 00 : 00 : 00 : 00 : 00	MAC 18	00 : 00 : 00 : 00 : 00 : 00	
MAC 19	00 : 00 : 00 : 00 : 00 : 00	MAC 20	00 : 00 : 00 : 00 : 00 : 00	

Apply

MAC Filtering:

MAC Filtering blocks specific internal users from accessing the Internet and enable VPN(virtual Private Network) tunnels. This is handled from the filtered tab shown above, and you can set up MAC filtering by using MAC address.

MAC Address Filters: Enter the MAC Addresses of the clients that you want to filter.

Ex. *If you enter a certain MAC address such as 00-90-96-11-22-33, then this MAC address will be blocked from access ing Internet or using VPN tinnels.*

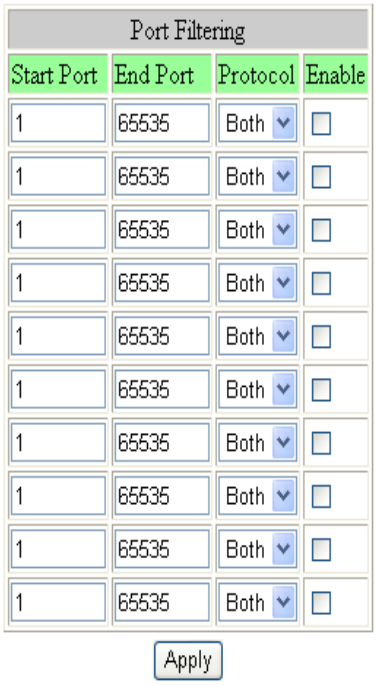
After the settings is done, click on Apply to enalbe it.

5.6-2 Advanced Settings- *Port Filtering*

Setup

Advanced Settings - Port Filtering

This page allows you to configure TCP and UDP port filters.



Port Filtering:

Port Filtering blocks specific internal users from accessing the Internet and enable VPN(virtual Private Network) tunnels. This is handled from the filtered tab shown above, and you can set up Port filtering by using Port numbers.

Start Port: Enter the Start port number of the range.

End Port: Enter the End port number of the range.

Protocol: On the same line, select **TCP**, **UDP** or **Both**.

Enable: Click on **Enable** to enable it. The range of the Ports will be filtered.

Ex. *If you set up start Port numbers as 2000 and End port numbers as 4000, then select Protocol as Both and click on Enable. Those who use the Port numbers range from 2000 to 4000 will be block from accessing Internet or using VPN tunnels.*

After the settings is done, click on Apply to enalbe it.

5.6-2 Advanced Settings- *Port Forwarding*

Setup

Advanced Settings - Port Forwarding

This page allows you to configure port forwarding for local IP addresses.

Port Forwarding				
Local IP Adr	Start Port	End Port	Protocol	Enable
192.168.0. 0	0	0	Both	☐
192.168.0. 0	0	0	Both	☐
192.168.0. 0	0	0	Both	☐
192.168.0. 0	0	0	Both	☐
192.168.0. 0	0	0	Both	☐
192.168.0. 0	0	0	Both	☐
192.168.0. 0	0	0	Both	☐
192.168.0. 0	0	0	Both	☐
192.168.0. 0	0	0	Both	☐
192.168.0. 0	0	0	Both	☐

Apply

Port Forwarding:

From the Forwarding tab, you can set up public services on your network, such as web servers, ftp servers, or E-mail servers. When users send this type of request to your network via the Internet, the Server will forward those requests to the appropriate PC. Before using Forwarding, you must disable the Server's DHCP function from the DHCP tab and assign the Router a new static LAN IP address, as the IP address may change when using the DHCP server.

IP Address: Enter the IP Address of the server that you want Internet users to be able to access.

Start Port: Enter the Start port number of the range.

End Port: Enter the End port number of the range.

Protocol: On the same line, select **TCP**, **UDP** or **Both**.

Enable: Click **Enable** to enable it. The range of the Ports will be available for certain IP Forwarding.

Ex. *If you set up the Local IP address as 192.168.0.10 and Start Port numbers as 1000, End Port numbers as 5000, then select the Protocol as Both and click on Enable. You can now set up a public service such as FTP servers on your network and set it's port numbers as 2000. Then when the public IP want to access the FTP which linstening port numbers is 2000, the Router will forward the request to 192.168.0.10. If it's listening port numbers is not 2000 or it's range is out of the range the Router will block it.*

After the settings is done, click on Apply to enalbe it.

