Ambit U10C019 User Guide

Model Number: U10C019/ U10C020

Rev. 1.6

01/09/2009

Revision History

Issue	Date	Author/Prime	Description of changes
1.3	20th-Sep-05		
1.4	22th-July-08	David Lee	Add new telnet command
1.5	13th-Aug-08	John Yan	Revised the format. And enhance with VPN, DDNS configuration, merged U10C020 into this edition. Update Tool options page; Update user login screenshot; Remove Routing pages.
1.6	9th-Jan-09	Derek Ferro	Updated firmware release to 5.66.1022 / 5.72.1022

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1. Introduction

Your new wireless cable modem provides high-speed wireless access to the Internet by using IEEE 802.11b/g wireless standard and an active Internet Connection through your cable service provider. This user guide describes how to set up and use the wireless cable modem. Before installing the wireless cable modem, you should read this user guide to ensure proper wireless cable modem operation. U10C019 is a wireless cable router, while U10C020 is a wired cable router that doesn't provide WiFi functionality. Other features are similar with U10C019.

2. Before you begin

Understand the Wireless Cable Modem's Features

Your wireless cable modem has the following features to help you access and use the Internet:

- Wireless connectivity means that you can use your PC just about anywhere in your home.
- 802.11b/g compliance ensures interoperability with other 802.11b/g compliant devices
- Your wireless cable modem supports transmission rates of 54, 48, 36, 24, 18, 12, 11, 9, 6, 5.5, 2, and 1 Mbps.
- Two-way design allows the wireless cable modem to send and receive data over the cable television network.
- Cable bandwidth allows data rates of up to 38 megabits per second (Mbps)*, which is faster than analog modems, integrated services digital network (ISDN), or asymmetric digital subscriber line (ADSL).
- Using your cable line means that the wireless cable modem is always on, always connected, and doesn't tie up your phone line.
- Plug-and-play operation through universal serial bus (USB) ensures easy setup and installation.
- Data Over Cable Service Interface Specification (DOCSIS!) compliance ensures interoperability with DOCSIS compliant cable operators.

**NOTE: Speeds may vary based on the following factors:*

- *Computer equipment including available RAM and processor speed*
- *Software applications utilizing your computer's resources*
- *Network traffic depending on the time of day*
- *Limitations set by your Cable Service Provider*

Contact Your Local Cable Operator

Before installing you new wireless cable modem, you must contact your local cable service provider to activate your Internet account. Be sure to have the wireless cable modem's MAC address available, which can be found on the underside of the wireless cable modem.

Prepare Your Area for Wireless Cable Modem Installation

Before installing your wireless cable modem, you should first prepare your area. To do this:

1) Locate your cable outlet and ensure that it is located within proper distance of your wireless cable modem and computer. Be sure not to bend the cable as this may strain the connector and cause damage.

2) Place wireless cable modem as high as possible. Allow sufficient airflow around the wireless cable modem to prevent overheating.

3) Place wireless cable modem and wireless clients in open areas or far away from transformers, heavy-duty motors, microware ovens, refrigerators, fluorescent lights, and other manufacturing equipment.

4) Ensure that the temperature in the room where the wireless cable modem will be operating is between 0 and 40C (32 and 104F)

5) The wireless signal may be weaker after it has passed through metal, concrete, brick, walls, or floors. Also, make sure that the wireless cable modem and wireless adapters are positioned so that the signal will travel straight through a wall or ceiling for better reception. For example, a wall that is 1 foot thick, at a 45-degree angle appears to be almost 2 feet thick.

Gather Supplied and Required Items

You will use a variety of items to install your wireless cable modem. Some of the items are supplied with your wireless cable modem.

Supplied

Verify that these items were included in the cable modem's package:

- Wireless cable modem
- Power adapter
- USB cable (1.5m)
- Ethernet cable (1. 8m)
- CD containing USB drivers

Not Supplied

Verify that these items are available before beginning the installation:

If using the wireless cable modem's USB port:

- A PC running Windows 98" Second Edition (SE), Windows Me, Windows 2000, or Windows XP. The cable modem's USB setup does not support the Macintosh operating system, Windows 98 First Edition, and NT.
- Windows 98 SE, Windows Me, Windows 2000, or Windows XP CD or diskettes.
- An active USB port on your PC.

- If using the wireless cable modem's Ethernet port:
  - A PC running Windows 95 (or later) operating system or a Macintosh computer running system 7.6 (or later) operating system
  - An active Ethernet port on your PC or Macintosh

- If using the wireless cable modem's Wireless feature:
  - A PC running Windows 98 (or later) operating system or a Macintosh computer running system 7.6 (or later) operating system
  - An active wireless client on your PC or Macintosh

Be sure to follow the instructions provided for the port that you want to use. Using the Wireless feature of your wireless cable modem is the simplest and quickest way to connect your PC or MAC to the Internet. All you need is an 802.1 1b/g wireless client that is connected to your PC or MAC. Depending on your cable service provider, you may be able to connect multiple wireless clients to your wireless cable modem. Using the USB port allows you to install the wireless cable modem

more quickly and easily than using the Ethernet port, because you do not have to install and configure a network interface card (NIC). USB, however, only enables you to connect one computer to the wireless cable modem. Using the Ethernet port allows you connect multiple computers to a wireless cable modem through the use of additional equipment, which is not included. Please contact your cable service provider for more information on using multiple computers.

3. Installing the Modem Using Wireless

This chapter explains the process for installing your wireless cable modem using the wireless feature. First you will install the hardware (wireless cable modem, wireless client (not included), coax cable (not included), and power adapter).

Installing the Hardware

This section explains how to connect the wireless cable modem to the computer, wall cable outlet, and electrical outlet. To install the hardware:

- Power off the computer
- Connect one end of the coaxial cable to the wireless cable modem's cable connector. Connect the other end of the coaxial cable to the cable wall outlet. Be sure not to bend or over tighten the cables as this may strain the connector and cause damage. If you plan to connect the wireless cable modem and television to the same wall outlet, you must use a cable line splitter (not included).
- Plug the wireless cable modem's power adapter into the wireless cable modem's power jack and into an electrical outlet or surge protector.
- Follow the installation and configuration instructions included with your wireless client.
- You are now ready to use your cable modem.

Troubleshooting the Wireless Installation

The *wlan* LED is not lit.

- Verify that your Wireless PC Card or Wireless USB client is properly connected to your computer.
- Try positioning the computer closer to the wireless cable modem. The wireless signal may be weaker after it has passed through metal, concrete, brick, walls, or floors. Make sure that the wireless cable modem and wireless adapters are positioned so that the signal

will travel straight through a wall or ceiling for better reception. For example, a wall that is 1 foot thick, at a 45-degree angle appears to be almost 2 feet thick.

- Make sure PC's wireless client is connecting to right WLCM. Check the SSID of the WLCM and wireless client.
- If WEP (Wired Equivalent Privacy) is set, verify that the WEP key set in the modem matches the WEP key set in the wireless client

4. Install Wireless Cable Modem Using USB Port

This chapter explains the process for installing your cable modem using the USB port. First, you will install the hardware (cable modem, USB cable, coax cable, and power adapter). You will then install the cable modem drivers and verify that the modem is functioning properly.

NOTE:

The cable modem's USB setup does not support the Macintosh" operating system, Windows 95 & NT.

Using the USB port allows you to install the cable modem more quickly and easily than using the Ethernet port, because you do not have to install and configure a network interface card (NIC).

USB, however, only enables you to connect one computer to the cable modem. Using the Ethernet port allows to you connect multiple computers to a cable modem through the use of additional equipment which is not included. Please contact your cable service provider for more information on using multiple computers.

