WCGP200 WCGP200B2 Cable Modem

User's Manual

Rev: 1.1

2006/3/30

Rev: 1.1

PKE235VWB-40

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 fire. 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 fire.
- Do not place this product on 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.

Caution

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

CAUTION

RISK OF EXPLOSION IF BATTERY IS REPLACED
BY AN INCORRECT TYPE.
DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

Federal Communication Commission Interference 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 of the following measures:

-Reorient or relocate the receiving antenna.
-Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-Consult the dealer or an experienced radio/TV technician for help.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

IC statement

Operation is subject to the following two conditions:
1) This device may not cause interference and
2) This device must accept any interference, including interference that may cause undesired operation of the device.

This device has been designed to operate with an antenna having a maximum gain of 3 dBi. Antenna having a higher gain is strictly prohibited per regulations of Industry Canada. The required antenna impedance is 50 ohms.

IMPORTANT NOTE:

IC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body. This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

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Before You Use

WCGP200/WCGP200B2 is a DOCSIS 1.0/1.1/2.0 and CableHome 1.1 compliant cable residential gateway that provides high-speed connectivity to residential, commercial, and education subscribers on public and private networks via an existing cable infrastructure. WCGP200/WCGP200B2 is equipped with Ethernet, USB and IEEE802.11g Wireless interfaces. WCGP200/WCGP200B2 uses the advanced PHY (A-TDMA/S-CDMA) technologies to support higher bandwidth in the upstream. WCGP200/WCGP200B2 can inter-operate with any DOCSIS and CableHome compliant headend equipment. It provides access to local area networks and word wide Internet as well as the rich management features of CableLabs CableHome 1.1. The data security secures upstream and downstream communications.

Features

General

- F-Connector for the cable interface
- Four standard RJ-45 connector for 10/100BaseT Ethernet with auto-negotiation and MDIS functions
- USB Connector for USB interface
- Two RJ-11 Foreign Exchange Station (FXS) ports for IP telephony
- IEEE802.11b/g Wireless Access Point
- Clear LED Display

CableLabs DOCSIS 1.0 / 1.1 / 2.0 Standard Compliant

- Up to 42.88 Mbps downstream and up to 30.72 Mbps upstream
- Frequency agility
- Transparent bridging for IP traffic
- Transparent bridging between CPE and RF interface
- Transparent bridging between Ethernet and USB interface
- Packet Filtering: CPE MAC filters, LLC filters, IP filters
- Multiple users/CPE supported
- Security with X.509 Authentication / RSA protected Key Exchange / 56 bits DES Data Encryption
- Interoperable with any DOCSIS compatible headend equipment

PacketCable™ Compliant

- Support PacketCable NCS 1.0 MGCP1.0 (Media Gateway Control Protocol)
- Support different CODEC: PCM A-law, PCM-law, G.723.1, G.729, G.729a, G.729e, G.726, G.728 and BV16, BV32.
- Echo Cancellation
- Voice Active Detection (VAD)
- DTMF detection and generation
- Comfort Noise Generation (CNG)
- Support V.90 fax and modem services

Two-Way Cable Residential Gateway

- NAT (Network Address Translation) to support multiple users with one IP account for routing mode

- One to Many
- Many to Many
- Reverse NAT
- Advanced Application Level Gateways (ALG) Support

- Transparent bridging for IP traffic for bridge mode
- DHCP Client/Server
- Firewall Function
- Upgradeable to VPN function
- Upgradeable to RIP

Wireless

- Fully 802.11g Compatible
- Fully 802.11b Compatible
- Up to 54 Mbps Data Rate
- Seamless Link Quality Around Home & Business Office
- 64/128 bit WEP Encryption for Wireless Security
- Support Open System and Shared Key
- Supports IEEE 802.1x Port-Based Authentication with RADIUS Client, support MD5, TLS, TTLS
- Supports WPA and TKIP
- Upgradeable to TPC (transmit power control)
- Wireless LAN MAC Filtering
- Association Control List (ACL) for Wireless Clients Management

Firewall

- IP Filtering
- Stateful Packet Inspection (SPI)
- Intrusion Detection for Denial of Service (DoS) attacks
- Configurable Access Policy
- Web-Based User Interface Management and Administration
- Logging & Alert
- DMZ Hosting

Management & Maintenance

- Support Web pages and private DHCP server for status monitoring
- SNMP v1/v2c/v3 Management
- Telnet
- Remote secured operating firmware downloading
- Reset To Default Settings by RESET Push Button
- Syslog (Remote)
- Event Log (Local)

System Requirements

This cable modem equips four ETHERNET ports, wireless and USB interfaces. You can choose either one to connect to the cable modem. Before installing the CABLE MODEM, please check the following requirements with your computer.

For Ethernet Connection

- Windows 98SE/2000/NT/ME/XP operating system or Apple Macintosh series
- 10/100 Base-T NIC (network interface card)
- Subscribe to a Cable Television Company for cable modem service

For USB Connection

- Windows 98SE/2000/NT/ME/XP operating system or Apple Macintosh series
- USB cable
- Subscribe to a Cable Television Company for cable modem service

For Wireless Connection

- Windows 98SE/2000/ ME/XP operating system
- Wireless LAN card
- Subscribe to a Cable Television Company for cable modem service

Unpacking

Check the contents of the package against the pack contents checklist below. If any of the items is missing, then contact the dealer from whom the equipment was purchased.