5.6-2 Advanced Settings- *Port Triggering*

Setup

Advanced Settings - Port Triggers

This page allows you to configure TCP/UDP port triggers.

Port Triggering					
Trigger Range		Target Range			
Start Port	End Port	Start Port	End Port	Protocol	Enable
0	0	0	0	Both	☐
0	0	0	0	Both	☐
0	0	0	0	Both	☐
0	0	0	0	Both	☐
0	0	0	0	Both	☐
0	0	0	0	Both	☐
0	0	0	0	Both	☐
0	0	0	0	Both	☐
0	0	0	0	Both	☐
0	0	0	0	Both	☐

Apply

Port Triggering:

Port Triggering allows the Router to watch outgoing data for specific port numbers. The IP address of the computer that sends the matching data is remembered by the Router, so that when the request data returns through the firewall, the data is pulled back to the proper computer by way of IP address and port mapping rules.

Triggerred Range: Enter the Start Port and the End Port.

Target Range: Enter the Start Port and the End Port.

Protocol: On the same line, select **TCP**, **UDP** or **Both**.

Enable: Click on **Enable** to enable it. The range of the Ports will be Triggering.

After the settings is done, click on Apply to enalbe it.

5.6-2 Advanced Settings- *DMZ Host*

Setup

Advanced Settings - DMZ Host

The LAN IP address listed as the DMZ Host will have traffic forwarded to it from the public Internet. The DMZ Host is exposed to the public Internet and not protected by filtering.

DMZ Address 192.168.0. 0

Apply

DMZ Host:

From the DMZ Host screen, you can allow one local user be exposed to the Internet to use a special –purpose service such as Internet gaming or videoconferencing. Whereas IP Forwarding can only forward a maximum of ten ranges of ports, DMZ hosting forwards all the points for one PC simultaneously.

DMZ Address: To exposure one computer, enter the computer's IP address.

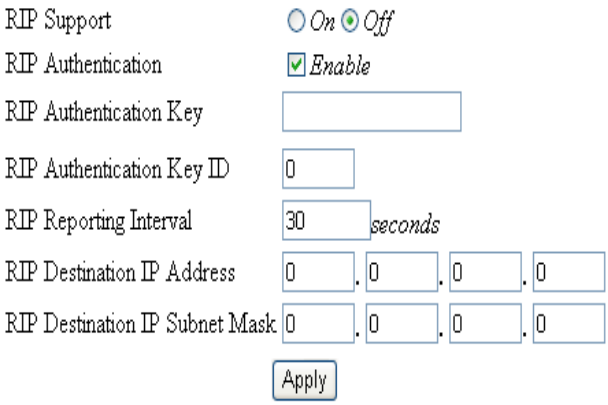
After the settings is done, click Apply to enalbe it.

5.6-2 Advanced Settings- *RIP Setup*

Setup

Advanced Settings - RIP Setup

This page allows configuration of RIP parameters related to authentication, destination IP address/subnet mask, and reporting intervals. RIP automatically identifies and uses the best known and quickest route to any given destination address. NOTE: RIP announcements are only active when a WAN IP address is statically assigned.



RIP Setup:

With RIP Setup screen shown above, you have to manually adjust to physical changes in the network's layout. The Router, using the RIP protocol, determines the network packet's route based on the fewest number of hops between the source and the destination. The RIP protocol regularly broadcasts routing information to other routers on the network. To set up RIP table, please follow the settings.

RIP Support: Click **On** or **Off** to enable or disable the **RIP** function.

RIP Authentication: Click **Enable** to decide the **Authentication** function.

RIP Authentication Key: Give the **Authentication key** when **Authentication** function is enabled.

RIP Authentication Key ID: Give the **Authentication key ID** when **Authentication** function is enabled.