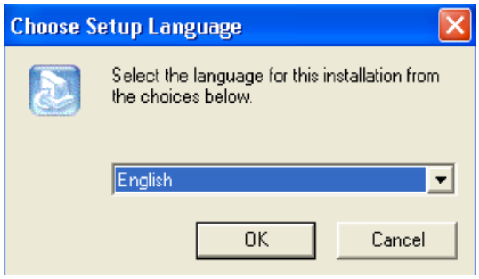
Installing the Software Drivers Before Hardware Connection

CAUTION:

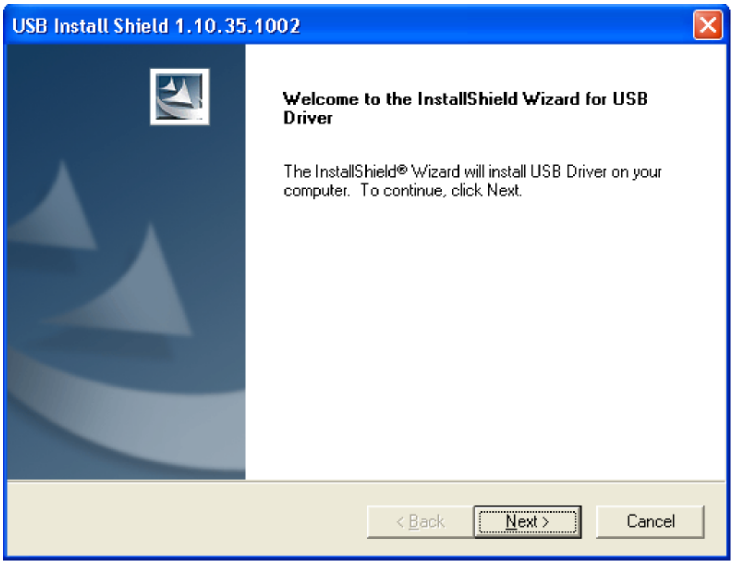
You should run the "Setup.exe" program first before you connect USB cable to PC.

To install the cable modem software drivers using the Windows operating system:

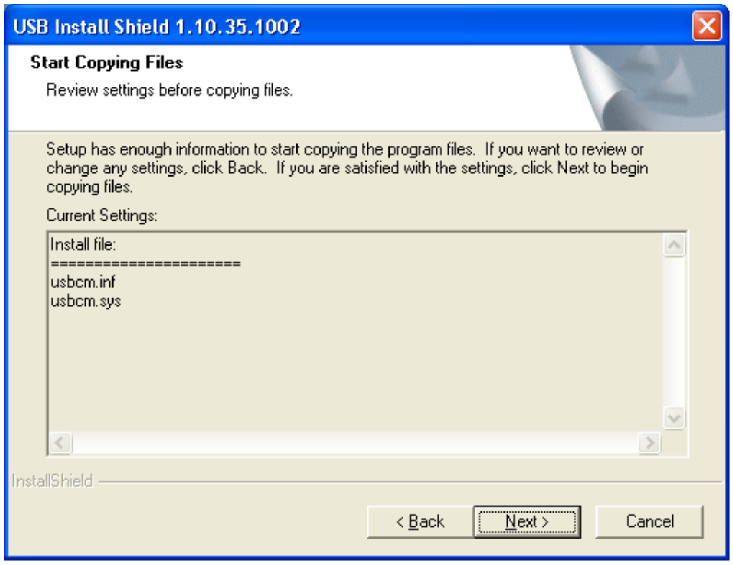
1. Double click the "Setup.exe" program in the CD.
2. Then the "Choose Setup Language" screen appears. You can choose the language you need and click "OK".



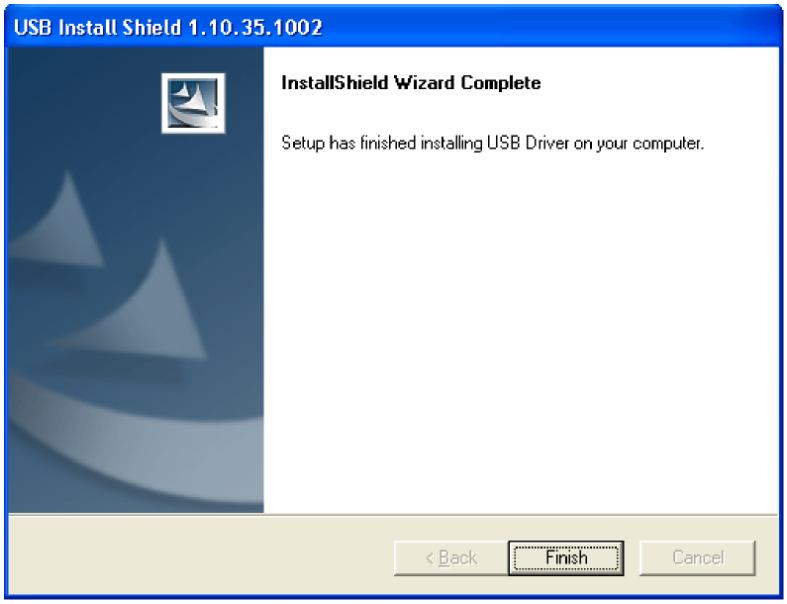
3. You will see the following Welcome screen.



4. Click "Next>". You will see the following Start screen.



5. Click "Next>". You will see the following "Complete" screen.



6. Click "Finish". You will see below screen, and then select "*Yes*". Now you can connect the USB cable to the PC by following next section instructions.

Installing the Hardware

This section explains how to connect the cable modem to the computer, wall outlet, and electrical outlet. To install the hardware:

- Power off the computer
- Connect one end of the coaxial cable to the cable modem's cable connector. Connect the other end of the coaxial cable to the cable wall outlet. Be sure not to bend or over tighten the cables as this may strain the connector and cause damage. If you plan to connect the cable modem and television to the same wall outlet, you must use a cable line splitter (not included).
- Connect one end of the USB cable to the cable modem's USB port and the other end of the cable to the USB port on the PC.
- Plug the cable modem's power adapter into the cable modem's power jack and into a wall outlet or surge protector.
- You are now ready to install the software drivers.

Installing the Software Drivers

This section explains how to install the software drivers that your PC requires for the cable modem to operate.

Installing the Software Drivers in Windows 98 SE Operating System

CAUTION: You must install the drivers located on the CD that ships with your cable modem. If you use the default Windows-supplied software drivers, you will not be able to properly install the cable modem.

To install the cable modem software drivers using the Windows 98 operating system:

1. Power on your PC. After your computer boots, Windows detects the cable modem. The Found New Hardware screen appears, followed by the Add New Hardware Wizard screen.

2. Insert the CD into the PC's CD-ROM drive and click *Next.* You will see the following screen

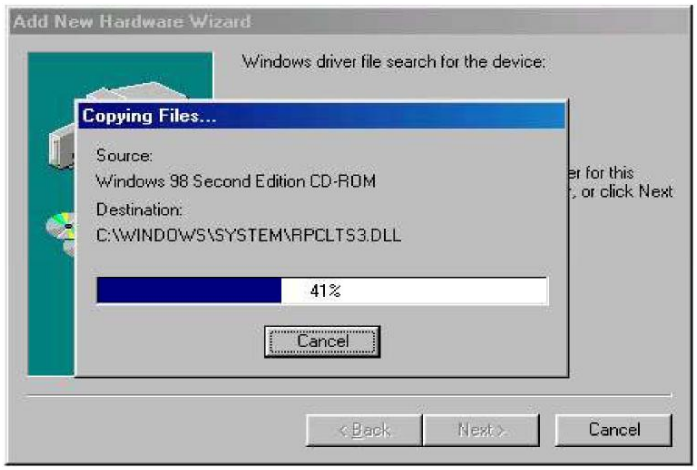
3. Select *Search for the best driver for your device (Recommended).* Then select *Next.* You will see the following screen.

4. Check the *CD-ROM drive* check box and verify that the CD is in the CD-ROM drive. Click *Next* to have Windows search for the necessary driver files. You will see the following.

CAUTION: You must verify that Ambit USB Cable Modem appears on the screen. If USB Composite Device appears, you must click *Back* twice and specify the correct location of the driver files. DO NOT proceed if USB Composite Device is displayed in the above window. Contact your cable provider for further assistance.

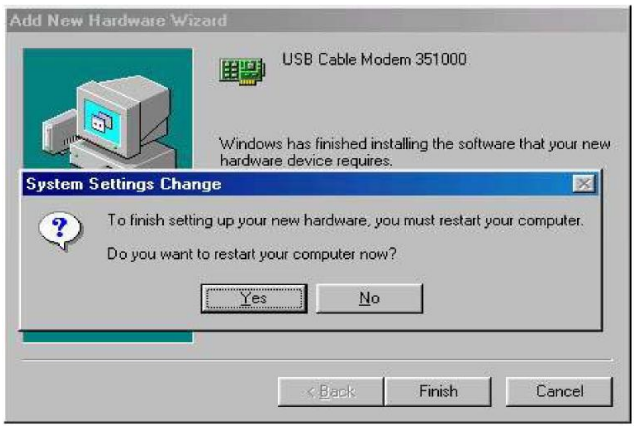
5. Click *Next.* The computer automatically installs the necessary driver files.