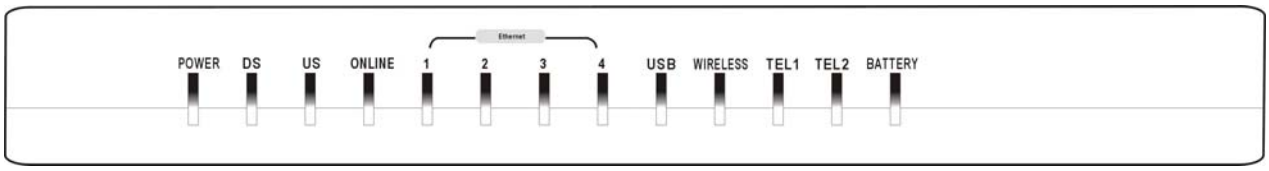
- Cable Modem
- RJ-45Cable
- USB Cable
- Linear Power Adapter
- Quick Start Guide
- Software CD

Chapter 1: Overview

Physical Outlook

Front Panel

The following illustration shows the front panel of the CABLE MODEM machine:

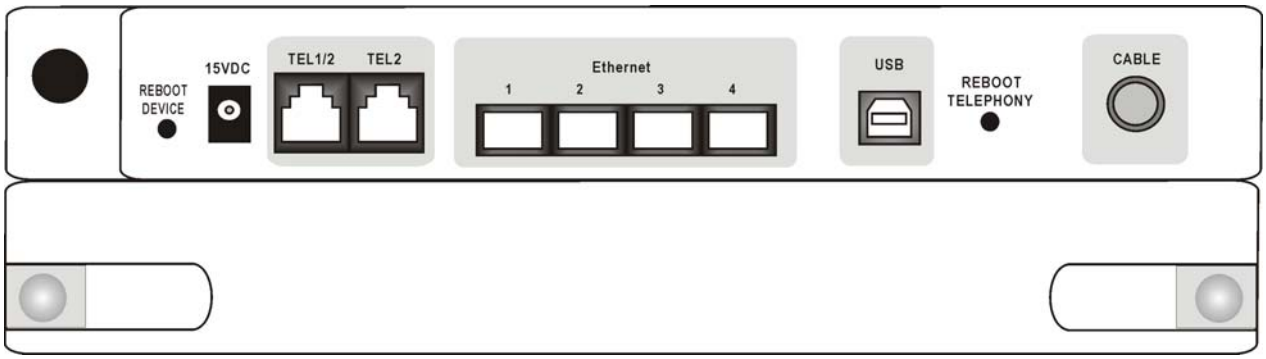


LED Indicators

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

CHE210W-D40	Power	Internet			Ethernet				USB	Wireless	Tel 1	Tel 2	Battery	Description
		DS	US	Online	1	2	3	4						
Boot-up Operation	ON	ON	ON	ON	X	X	X	X	ON	ON	ON	ON	ON	Power on 0.25 sec
	ON	0.25 second												
	ON	FLASH	FLASH	FLASH	X	X	X	X	X	X	X	X	X	From power ON to system initialization complete
	ON	ON	ON	ON	X	X	X	X	X	X	X	X	X	Following system initialization complete to (before) DS scanning
		1 second												
DOCSIS Start-up Operation	ON	FLASH	OFF	OFF	X	X	X	X	X	X	X	X	X	During DS scanning and acquiring SYNC
	ON	ON	FLASH	OFF	X	X	X	X	X	X	X	X	X	From SYNC completed, receiving UCD to ranging completed
	ON	ON	ON	FLASH	X	X	X	X	X	X	X	X	X	During DHCP, configuration file download, registration, and Baseline Privacy initialization
	ON	ON	ON	ON	X	X	X	X	X	X	X	X	X	Operational (NACO=ON)
	ON	FLASH	FLASH	OFF	X	X	X	X	X	X	X	X	X	Operational (NACO=OFF)
MTA initialization	ON	ON	ON	ON	X	X	X	X	X	X	FLASH	OFF	OFF	MTA DHCP
	ON	ON	ON	ON	X	X	X	X	X	X	OFF	FLASH	OFF	MTA SNMP/TFTP
	ON	ON	ON	ON	X	X	X	X	X	X	FLASH	FLASH	OFF	RSIP
CPE Operation	ON	X	X	X	OFF ON FLASH ON	OFF ON FLASH ON	OFF ON FLASH ON	OFF ON FLASH ON	X	X	X	X	X	No Ethernet Link Ethernet Link TX/RX Ethernet Traffic Ethernet Collision
	ON	X	X	X	X	X	X	X	OFF ON FLASH ON	X	X	X	X	No USB Link USB Link TX/RX USB Traffic USB driver is not ready
	ON	X	X	X	X	X	X	X	X	OFF ON FLASH ON	X	X	X	No Wireless Link Wireless Link TX/RX Wireless Traffic Wireless is not instaled or disable
AC Good Battery Good	ON	<CM Normal Operation>									ON	ON	ON	Both Lines On-Hook
	ON										FLASH	ON		Tel1 Off-hook, Tel2 On-hook
	ON										ON	FLASH		Tel1 On-hook, Tel2 Off-hook
	ON										FLASH	FLASH		Both Lines Off-Hook
AC Good Battery Low	ON										ON	ON	FLASH	Both Lines On-Hook
	ON										FLASH	ON		Tel1 Off-hook, Tel2 On-hook
	ON										ON	FLASH		Tel1 On-hook, Tel2 Off-hook
	ON										FLASH	FLASH		Both Lines Off-Hook
AC Good Battery Bad	ON										ON	ON	OFF	Both Lines On-Hook
	ON										FLASH	ON		Tel1 Off-hook, Tel2 On-hook
	ON										ON	FLASH		Tel1 On-hook, Tel2 Off-hook
	ON										FLASH	FLASH		Both Lines Off-Hook
AC Fail Battery Good	FLASH (Red)	OFF									ON	OFF	OFF	Both Lines On-Hook
											FLASH			Tel1 Off-hook, Tel2 On-hook
											ON			Tel1 On-hook, Tel2 Off-hook
											FLASH			Both Lines Off-Hook
AC Fail Battery Low											ON	OFF	FLASH (Red)	Both Lines On-Hook
											FLASH			Tel1 Off-hook, Tel2 On-hook
											ON			Tel1 On-hook, Tel2 Off-hook
											FLASH			Both Lines Off-Hook
AC Fail Battery Bad	< All LEDs may be unlit due to lack of battery power>												OFF	Both Lines On-Hook
														Tel1 Off-hook, Tel2 On-hook
														Tel1 On-hook, Tel2 Off-hook
														Both Lines Off-Hook
SW Download Operation	ON	FLASH	FLASH	ON	X	X	X	X	X	X	X	X	X	A software download and while updating the FLASH memory

Rear Panel



Connector	Description
REBOOT DEVICE	Reset-to-Default configuration push button
15VDC	DC-IN Power connector
TEL1/2 & TEL2	Telephony RJ-11 connector
Ethernet 1-4	Ethernet 10/100BaseT RJ-45 connector
USB	USB connector
Reboot Telephony	Reboot the VIOP function push button
CABLE	F-Connector

Chapter 2: Installation

This cable modem equips USB, wireless and Ethernet interfaces. You can choose either one to connect to the cable modem. Go to the "Installation Procedure for Ethernet Interface" section, if your computer has installed TCP/IP and Ethernet card with 10/100BaseT capability. Go to the section "Installation Procedure for USB Interface", if your PC has USB port and the operating system is Microsoft Windows 98/ME/XP or Windows 2000.