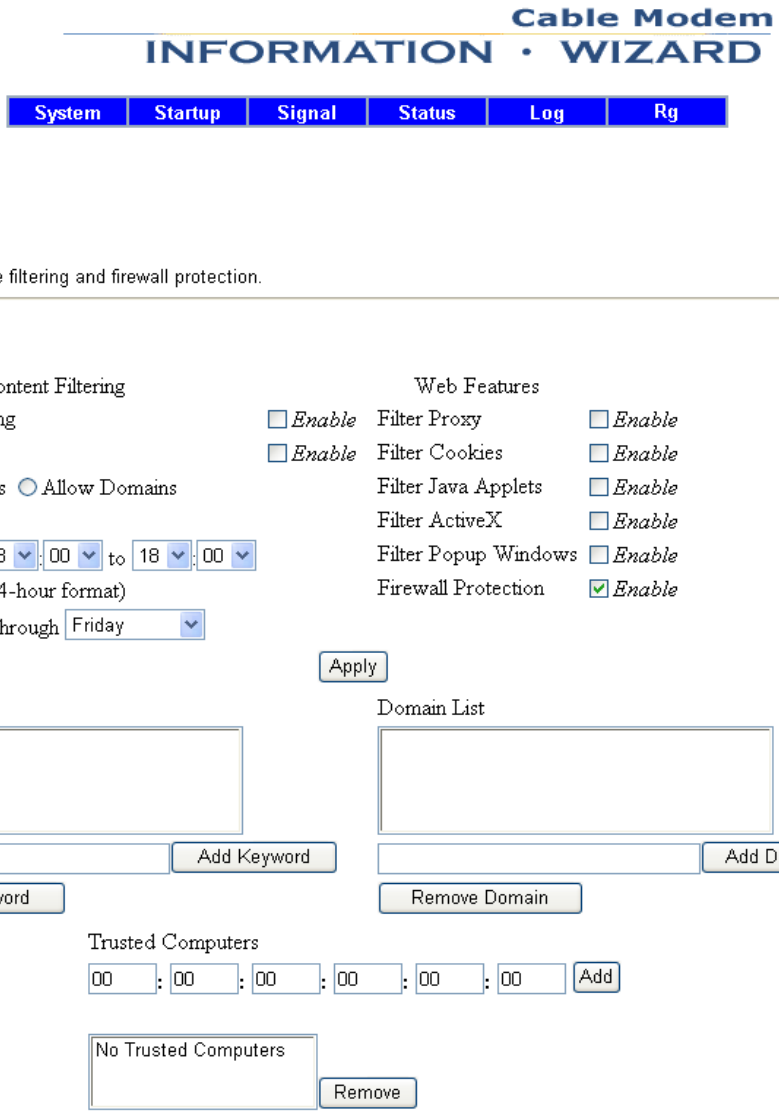
RIP Reporting Interval: Enter the **RIP Reporting Interval**.

RIP Destination IP Address: The Destination LAN IP is the address of the remote network or host to which you want to assign a static route. Enter the IP address of the host for which you wish to create a static route here. If you are building a route to an entire network, be sure that the network protion of the IP address is set to zero. For example, the Router's standard IP address is 192.168.0.1. Based on this address, the address of the network to which the Router is connected 192.168.1.X. Therefore you would enter the destination IP address as 192.168.1.0 if you want to route to the router's entire network, rather than just the router. Finally, enter the appropriate **RIP Destination IP Address**.

RIP Destination IP Subnet Mask: The Network Mask determines which protion of an IP address is the network protion, and wich protion is the host protion. In the example above, the Network Mask is 255.255.255.0. This determines that the first three numbers of an network IP address identify this particular network, while the last digit(from 1 to 254) identifies the specific host. Finally, enter the appropriate **RIP Destination IP Subnet Mask**.

After the settings is done, click Apply to enalbe it.

5.6-3 Firewall- *Web Filters*



Web Filters:

Web filters feature the blocking of the webs with certain keyword or domain. It can also filter the Proxy,Cookies,Java Applets,ActiveX,Popup Windows,Firewall Protection on webs. The administrator of the Cable RG can decide all the web filters' contains. Give the keyword List and the Domain List and the Gable RG will filter them before accessing those webs with these keywords or domains. The administrator can also set up the time to decide when to enable web filters. Finally follow the description shown blow to complete the web filters.

Content Filtering: In this frame, you can decide to enable **keyword blocking** or **Domain blocking**. When you enable **Key or Domain blocking**, you may also have to give the Denying or allowing time and date.

Web features:b In this frame you can decide to enable **Web features** such as "**Filter Proxy**","**Filter Cookie**","**Filter Java Applets**","**Filter ActiveX**","**Filter Popup Windows**","**Firewall Protection**".