6. If the above screen appears, you must insert the Windows 98 CD so that Windows can copy the remaining files.



7. Wait for Windows to complete copying the remaining files.

8. Click *Finish* to complete the installation. You will see the following screen.



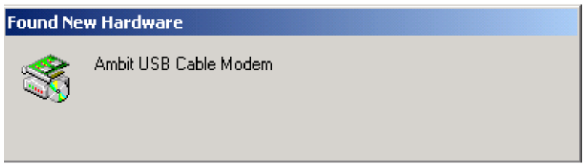
9. Choose *Yes* to restart your computer.

10. After the computer is rebooted, verify that the USB LED is lit on the front of you cable modem. If not, refer to the troubleshooting section later in this chapter.

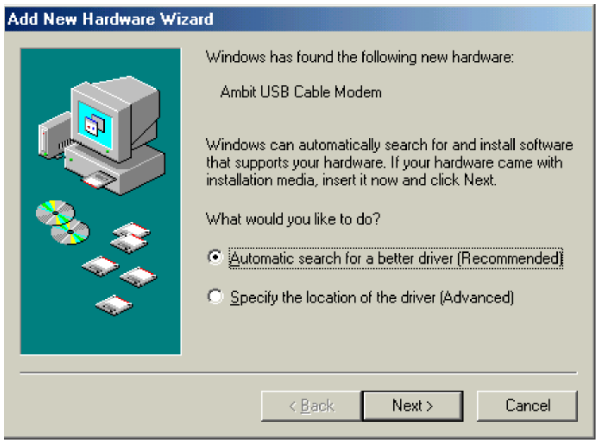
Installing the Software Drivers in Windows Me Operating System

To install the cable modem software drivers using the Windows Me operating system:

1. Power on your PC. After your computer boots, Windows detects the cable modem. The Found New Hardware screen appears, followed by the Found New Hardware Wizard screen.



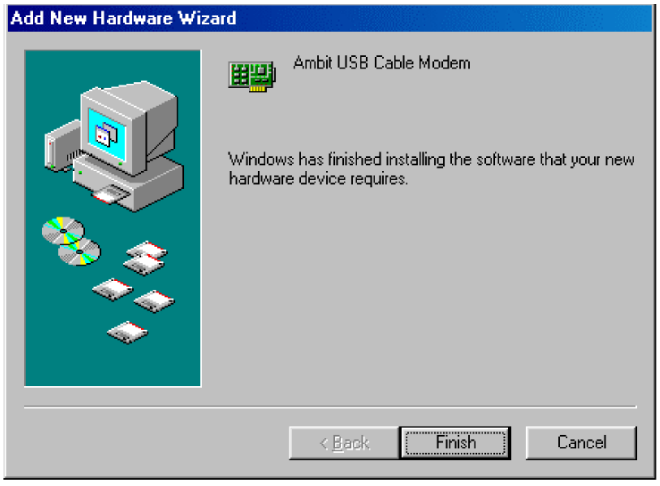
2. Insert the CD into the PC's CD-ROM and click *Next.* You will see the following screen.



3. Select *Automatic search for a better driver (Recommended)* and click *(Next).* The computer automatically copies the necessary driver files from the CD. You will see the following screen.

4. Check the *CD-ROM drive* check box and verify that the CD is in the CD-ROM drive. Click *Next*

to have Windows search for the necessary driver files. You will see the following



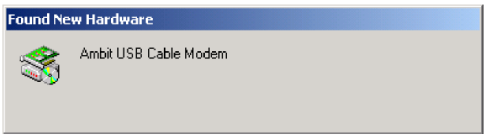
5. Click *Finish* after the computer has copied the necessary files.

6. Click *Yes* to restart the computer

Installing the Software Drivers in Windows 2000 Operating System

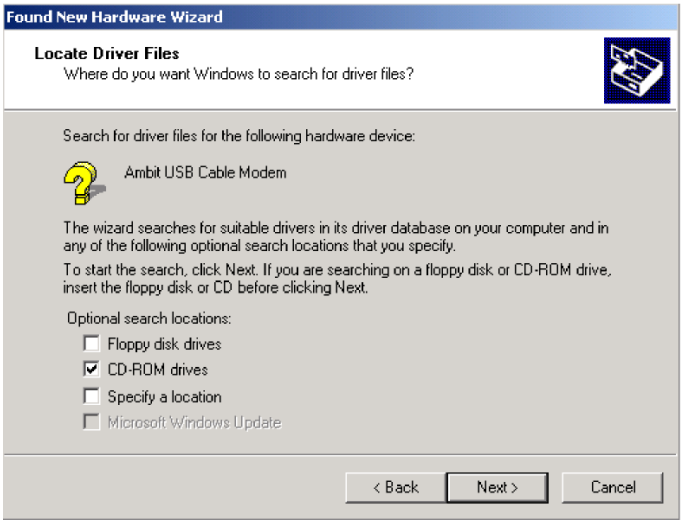
To install the cable modem software drivers using the Windows 2000 operating system:

1. Power on your PC. After your computer boots, Windows detects the cable modem. The Found New Hardware screen appears, followed by the Found New Hardware Wizard screen.



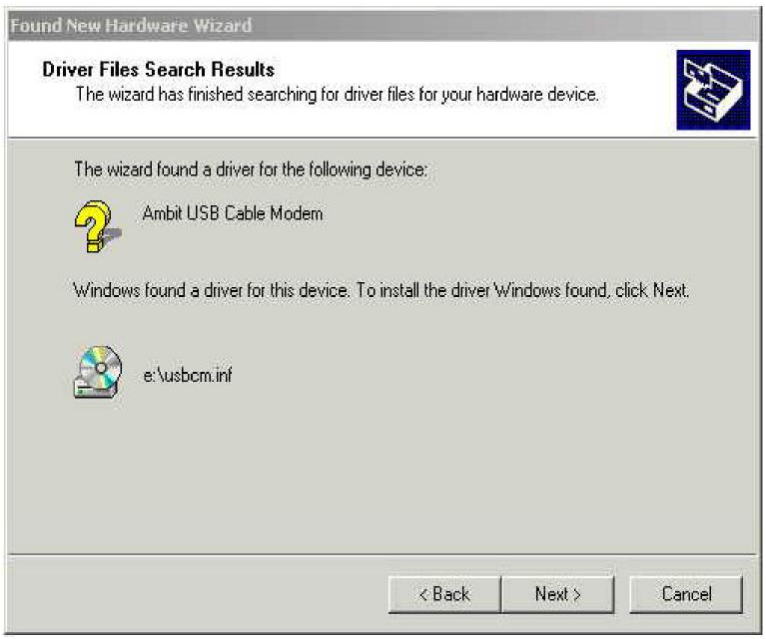
2. Insert the CD into the PC's CD-ROM Drive and click *Next.* You will see the following screen.

3. Select *Search for a suitable driver for my device (recommended.* Then select *Next>.* You will see the following screen



4. Check the *CD-ROM drive* check box and verify that the CD is in the CD-ROM drive.

5. Click *Next* to have Windows locate the necessary driver files. You will see the following screen.



6. Click *Next* to install the driver files for the cable modem. You will see the following screen.

7. Click *Finish* to complete the installation.
8. After the installation is completed, verify that the USB LED is lit on the front of you cable modem. If not, refer to the troubleshooting section later in this chapter.

Installing the Software Drivers in Windows XP Operating System

1. Power on your PC. After your computer boots, Windows detects the cable modem. The Found New Hardware screen appears, followed by the Found New Hardware Wizard screen.

2. Choose *the software automatically (Recommended).* Click *Next* to continue. You will see the following screen.

3. Click *Finish* to complete the installation.

Troubleshooting the USB Installation

1. None of the LEDs are on when I power on the Wireless LAN Cable Modem.

Answer: Check the connection between the power adapter and the cable modem. Power off the Wireless LAN Cable Modem and wait for 5 Seconds and power on the modem again. If the problem still exists, you may have a hardware problem.