Note: You don't need to do installation for wireless interface.

Installation Procedure for Ethernet Interface

Follow the steps below for proper installation:

1. Connect a coaxial cable (supplied by the local Cable Television Company) to the CABLE connector on the modem.

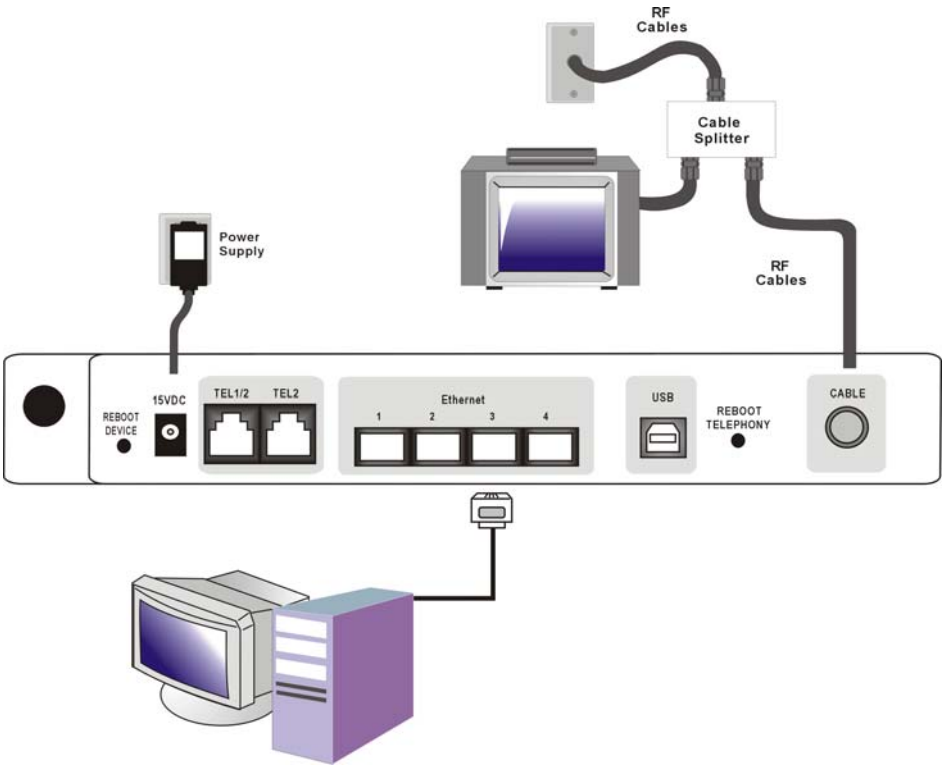
   Note: To speed up the registration process of cable modem, the coaxial cable should be connected to the modem prior to the power connector.

2. 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.
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. The cable modem will look for the proper cable modem signal in the Cable Television network and process the initial registration. The cable modem is ready for data transfer after the LED "**CABLE**" is in solid green.

   Note: The **Reset** button at the rear panel is for maintenance purpose only.

Connecting the Cable Modem to Your Computer

Below shows the connection between the Cable Modem and your computer.



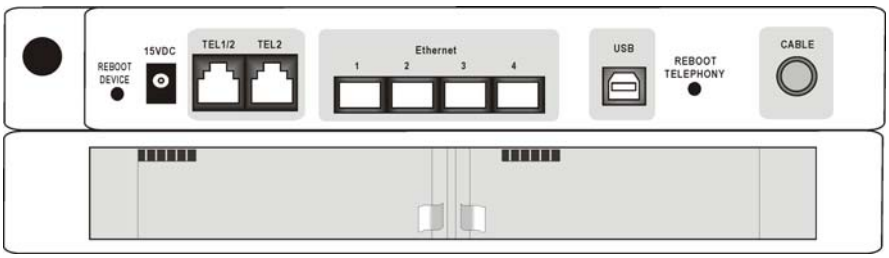
Connection

Installing the Battery

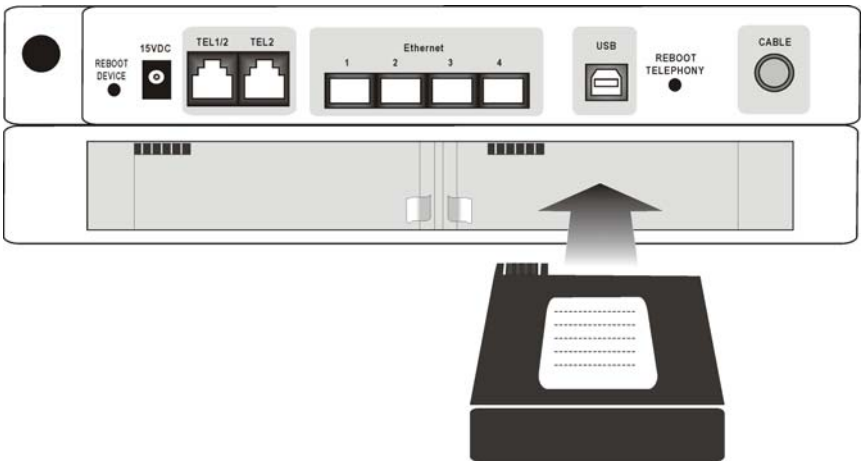
This section provides information on installing batteries into the EMTA. Follow the steps below:

1. Ensure the power cord is unplugged.

2. Remove the battery cover on the rear panel. There are two battery compartments. You may install a single battery into either compartment.



3. Insert the battery into one of the rear battery compartments, as shown below.



4. Reattach the battery cover.

5. Plug the power cord into an AC-recepticle that is always ON (non-switchable). It's best to secure the plug to the wall plate using an extended wall plate screw. The battery will fully charge within 4 hours.