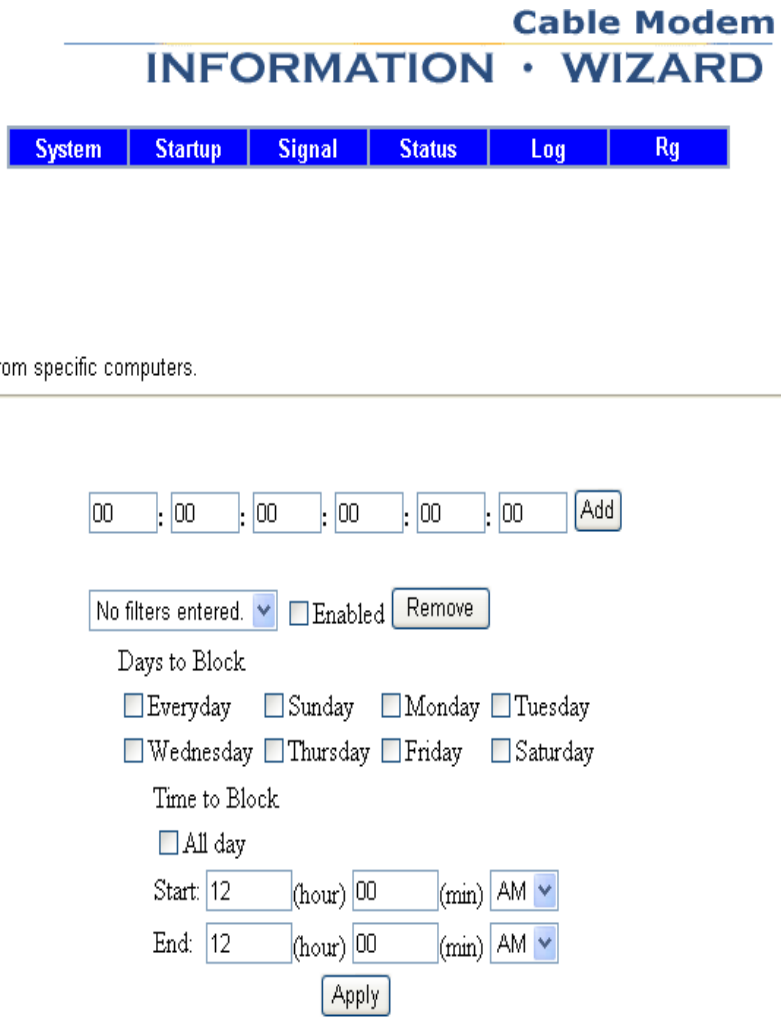
Keyword List: Enter the **Keyword** on the web that you want to block away,and add it into the **Keyword List**. Or you can remove the Keyword from the **Keyword List**.

Domain List: Enter the **Domain** that you don't want the users to access in the Internet,and add the domain name into the **Domain List**. Or you can remove the domain from the **Domain List**.

Trusted Computers: Enter the certain computer's **MAC Addresses**,and those computers will not be blocked by **Keyword** or **Domain** when accessing the Internet.

After the settings is done, click on Apply to enalbe it.

5.6-3 Firewall- *Time of Day Filters*



Time of Day Filter:

This Screen features the blocking of all traffic for certain computers. Enter their **MAC Address** that you want to block by time and date. Select the blocking date and time range. And the administrator can also add or remove the computer list by their MAC addresses.

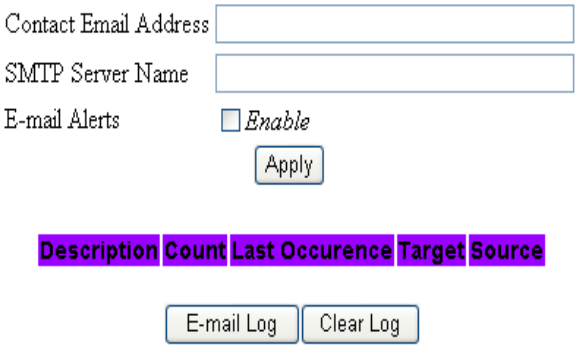
After the settings is done, click on Apply to enalbe it.

5.6-3 Firewall- *Event Logging*

Setup

Firewall - Event Logging

This page provides access to the firewall event log and allows you to enter your email address for email alerts related to firewall attacks.