2. When attempting to install the USB driver in Windows 98 SE, I receive the following error message: Device not installed at this time. Driver not found.

Answer: This usually occurs when the wrong driver has been installed. To remove the wrong driver

and install the correct driver:

- Right-click on the *My Computer* icon on your desktop and choose *Properties.*
- Click the *Device Manager* tab
- Click the plus sign next to *Universal Serial Bus controllers* to view the list of installed USB device drivers
- Select *USB Composite Device* and click *Remove*
- Click *Refresh*

The Add New Hardware Wizard window appears, displaying the device name *USB Composite Device.* Refer to the proper operating system instructions in this chapter for information on reinstalling the driver properly.

3. All of the LEDs on the front of my modem look correct, but I cannot access the Internet.

Answer: If the POWER, USB, SYNC, and READY are solidly lit, the cable modem is working properly. Use the following procedures to verify connectivity between the PC and the cable modem:

- Launch Your PC's Internet Browser (e.g., Netscape, IE)
- Enter http://192.168.100.1 into your browser. This URL connects you directly to the web server within your cable modem. A successful connection indicates that the PC is able to communicate with the cable modem. The next step is to enter a public URL to ensure connectivity between the cable modem and your cable service provider. If this fails, please contact your cable service provider for further assistance.
- Try restarting the computer so that it could re-establish a connection with the cable modem.
- Power cycle the cable modem by removing the power adapter from the electrical outlet and plugging it back in. Wait several minutes for the cable modem to re-establish communications with your cable service provider.
- Remove any other USB devices from your computer and connect the cable modem's USB cable directly to the USB port on your computer.
- If you are using a cable splitter, try removing the splitter and connect the cable modem directly to the cable wall outlet. Wait several minutes for the cable modem to re-establish communications with your cable service provider.
- Your USB or coaxial cable may be damaged. Try using another cable.

- If none of these suggestions work, contact your cable service provider for further assistance.

Uninstalling the USB Driver

- Insert the supplied CD into your CD-ROM drive
- Click on the *My Computer* icon on your desktop. Then click on the icon that belongs to your CD-ROM Drive.
- Locate the file called "**setup.exe**" and click on the file. This program will remove all the necessary files from your computer.

5. Installing the Modem Using the Ethernet Port

This chapter explains the process for installing your wireless cable modem using the Ethernet port. Using the Ethernet port allows to you connect multiple computers to a wireless cable modem through the use of additional equipment which is not included. Please contact your cable service provider for more information on using multiple computers.

You can use the wireless cable modem's Ethernet port if you have:

- A PC running Windows 95 (or later) operating system or a Macintosh computer running system 7.6 (or later) operating system
- An active Ethernet port on your PC

Before you begin, verify that your Network Interface Card (NIC) has been installed and configured for use with your wireless cable modem. The wireless cable modem requires TCP/IP to be installed. Contact your cable service provider for assistance with installing and configuring TCP/IP. After installed the hardware, your computer can connect the wireless cable modem directly by using Network Interface Card. Unlike USB installation, there is no needed for software installation for the Ethernet connection.

Installing the Hardware

This section explains how to connect the wireless cable modem to the computer, wall cable outlet,

and electrical outlet.
To install the hardware:

1) Power off the computer
2) Connect one end of the coaxial cable to the wireless cable modem's cable connector. Connect the other end of the coaxial cable to the cable wall outlet. Be sure not to bend or over tighten the cables as this may strain the connector and cause damage. If you plan to connect the wireless cable modem and television to the same wall outlet, you must use a cable line splitter (not included).
3) Connect one end of the Ethernet cable to the wireless cable modem's Ethernet port and the other end of the cable to the Ethernet port on the PC or network interface card (NIC).
4) Plug the wireless cable modem's power adapter into the wireless cable modem's power jack and into a wall outlet or surge protector.
5) If the **pwr, sync, ready,** and **ethernet** LEDs are solidly lit, the wireless cable modem is working properly.

Troubleshooting the Ethernet Installation

1. None of the LEDs are on when I power on the Wireless LAN Cable Modem.

Check the connection between the power adapter and the cable modem. Power off the Wireless LAN Cable Modem and wait for 5 seconds and power on the modem again. If the problem still exists, you may have a hardware problem.

2. The ethernet 1 or 2 or 3 or 4 LED on my wireless cable modem is not lit.

- Try restarting the computer so that is could re-establish a connection with the wireless cable modem.
- Check for a resource conflict (Windows users only). To do this:
    1) Right-click on the *My Computer* icon on your desktop and choose *Properties.*
    2) Click the *Device Manager* tab and look for a yellow exclamation point or red X over the NIC in the *Network Adapters* field. If you see either one, you may have an IRQ conflict. Refer to the manufacturer's documentation or you cable service provider for further assistance.
- Verify that TCP/IP is the default protocol for your network interface card (NIC)

- Power cycle the wireless cable modem by removing the power adapter from the electrical outlet and plugging it back in. Wait several minutes for the wireless cable modem to re-establish communications with your cable service provider.
- Your Ethernet cable may be damaged. Try another cable.

3. All of the LEDs on the front of my modem look correct, but I cannot access the Internet.

- If the **pwr, sync,** and **ready** LEDs are solidly lit, the wireless cable modem is working properly. Try restarting the computer so that is could re-establish a connection with the wireless cable modem.
- Power cycle the wireless cable modem by removing the power adapter from the electrical outlet and plugging it back in. Wait several minutes for the wireless cable modem to re-establish communications with your cable service provider.
- If your PC is connected to a hub or gateway, try connecting the PC directly into the wireless cable modem.
- If you are using a cable splitter, try removing the splitter and connect the wireless cable modem directly to the cable wall outlet. Wait several minutes for the wireless cable modem to re-establish communications with your cable service provider.
- Your Ethernet or coaxial cable may be damaged. Try using another cable.
- If none of these suggestions work, contact your cable service provider for further assistance.

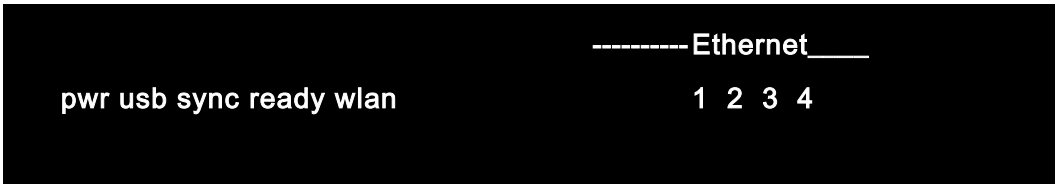
6. Wireless Cable Modem LEDs and Connectors

This chapter describes the functions of the wireless cable modem's LEDs and connectors.

When the **pwr, sync,** and **ready** LEDs are lit, the wireless cable modem is working properly. The **usb** or **enet 1, 2, 3, 4** LEDs should also be lit depending on what port is being used.

The following provides an overview of the LED indicator lights on the front of the wireless cable modem and what the LEDs mean.

LEDs on the Front of the Modem



- **pwr:** Indicates that the wireless cable modem has successfully completed internal power-on tests.
- **usb:** Indicates connectivity between the USB port on the wireless cable modem and a PC's USB port.
- **sync:** Indicates the connection status between the wireless cable modem and the cable network. The LED is lit when the wireless cable modem has established a downstream channel with the cable service provider's Cable Modem Termination System (CMTS).
- **ready:** Indicates that the wireless cable modem has completed the ranging/registration process and is ready to send/receive data.
- **wlan:** Indicates that at least one wireless client is linked to the wireless cable modem.
- **Enet 1, 2, 3, 4:** Indicates connectivity between the Ethernet port on the wireless cable modem and the Ethernet port on a PC or Mac. This LED blinks when the wireless cable modem is transferring or receiving data over the Ethernet cable.

Installation problems with the wireless cable modem are commonly due to the cable network and its topography. LEDs on the front panel of the wireless cable modem reveal operational status and help you determine problem areas.

Connectors on the Back of the Modem

This list of connectors describes where to connect the cables and power adapter when installing the wireless cable modem.

1) **PWR:** This is where you plug the included power adapter. Remember to use only the power adapter that came with the wireless cable modem.
2) **Ethernet** 10/100 Port 1, 2, 3, 4: This is where you plug the Ethernet cable. The other end connects to the Ethernet port on the PC or NIC
3) **USB** Port: This is where you plug the included USB cable. The other end connects to the USB port on your PC.