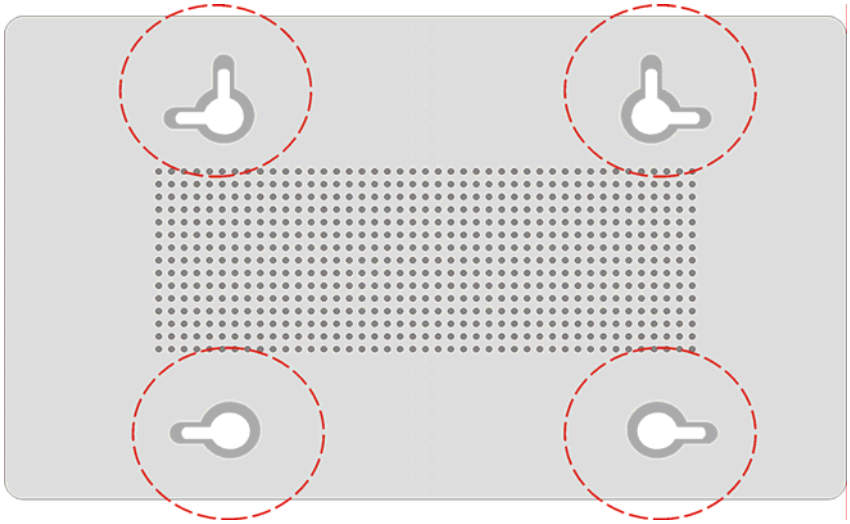
Wall Mounting

The number of the screw: 2 pcs
Direction for wall mounting: LED panel upward.
Dimension for the screw: TBD

There are 2 slots on the underside of the Cable Modem and 4 slots on the underside of the Battery Pack that can be used for wall mounting.

Note: When wall mounting the unit, ensure that it is within reach of the power outlet.

You will need 2 suitable screws which screw diameter would be 4.4 mm to wall mount the Cable Modem or the Battery Pack. Two different wall mount directions could be chosen for the Battery Pack.



To do this:

1. For the Cable Modem, ensure that the wall you use is smooth, flat, dry and sturdy and use the 2 screws holes which both are 101.6 mm apart.
2. For the Battery Pack, ensure that the wall you use is smooth, flat, dry and sturdy and use the 2 screws holes which both are 101.6 mm or 152.0 mm apart for two different mount directions.
3. Fix the screws into wall, leaving their heads 3 mm (0.12 inch) clear of the wall surface.
4. Remove any connections to the unit and locate it over the screw heads. When in line, gently push the unit on to the wall and move it downwards to secure.

Chapter 3: Software Installation and Configuration

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.

For Windows 98/98SE/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. Look for an entry that includes TCP/IP-> followed by the Ethernet card installed in your computer.
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 (or diskette) into the CD-ROM drive (or floppy diskette 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 98/ME 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".

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".

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.

For Windows 98/98SE/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.

For Windows 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.

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.

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) 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.

Accessing Internet

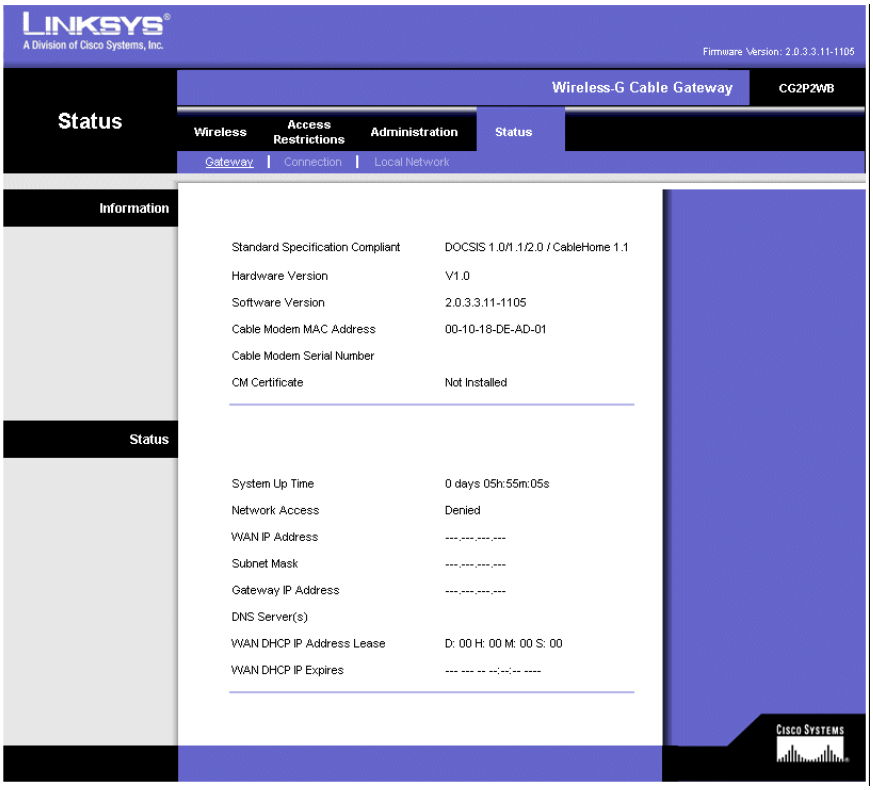
Once your host PC is properly configured, please proceed as follows:

1. Start your web browser and type the private IP address of the ADSL Router in the URL field: **192.168.0.1**
2. After connecting to the device, you will be prompted to enter username and password. By default, there is no username and the password is **admin**.

If you login successfully, the main page will appear. From now on this cable modem acts as a web server sending HTML pages/forms on your request. You can fill in these pages/forms and apply them to the device.

Outline of Web Manager

The main screen will be shown as below.



Title:	It indicates the title of this management interface.
Main Menu:	Includes Wireless, Access Restrictions, Administration and Status
Main Window:	It is the current workspace of the web management, containing configuration or status information.