Event Logging:

The Event Log can send firewall attack reports out in two different ways. Individual emails can be sent out automatically, each time the firewall is under attack, and also a local log is stored within the modem and displayed in table form on the Event Log page. So enter the Contact Email Address and the SMTP Server. Click Enable to enable Event Logging function.

After the settings is done, click on Apply to enalbe it.

5.6-4 Wireless- *Link Control*

Wireless - Link Control

This page allows the wireless interface to be enabled or disabled.

Wireless Interface ◉ Yes ○ No

Apply

Link Control:

Wireless Interface: Click **Yes** to enable Wireless Interface, or **No** to disable it.

After the settings is done, click Apply to enalbe it.

5.6-4 Wireless- *Basic*

Wireless - Basic

This page allows you to configure your wireless access point parameters, including SSID and channel number.

Service Set Identifier (SSID)	wireless
New Channel:	1
Current Channel:	1
Encryption Mode:	No Encryption

Apply

Basic:

Service Set Identifier(SSID): Enter the SSID for your service provider. The default SSID is **wireless.**

New Channel: Select the channel for your service provider. The default channel is **1**.

After the settings is done, click on Apply to enalbe it.

5.6-4 Wireless- *Privacy*

Privacy:

Encryption Mode: There are **No Encryption**, **64-Bit Encryption** and **128-bit Encryption** respectively.

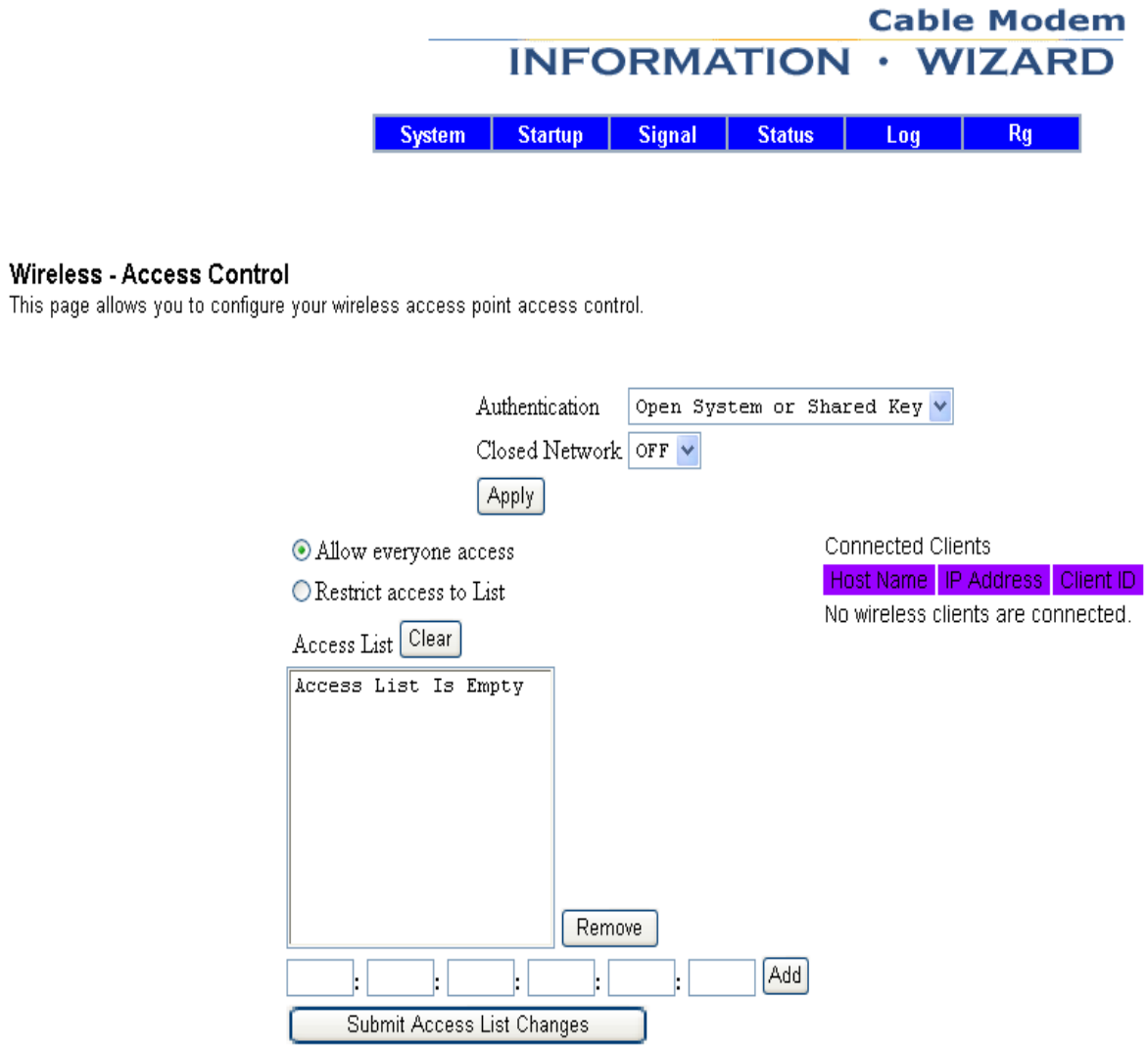
WEP Passphrase : you can type any characters and generate into HEX type.