4) **Cable** Connector: This is where you connect the coaxial cable (not included) that leads to the cable splitter (not included) or the cable wall outlet.

7. Web User Interface

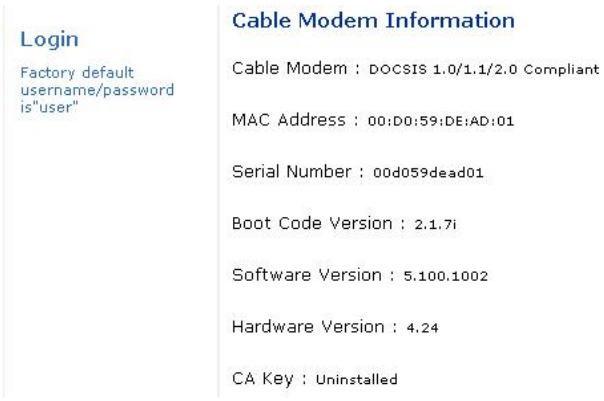
Accessing the Web User Interface

This chapter describes how to access the wireless cable router via Web configuration interface. First, please connect your PC to the cable router's Ethernet port, via an Ethernet cable.

- Open the web browser and set the address to: http://192.168.100.1 for local access or

- Open the web browser and set the address to: http://Cable-RF-IP-address for remote access or

- Open the web browser and set the address to: http://Public-gateway-IP-address:64680 for remote access



1. Click Login. Enter ***user*** for User name and ***user*** for Password, and then click ***OK.***

2. If the user enters an incorrect user name and/or password, the web user interface displays 401 Unauthorized.

*** User Name: ***user*** & Password: ***user*** only can access to MODEM, GATEWAY (Information Only) , WIRELESS, PARENTAL CONTROL, FIREWALL and TOOLS.

Web User Interface Home Page

A main menu is shown at the top of the pages and the user can select different options to view wireless cable modem information. They include:

After login, user will see the CABLE MODEM page first. The layout is divided into 3 areas. Menu Bar, Menu Tree and Configure Area. U10C020 is a wired router, which doesn't support WiFi access.

Menu Bar includes top level menu, like GATEWAY, WIRELESS and VPN. Once user select the option in menu bar, Menu Tree will be changed correspondently. To change parameter settings, user needs to operate in Configure Area.

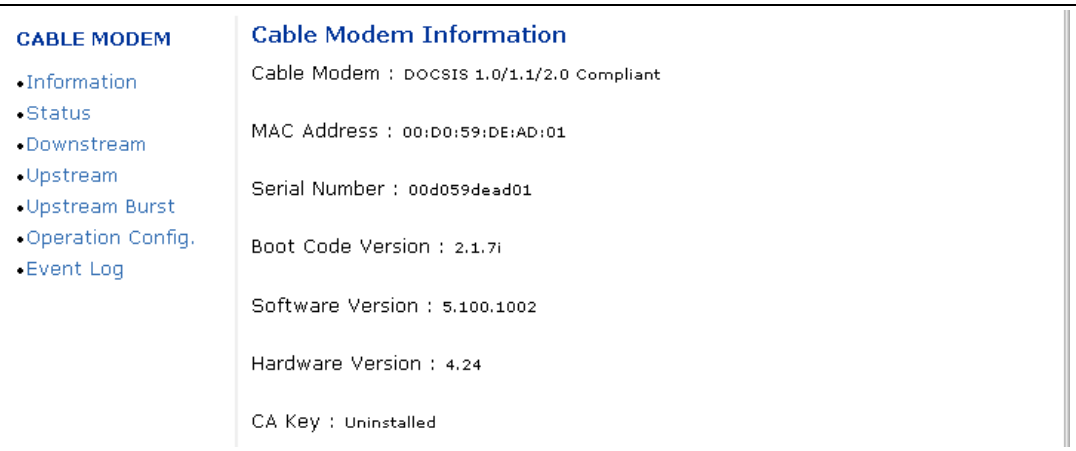
Below chapter is to go through page by page, to ensure that you're clear about each feature and how to use it.

7.1 Cable Modem

User can select different options to view wireless cable modem's information and real time status. They include Information, Status, Downstream, Upstream, Upstream Burst, Operation Configuration, Event Log options.

7.1.1 Information

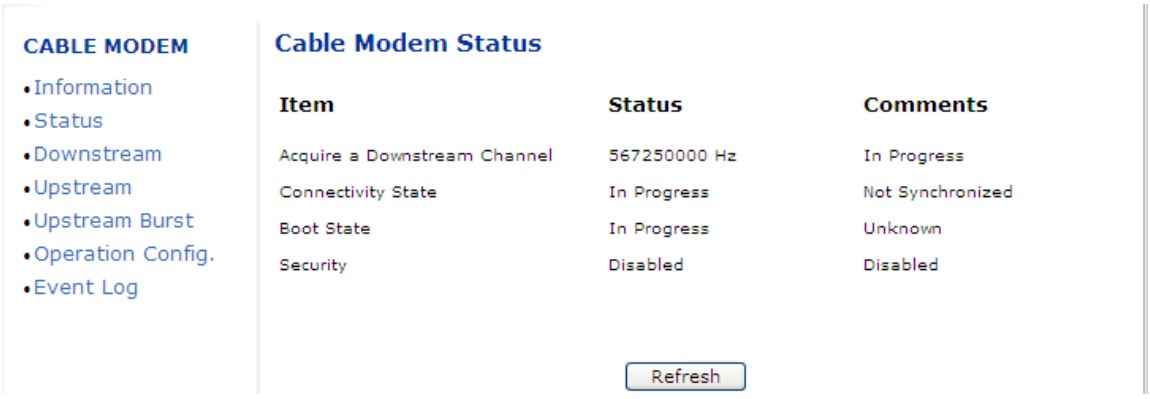
This page is to show Cable Modem Information.



Label	Description
Cable Modem	Indicate the DOCSIS standard it's compliant with.
MAC address	Unique hardware address of cable modem.
Serial Number	Unique manufacture ID number of a product.
Boot Code Version	Software version of device driver.
Software version	Software
Hardware Version	An internal ID number to identify hardware design.
CA Key	This is required by BPI. Cable modem will install a CA Key that transferred from your service provider's server after cable modem is authenticated.

7.1.2 Status

This page is to show Cable Modem Status.

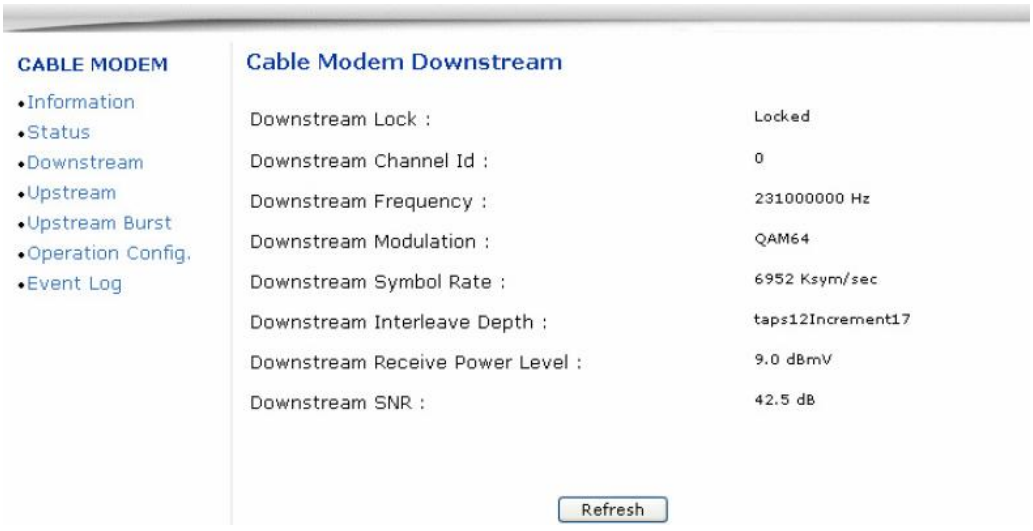


Label	Description
Item	List the item to be showed here.
Status	Status of the item.
Comments	Additional information for this item.