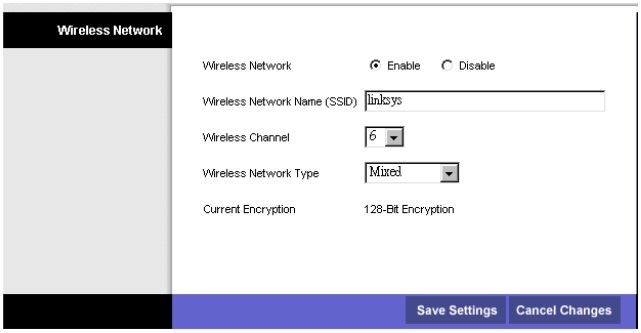
Wireless

Basic Wireless Settings

To set the basic configuration for the wireless features, please click **Basic** item from the **Wireless** menu.

Wireless Network:
Choose Enabled to enable the basic setting. Choose Disabled to close the basic setting.

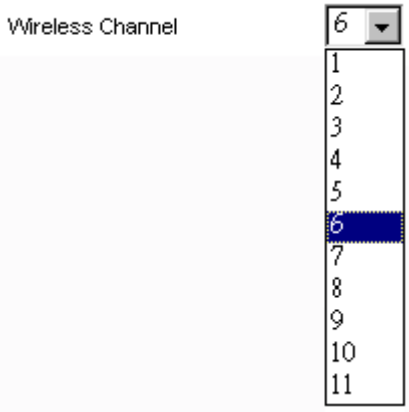
Wireless Network Name(SSID):
The SSID will be displayed automatically.



Wireless Channel:
There are 11 channels that you can choose. Choose the one that is suitable for this device.

Wireless Network Type:
There are three types that you can choose. Each one arise different functions for wireless network.

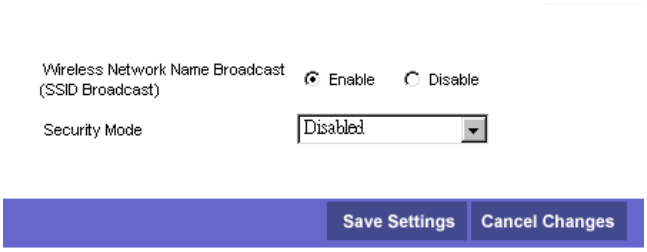
Current Encryption:
It shows the data encryption mode. For the basic settings, there is no data encryption mode selected.



After you have finished all the settings, please click **Save Settings**. It you click **Cancel Changes**, all the settings that you have adjusted will not be saved.

Wireless Security - Disabled

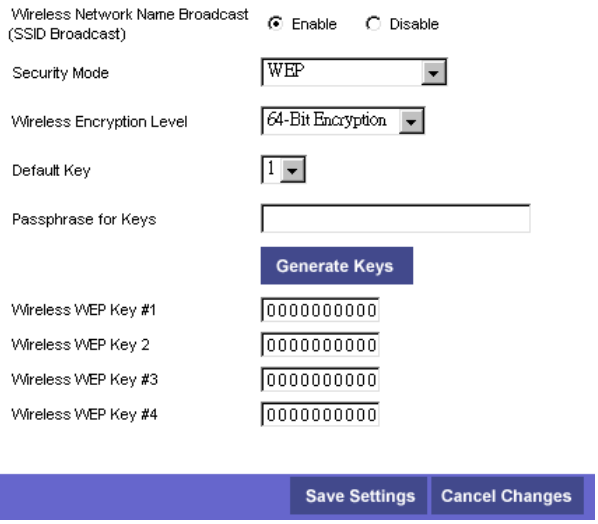
For the disabled wireless security, there is no settings that you need to adjust. It means your network does not protect by any security that this router offered.



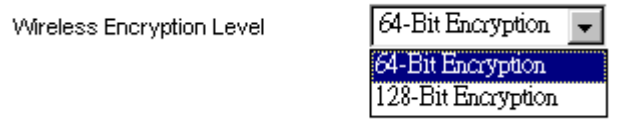
After finished settings, click **Save Settings** for activation for next time.

Wireless Security - WEP

For this mode, the settings that you can adjust including wireless encryption level, default key, passphrase for keys, wireless wep key #1 to #4.



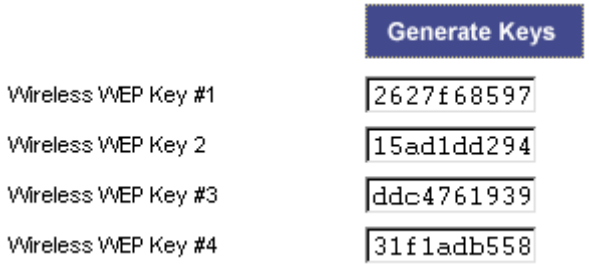
Wireless Encryption Level:
Select the WEP mode for the WEP key function. You can choose **64-bit** or **128-bit** for your necessity. If you choose **Off**, the Encryption Keys will not be shown on this page. If selected, data is encrypted using the key before being transmitted. For example, if you set 128-bit in this field, then the receiving station must be set to use 128 Bit Encryption, and have the same Key value too. Otherwise, it will not be able to decrypt the data.



Default Key:
Select one of network key (from 1 to 4) that you set on the Key boxes as default one.

PassPhrase for Keys:
You can type in ASCII codes into this field. The range is from 8 characters to 64 characters. **For ASCII characters, you can type in 63 characters in this field. If you want to type in 64 characters, only hexadecimal characters can be used.**

Generate WEP Keys:
Click this button to generate the PassPhrase.

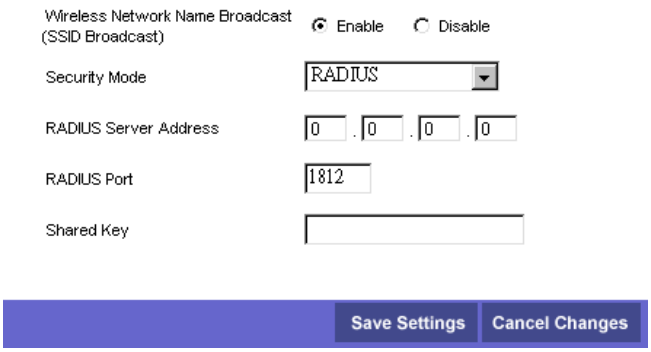


Wireless WEP Key #1 to #4:
Type the encryption key length and fill out WEP keys. The system allows you to type in 4 kinds of the WEP key. For **64-bit** WEP mode, the number you can type is that 5 characters or 10 hexadecimal digits. As for **128-bit** WEP mode, the number you can type is that 13 characters or 26 hexadecimal digits.