Dafault key: Select the number as the default key for WEP encryption.

Key 1 ~ Key 4: Please enter HEX type characters that you want to set for the WEP encryption. For **64-Bit Encryption,** enter 10 characters in HEX type**; for 128-bit Encryption,** enter 26 characters in HEX type.

After the settings is done, click on Apply to enalbe it.

5.6-4 Wireless- *Access Control*



Access Control:

Authentication: There are three authetication types: **Open System, Shared key** and **Open System or Shared key**. This should be considered with the WEP (Wired Equivalent Privacy) mechanism.

Close Network: Select **ON** To close the wireless clients' network, or **OFF** to cancle it.

Access List: Enter the **MAC Address** of the wireless clients that you would like to **restrict** or **allow** their access of network.

After the settings is done, click on Apply to enalbe it.

5.6-4 Wireless- *Advanced*

Wireless - Advanced

This page allows you to configure your wireless access point data rates and WIFI thresholds.

Basic Data Rates	1, 2 Mbps	
Control Tx Rates	1, 2, 5.5, 11 Mbps	
Beacon Interval	100	ms (range 0-65535, default 100)
DTIM Interval	3	ms (range 1-255, default 3)
Fragmentation Threshold	2346	bytes (range 256-2346, default 2346)
RTS Threshold	2347	(range 0-3000, default 2347)

Apply

Advanced Wireless Settings:

Basic Data Rates: It decides the speed of the management packet transmission.

Supported Rates: It decides the speed of the data packet transmission.

Beacon Interval: Enter the beacon interval number. The range is from 0 to 65535 ms and the default is 100 ms.

DTIM Interval: Enter the DTIM interval number. The range is from 1 to 255 ms and the default is 1 ms.

Fragmentation Threshold: It decides the packet size. If the packet size is over the number that you typed here, it will be fragmented automatically. The maximum number is 2346 that means no packet size will be fragmented.

RTS Threshold: If the packet size is over the value that you type here, system will use RTS (Request To Send) mechanism to transmit the data.

After the settings is done, click on Apply to enalbe it.

Chapter 6: Troubleshooting

If the suggested solutions in this section do not resolve your issue, contact your system administrator or Internet service provider.

Can I use the same cable line for TV and cable modem?

A. Yes, the TV and cable modem uses the cable line. You need a splitter to use them at the same time. Ask Cable Company to install the splitter for you to avoid signal degradation.

My cable modem cannot get a solid green light on the Status LED when I connect the cable back.

A. The cable modem lost the signal during the disconnection period and it will keeps scanning other available signal. When you connect the cable back, it might take a while to find the correct channel. You can power cycle the modem to speedup the process since modem will remember the channel last time and it will start from that channel at startup.

How do I see my IP address?

A. If you are using Windows 95/98/Me, the winipcfg command will show you to IP address of the PC connected to the cable modem. Notice that even though you seem get the same address all the time, it may still be a dynamic address.

I have a cable modem. How can I make it work?

A. Basically, modem is plug and play. You can just connect the modem and you are ready to go if you have the subscription. For ensure good signal for your cable modem, you should ask your cable provider to install the cable modem for you.