Acquire a Downstream Channel	Current cable modem locking status. (Status field will show downstream frequency. If comment field show “Locked”, cable modem already locked this frequency. Otherwise, it will show “In Progress”, cable modem is trying to lock this frequency).
Connectivity State	After physical layer’s initialization, cable modem will be configured by a DHCP server. Once succeeds to get an IP, that means cable modem is online. In status column, it shows the progress. In comments Column, it tells the reason why cable modem’s connectivity state is not ok. Current cable modem connectivity state. (Status field show “Ok”, cable modem is operational. Otherwise, it will show “In Progress”, cable modem is in progress, comments field will show current state).
Boot state	Current cable modem boot state. (Status field show “Ok”, cable modem is operational. Otherwise, it will show “In Progress”, cable modem is in progress, comments field will show current state)
Security	Current cable modem security state. (Status field show “Disable”, Security is disabled. Otherwise, it will show “Enable”, Security is enabled, comments field will show “BPI” or “BPI+”).

7.1.3 Downstream

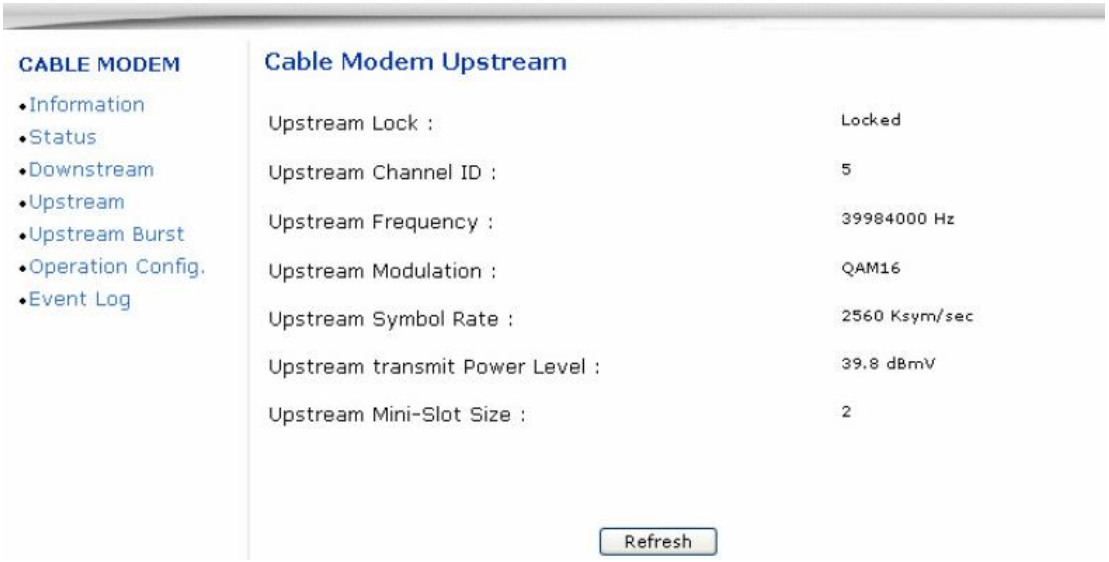
This page is to Show Cable Modem Downstream.



Label	Description
Downstream lock	Display if the cable modem succeeded to lock to a downstream channel.
Downstream Channel ID	Display the channel ID.
Downstream Frequency	Display the channel frequency cable modem is scanning.
Downstream Modulation	Display the modulation method that’s required for the downstream channel locked by cable modem. This is decided by service provider.

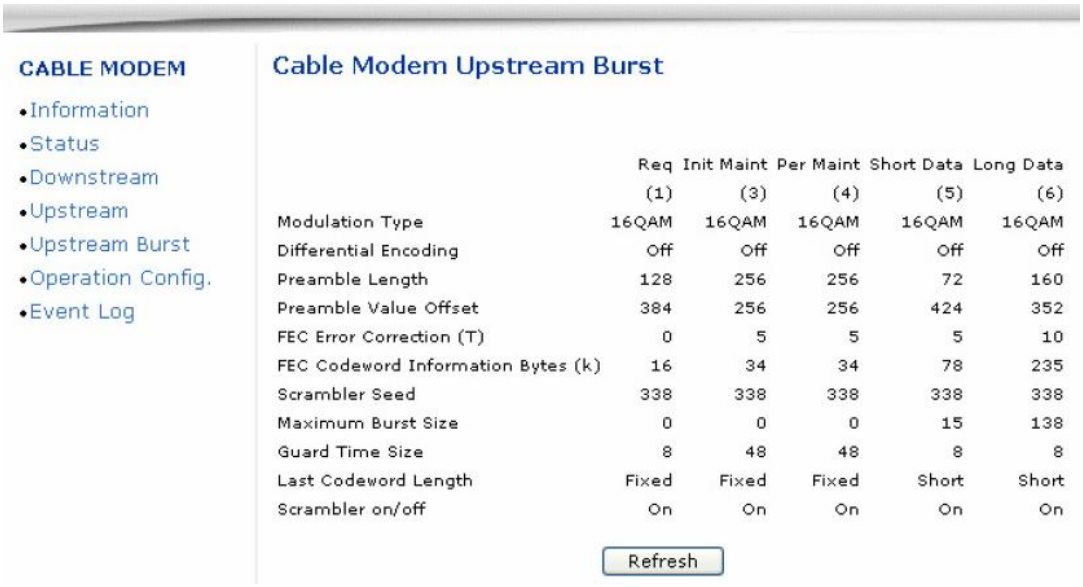
Downstream Symbol Rate	Display the symbol rate. Current cable modem downstream symbol rate (QAM64 is 5056941 sym/sec, QAM256 is 5360537 sym/sec).
Downstream Interleave Depth	Current cable modem downstream Interleave depth (8/16/32/64/128/other).
Downstream Receive Power Level	Display the receiver power level after ranging process.
Downstream SNR	Display the SNR of this downstream channel.

7.1.4 Upstream



Label	Description
Upstream Lock	Current cable modem upstream lock status (Locked/Not locked).
Upstream Channel ID	Current cable modem upstream channel identify.
Upstream Frequency	Current cable modem upstream frequency (Hz).
Upstream Modulation	Current cable modem upstream modulation type. (QPSK/ QAM8 /QAM16/ QAM32/ QAM64/ QAM128/ QAM256).
Upstream Symbol Rate	Current cable modem upstream symbol rate (Ksym/sec)
Upstream transmit Power Level	Current cable modem upstream transmit power (dBmV)
Upstream Mini-Slot Size	Current cable modem upstream mini-slot.

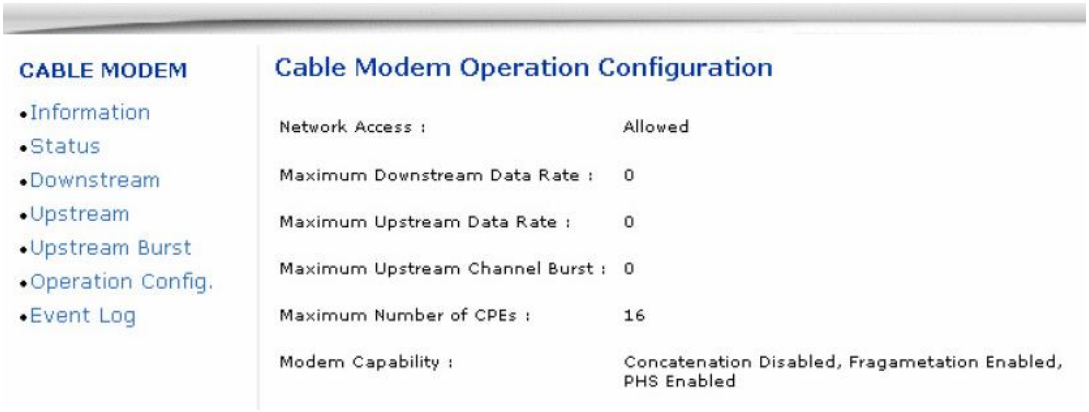
7.1.5 Upstream Burst



Label	Description
Modulation Type	QPSK/16QAM.
Differential Encoding	On/Off
Preamble Length	0-1024 (bits).
Preamble Value Offset	0-1022 (bits).
FEC Error Correction (T)	0 to 10 (0 implies no FEC. The number of codeword parity bytes is 2*T)
FEC Codeword Information Bytes (k)	Fixed: 16 to 253 (assuming FEC on). Shortened: 16 to 253 (assuming FEC on)
Scrambler Seed	15 bits (Not used if scrambler is off)
Maximum Burst Size	0-255 (mini-slots)
Guard Time Size	4-255 (symbols)
Last Codeword Length	Fixed/shortened
Scrambler on/off	On/Off