After finished settings, click **Save Settings** for activation for next time.

Wireless Security - Radius

For this mode, the settings that you can adjust including RADIUS Server, RADIUS Port, and RADIUS Key.



RADIUS Server Address: RADIUS Server is a protocol for carrying authentication, authorization, and configuration information between a Network Access Server which desires to authenticate its links and a shared Authentication Server. Please type in the IP Address for the RADIUS Server.

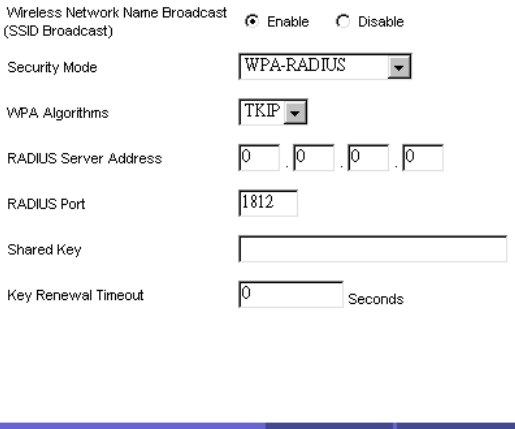
RADIUS Port: Except for the IP address of the RADIUS Server, you have to enter the port number for the server. Port 1812 is the reserved RADIUS-authentication port described in RFC 2138. Earlier AP (RADIUS clients) use port 1945. The default value will be shown on this box. You can keep and use it.

Shared Key: A Shared Key is like a password, which is used between IAS and the specific RADIUS client to verify identity. Both IAS and the RADIUS client must be use the same Shared for successful communication to occur. Type in the words for the Shared Key.

After finished settings, click **Save Settings** for activation for next time.

Wireless Security – WPA RADIUS

For the WPA network Authentication, the settings that you can adjust including WPA Algorithms, RADIUS Server Address, RADIUS Port, Shared key, Key Renewal Timeout.



WPA Algorithms: Select the data encryption for the WPA mode. There are two types that you can choose, TKIP and AES.

RADIUS Server Address: RADIUS Server is a protocol for carrying authentication, authorization, and configuration information between a Network Access Server which desires to authenticate its links and a shared Authentication Server. Please type in the IP Address for the RADIUS Server.

RADIUS Port: Except for the IP address of the RADIUS Server, you have to enter the port number for the server. Port 1812 is the reserved RADIUS-authentication port described in RFC 2138. Earlier RADIUS clients use port 1945. The default value will be shown on this box. You can keep and use it.

Shared Key: A Shared Key is like a password, which is used between IAS and the specific RADIUS client to verify identity. Both IAS and the RADIUS client must be use the same Shared for successful communication to occur. Type in the words for the Shared Key.

Key Renewal Timeout: Type in the time for the WAP group rekey interval. The unit is second.

TKIP takes the original master key only as a starting point and derives its encryption keys mathematically from this mater key. Then it regularly changes and rotates the encryption keys so that the same encryption key will be never used twice.

AES provides security between client workstations operating in ad hoc mode. It uses a mathematical ciphering algorithm that employs variable key sizes of 128, 192 or 256 bits.

After finished settings, click **Save Settings** for activation for next time.

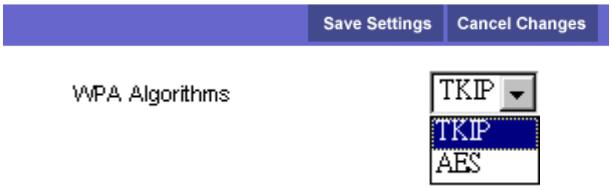
Wireless Security – WPA Pre-Shared Key

For the WPA-PSK mode, the settings that you can adjust including WPA Algorithms, WPA Shared Key and Group Key Renewal.

WPA Algorithms: Select the data encryption for the WPA mode. There are three types that you can choose, TKIPand AES.

WPA Shared Key: Please type the key to be between 8 and 63 characters, or 64 hexadecimal digits. Only the devices with a matching key that you set here can join this network.

Group key Renewal: Type in the time for the WAP group rekey interval. The unit is second.



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AES provides security between client workstations operating in ad hoc mode. It uses a mathematical ciphering algorithm that employs variable key sizes of 128, 192 or 256 bits.

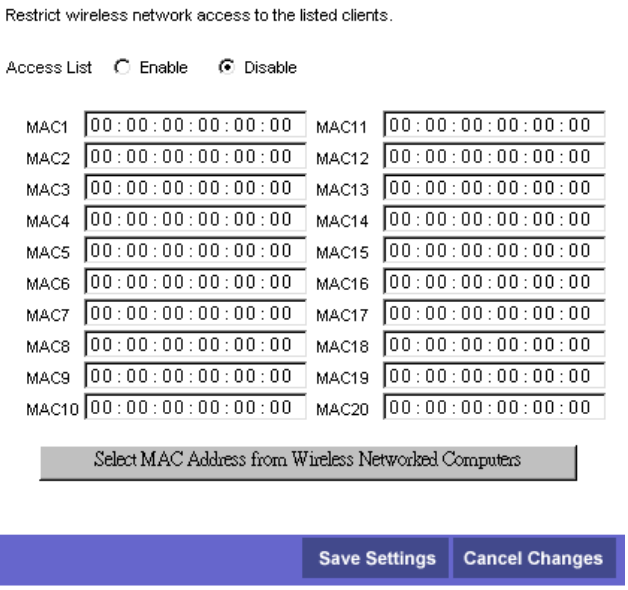
After finished settings, click **Save Settings** for activation for next time.

Wireless Network Access

It allows you to set control to the AP and the connected clients.

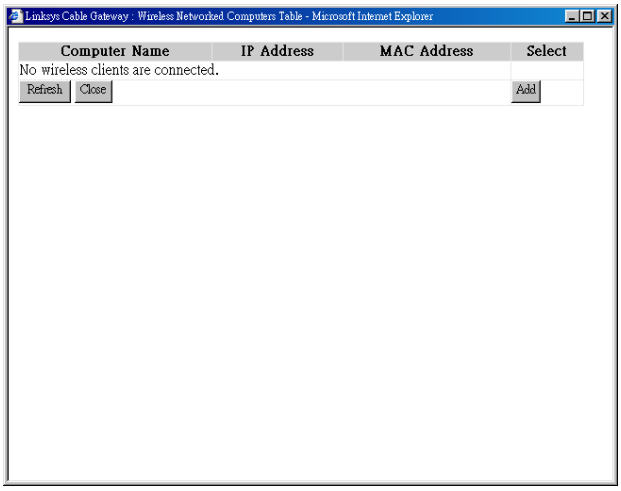
Access List:
Click Enabled to enable this function; click Disabled to close this function.