Cannot Establish Wireless Link to Cable RG

A. If you cannot establish an association with the Cable RG

- Make sure the power to the Cable RG is connected and turned on (LED will light on the Wireless).
- Make sure the Cable RG and wireless clients are configured with the same SSID.
- Make sure the Wired Equivalent Privacy is correctly configured for both Cable RG and your wireless LAN card.

Note: For some cards, only Open-key can be selected as authentication algorithm!

- Reboot the Cable RG if necessary.

Appendix: Specification

Specifications

Cable RF:

	Downstream	***Upstream***
Operating Frequency Range	69-873MHz	5-55MHz
Frequency Channel	HRC, IRC, STD	
Frequency Selection	Auto Scanning	Controlled by Headend
Bandwidth	6MHz	Programmable (200*N KHz) N=1, 2, 4, 8, 16, 32
Characteristic Impedance	75Ω Nominal	75Ω Nominal
Signal Level Range	-15 to +15dBmV/64QAM -15 to +15dBmV/256QAM	A-TDMA: +8 to +58dBmV/QPSK +8 to +55dBmV/(8,16)QAM +8 to +54 dBmV/(32,64)QAM S-CDMA: +8 to +53 dBmv/All
Modulation	64QAM/256QAM	QPSK/16,32,64QAM 128QAM for TCM Only
Modulation Rate	5.056941/5.360537 Msym/sec	A-TDMA: 160/320/640/1280/2560/5120 Ksym/sec S-CDMA: 1280/2560/5120 Ksym/sec
Maximum Bit Rate	42.88Mbps/256QAM 30.34Mbps/64QAM	30.72Mbps/64QAM
Forward Error Correction (FEC)	RS(128,122)/Trellis	Reed Solomon
Signal to Noise Ratio (SNR)		>30
Bit Error Rate (BER)	1×10^{-8} @ C/N=23.5dB, 64QAM with FEC 1×10^{-8} @ C/N=30dB, 256QAM with FEC, received power = -6dBmV to +15dBmV $1x10^{-8}$ @ C/N=33dB, 256QAM with FEC, received power = -15dBmV to –6dBmV	

Wireless:

Media Access Control	•	CSMA/CA with ACK
Data Rate (Auto Fallback)	•	11 Mbps
	•	5.5 Mbps
	•	2 Mbps
	•	1 Mbps
Encryption	•	64/128 bit WEP
Frequency Range	•	2.4 GHz ~ 2.4835 GHz
Modulation	•	Barker (1Mbps)
	•	Barker (2Mbps)
	•	CCK (5.5Mbps)
	•	CCK (11Mbps)
Number of Channels	•	Europe = 13
	•	US = 11
Transmit Power	•	16 dBm
Receive Sensitivity	•	-80 dBm@11Mbps

Physical & Hardware:

Dimensions	•	L = TBD
	•	W = TBD
	•	H = TBD
Weight	•	TBD
Ports	•	Ethernet Port (RJ-45)
	•	USB port (Type B)
Antenna	•	1 external dipole antenna
LEDs (Green)	•	Power LED
	•	RX LED
	•	TX LED
	•	STATUS LED
	•	PC LED
	•	WIRELESS LED
Reset Button	•	Restore Factory Default Settings
Power Supply Adapter (Output)	•	12VDC, 1A
Power Consumption	•	Less than 8W

LED Pattern:

Power	• ON: Power ON
	• OFF: Power OFF
RX	• Flashing: RF DS Traffic
TX	• Flashing: RF US Traffic
STATUS	• ON: Operation
	• Flashing 1 time per sec: DS Scanning
	• Flashing every 2 sec: US Ranging
	• Flashing 4 times per sec: DHCP/TFTP Registration
PC	• ON: USB Link / Driver Loaded and Functional
	• Flashing: USB Traffic
	• OFF: No USB Link or PC Off
WIRELESS	• ON: Wireless Module Functional
	• Flashing: Wireless Traffic
	• OFF: No Wireless Module Installed or Wireless Disabled from WEB

Environment:

Operating Temperature	• 32°F ~ 104°F (0°C to 40°C)
Storage Temperature	• -4°F ~ 158°F (-20°C to 70°C)
Humidity	• 20% ~ 90% Non-condensing

Certification:

Standards	• DOCSIS / WHQL
Safety	• UL 1950
EMC	• FCC Part 15 Class B
	• CE Class B
	• VCCI Class B