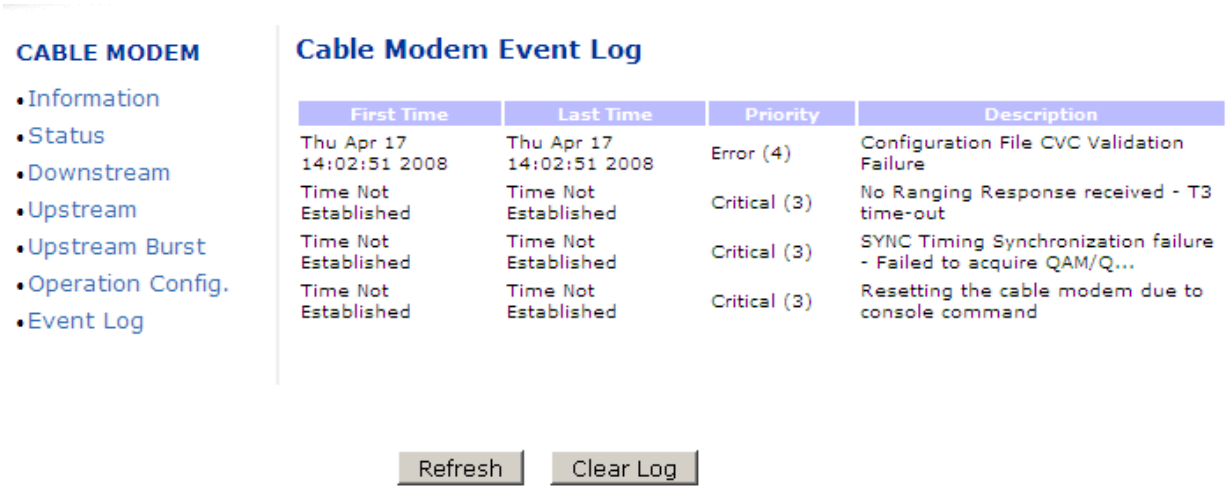
7.1.6 Operation Configuration

This page shows the running configuration of cable modem.



Label	Description
Network Access	Display the status of cable modem, denied means currently no connectivity is established. Deny the access to Internet. Allow means allow the access to Internet.
Maximum Downstream Data Rate	Display the maximum downstream data rate.
Maximum Upstream Data Rate	Display Maximum Upstream Data Rate
Maximum Upstream Channel Burst	Display Maximum Upstream Channel Burst
Maximum Number of CPEs	Shows the maximum CPE that can be connected at LAN side to access Internet at the same time.
Modem Capability	Displayed certain configuration, like PHS enabled.

7.1.7 Event Log



Label	Description
First Time	Display the time of the event.
Last Time	Display the last time of the event.
Priority	Event log severity.

Description	Detail of the event log.
Refresh	Refresh the log record.
Clear Log	Clear all of the logs.

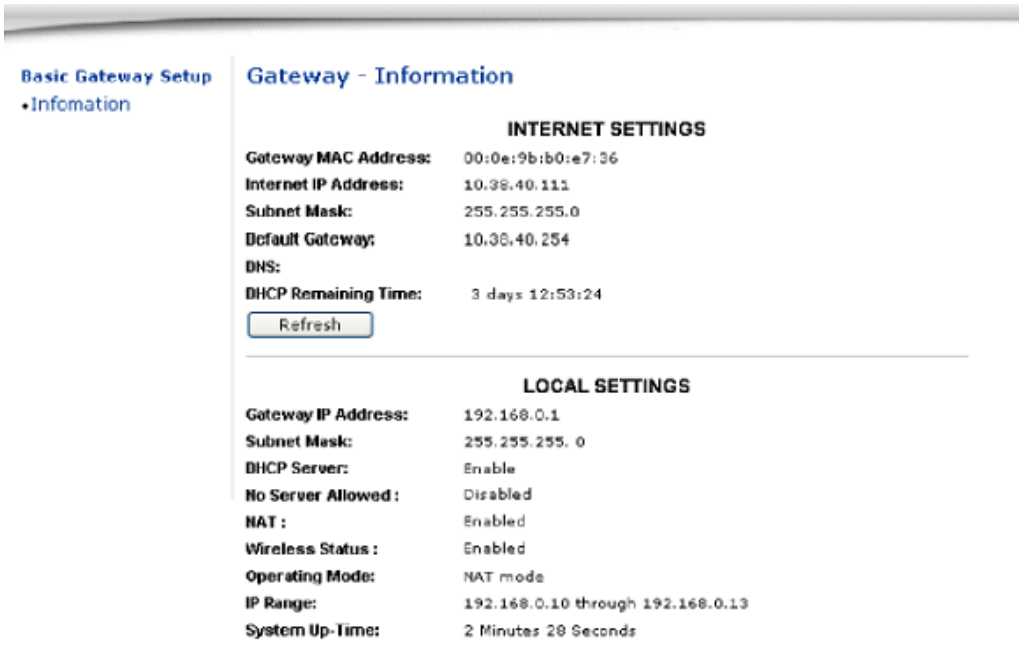
During daily operation and trouble shooting, log is very useful. For example, you can see "configuration file CVC validation Failure", this indicates that cable modem failed to validate the CONFIG file downloaded from MSO's TFTP server, maybe caused by error root key. Furthermore, event logs will be stored unless user clicks "clear log" button. Power cycle reboot will not clear event logs.

7.2 Gateway

Under gateway, user can configure basic parameters like WAN IP address, LAN IP address, DHCP and DDNS. Also, advanced setting like DMZ, MAC filtering and port forwarding are included.

7.2.1 Information

User can get an overview of IP address status.



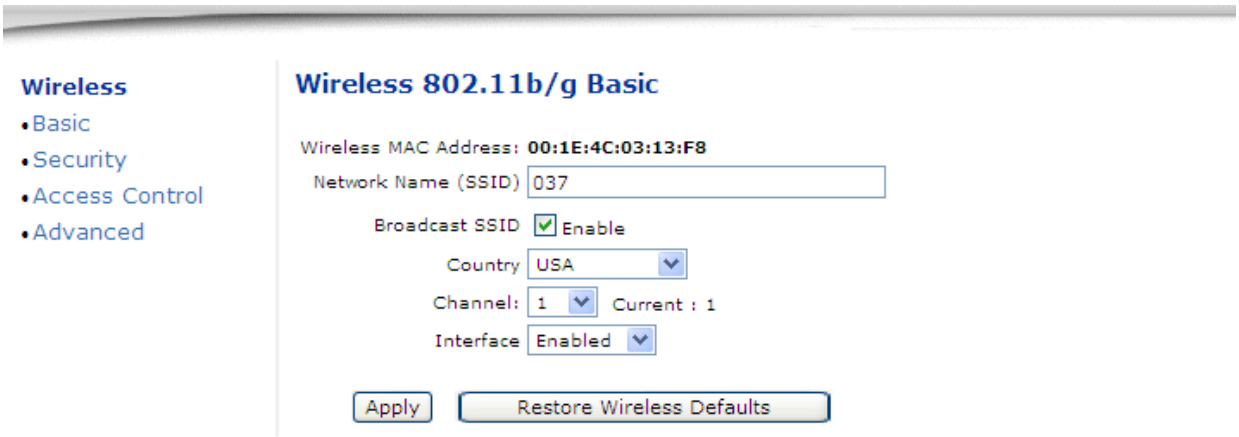
Label	Description
INTERNET SETTINGS	
Gateway MAC Address:	Display the MAC Address of Residential Gateway.
Internet IP Address:	Display the Internet IP address.
Subnet Mask:	Display the subnet mask of the Internet IP address.
Default Gateway:	Display the default gateway IP address.
DNS:	Display the DNS server IP address.