MAC Address:
Type in the MAC address of the AP or connected clients into this field as an allowed or denied device.



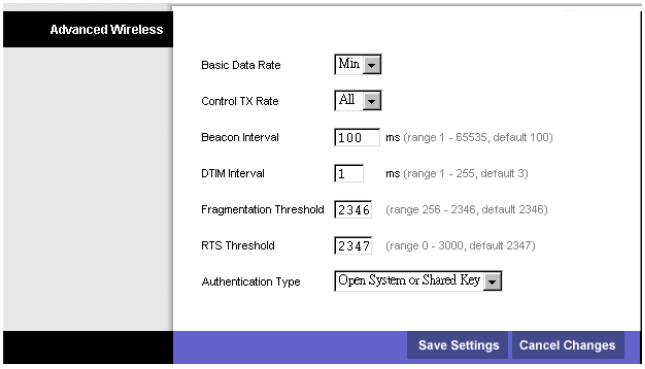
Select MAC Address from Wireless Network Computers:
Click this button to get the connected clients' MAC address.

The information of connected clients will be displayed in this field if its MAC address is typed above.

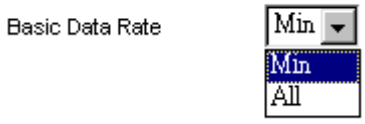


Advanced Wireless Settings

The Advanced wireless setting allows you to configure the data rates and WiFi thresholds.



Basic Data Rates:
Choose **Minimal** or **All** as the basic rates.



Control TX Rate:
Choose **Minimal** or **All** as the supported rates.

Beacon Interval:
Set the period of beacon transmissions to allow mobile stations to locate and identify a BSS. The measure unit is “time units”(TU) of 1024 microseconds.

DTIM Interval:
The value you set here are used to inform mobile stations when multicast frames that have been buffered at the router will be delivered and how often that delivery will happen.

Fragmentation Threshold:
Set the number of the fragmenting frames to make the data be delivered without errors induced by the interference.
Frames longer than the value you set here are fragmented prior to the initial transmission into fragments no longer than the value of the threshold.

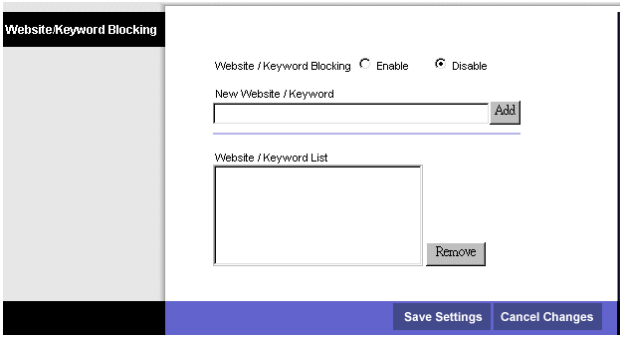
RTS Threshold:
Set the value for sending a request to the destination. All the frames of a length greater than the threshold that you set here will be sent with the four-way frame exchange. And, a length less than or equal to the value that you set will not be preceeded by RTS.

Authentication Type:
It decides the authentication type will be activated as open system function or shared key function.

Access Restrictions

There are restrictions that you have to notice for access into the network.

Website Blocking

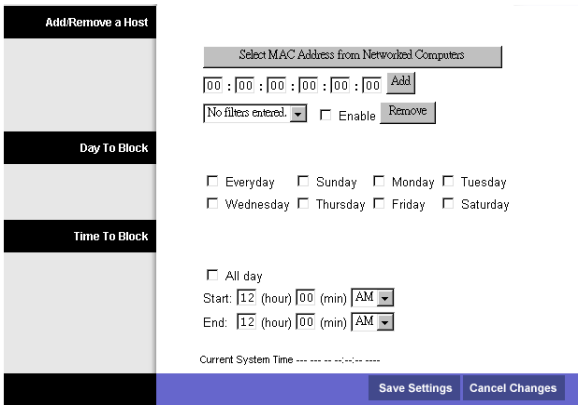


Website/keyword Blocking:
Click Enable to activate this function; click Disable to close this function.

New Website/Keyword:
Some websites/web pages that you do not want them to be shown or appeared while you are surfing the Internet, can be blocked by typing the website name or using the words that you typed here in their webpages. Please type in the website/words in the box and click Add. The new one will be shown on the Website/Keyword List to tell the system the web page with this work cannot access into.

Website/Keyword List:
It shows the words you type in the above box. If you want to delete any word here, simple choose that word to make it inverse, and click Remove. The web site/word will be deleted immediately.

Time Access



Select MAC Address from Networked Computers:
If you do not want to type the host address by yourself, you can use this button to select any one which is shown in the dialog box.

Add:
Type in the MAC address in these boxes, and click Add. The new one will be added and be shown on the drop down list below.

Remove:
If you do want to remove any added MAC address, please choose the one from the drop down list and click this button.

Day to Block:
Choose the day that you want the block function to be activated.

Time to Block:
To make a whole day block, please choose All day. And type in the start and end time in the corresponding boxes.

Current System Time:
It will show current time if it is invoked.

This dialog shows the networked computer that your computer can choose for executing time access.

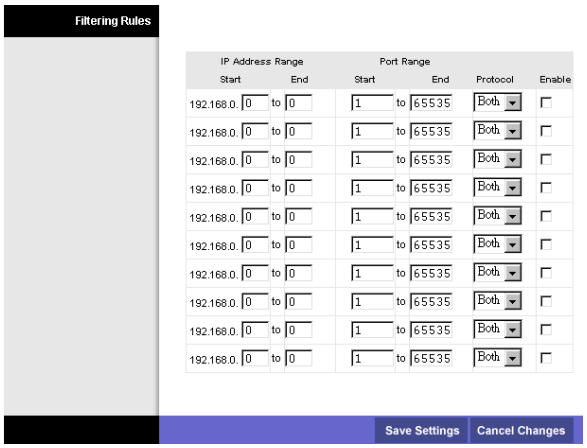
Filter Internet Traffic

IP Address Range Start to End:
You have to tell the system the start point and end point for the filter internet traffic used. Type in the number from 0 to 256 in these fields.

Port Range:
The default setting for port range is from 1 to 65535. You don't need to change it.

Protocol:
Select one of the protocols for using in this function.

Enable:
Click enable to activate this function. If you do not check this item, the function will not be activated even if you have made some decisions.

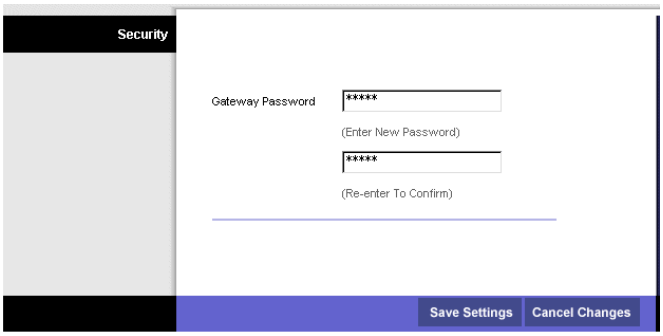


Administration

Security

Gateway Password:
Please type in the password for the gateway. And then retype in the below field again.

Click **Save Settings** to save the configuration.

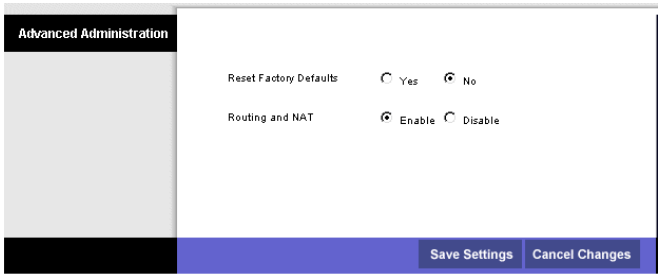


Advanced Administration

Reset Factory Default:
Click **Yes** to use the factory default after restart this device. Click **No** to use current settings that you just configured. This function is useful when you adjust the other settings in disorder.

Routing and NAT:
Click **Enable** to invoke this function; click **Disable** to close this function.

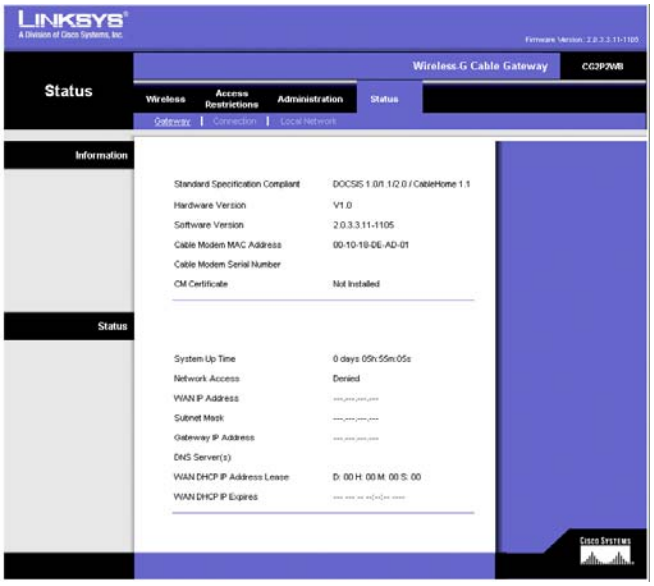
Click **Save Settings** to save the configuration.



Status

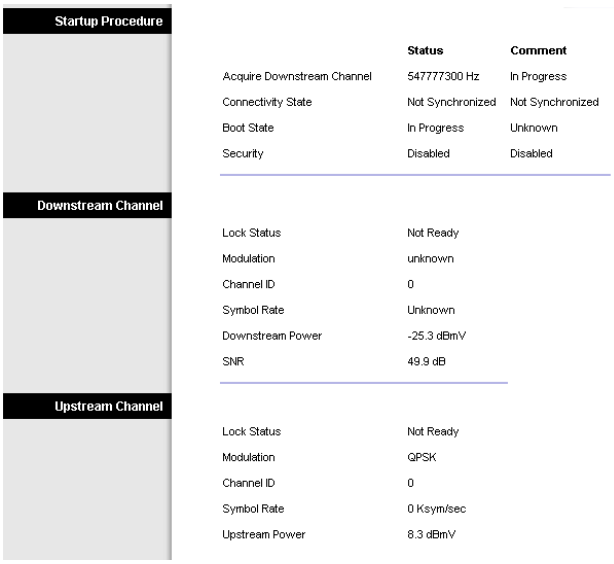
Gateway

This page shows the software information containing the standard specification compliant, software version, and so on.



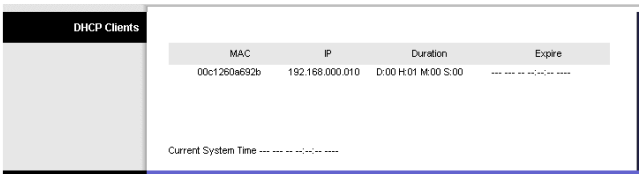
Connection

This page shows current connection status containing upstream channel, downstream channel, and startup procedure.



Local Network

This page shows the local network information for your reference.



Chapter 5: 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.

Which port of the Ethernet hub should I connect to the modem if I need to connect multiple PC to the modem?

A. You should connect the modem to the up-link port of the hub. The link LED of the hub will be on.

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.

Can I just connect the cable modem and two computers to a hub?

A. Yes. You need to make sure you can get two IP addresses from your cable modem service provider. Connect the modem to the up-link port of the hub.

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.

Can I switch between a notebook and PC using the same cable modem? Will there be a problem to obtain a DHCP IP address?

A. This issue depends on how your cable modem service provider manages the modems. If you are using one of the cable modem service providers that register your PC based on the MAC address of the Ethernet card in the PC, then you will have to call them and have them change that entry every time you switch between the two. Ask them if you have problem on this issue.