DHCP Remaining Time:	Display the remained DHCP lease time before expiration.
Refresh	Click to refresh the information.
LOCAL SETTINGS	
Gateway IP Address:	Display the local IP address of the LAN interface.
Subnet Mask:	Display the subnet mask value.
DHCP Server:	Display the status of DHCP sever feature.
No Server Allowed :	?????
NAT	Display if NAT mode is enabled.
Wireless Status	Display if the wireless feature is active.
Operation Mode	Display the mode the router is running, NAT mode, or Router mode.
IP Range	Display the private IP address scale.
System Up-Time:	Display the accumulated time since the last power cycle.

7.3 Wireless

7.3.1 Basic

This page allows configuration of the Wireless Modem parameters the SSID and channel number. A wireless LAN can be as simple as two computers with wireless LAN adapters communicating in a peer-to-peer network or as complex as a number of computers with wireless LAN adapters communicating through access points which bridge network traffic to the wired LAN.

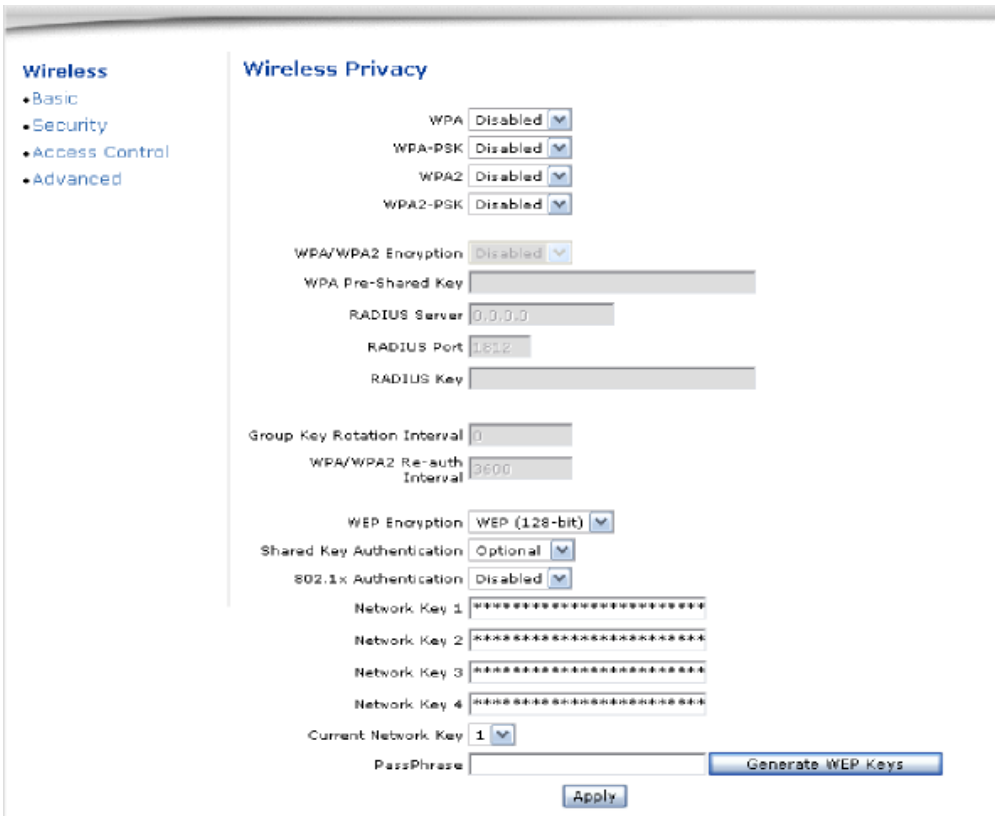


Label	Description
Wireless MAC Address	Display MAC address of wireless router's wireless module.
Network Name (SSID)	The SSID identifies the Service Set with which a wireless station is associated. Wireless stations associating to the wireless router must have the same SSID.
Broadcast SSID	Click **Enable** to allow broadcast of SSID.

Country	When set to **USA,** Channel 1 to 11 is available. If select worldwide, 13 channels are available.
Channel	Select a specific channel to deploy wireless network. This allows you to set the operating frequency/channel depending on your particular region. Select a channel from the drop-down list box.
Interface	When set to **enabled,** wireless clients can access to the network.
Apply	Click to save.
Restore Wireless Defaults	Click to restore the factory default setting for wireless module.

7.3.2 Security

This page allows configuration of the WEP keys and/or pass phrase.



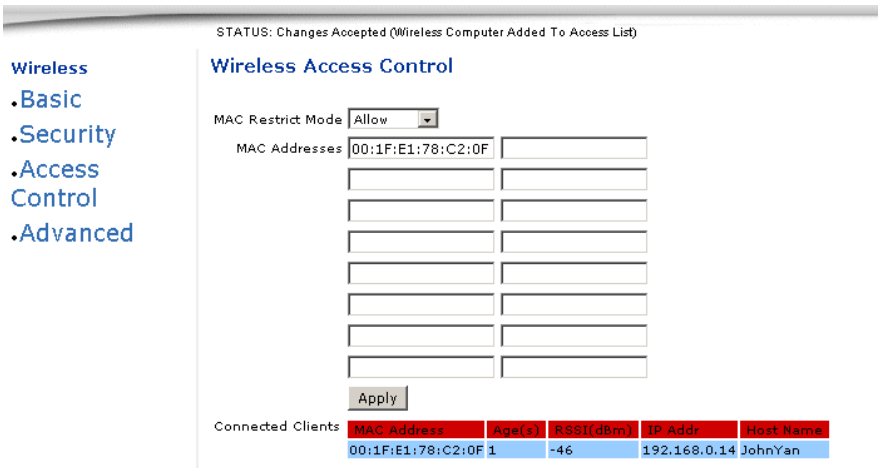
Label	Description
WPA	Wi-Fi Protected Access (WPA) is a subset of the IEEE 802.11i standard. Key differences between WPA and WEP are user authentication and improved data encryption

WPA-PSK	If you don't have an external RADIUS server you should use WPA-PSK (WPA Pre-Shared Key) that only requires a single (identical) password entered into wireless gateway and wireless client. As long as the passwords match, a client will be granted access to a WLAN.
WPA2	Advanced protocol, certified through Wi-Fi Alliance's WPA2 program, implements the mandatory elements of 802.11i. In particular, it introduces a new AES-based algorithm, CCMP, that is considered fully secure.
WPA2-PSK	If you don't have an external RADIUS server you should use WPA2-PSK (WPA Pre-Shared Key) that only requires a single (identical) password entered into wireless gateway and wireless client. As long as the passwords match, a client will be granted access to a WLAN.
WPA/WPA2 Encryption	Switch to enable and disable WPA/WPA2 encryption.
WPA Pre-Shared Key	The encryption mechanisms used for WPA and WPA-PSK are the same. The only difference between the two is that WPA-PSK uses a simple common password, instead of user-specific credentials.
RADIUS Server	Input the IP address of RADIUS server
RADIUS Port	Enter RADIUS port number when WPA or 802. 1x network authentication is selected.
RADIUS Key	Enter RADIUS Key when WPA or 802. 1x network authentication is selected.
Group Key Rotation Interval	Allows the wireless router to generate best possible random group key and update all the key-management capable stations periodically.
WPA/WPA2 Re-auth Interval	Wireless router (if using WPA-PSK key management) or RADIUS server (if using WPA key management) sends a new group key out to all clients. The re-keying process is the WPA equivalent of automatically changing the WEP key for an AP and all stations in a WLAN on a periodic basis. Setting of the WPA Group Key Update Timer is also supported in WPA-PSK mode.
WEP Encryption	If you don’t have WPA(2)-aware wireless clients, then use WEP key encrypting. A higher bit key offers better security. WEP encryption scrambles the data transmitted between the wireless stations and the access points to keep network communications private. It encrypts unicast and multicast communications in a network. Both the wireless stations and the access points must use the same WEP key. Data Encryption can be set to WEP **128-bit, 64-bit,** or **Disable.**
Shared Key Authentication	Shared Key is an authentication method used by wireless LANs, which follow the IEEE 802.11 standard. Wireless devices authenticate each other by using a secret key that is kept by both devices.

802.1x Authentication	Enable to user 802.1x to do authenticate wireless client.
Network Key 1	You can pre-define up to 4 keys for 64-bit or 128-bit (64-bit keys require 10 hexadecimal digits) (128-bit key require 26 hexadecimal digits) .
Network Key 2	As above
Network Key 3	As above
Network Key 4	As above
Current Network Key	You can select one of the four pre-defined keys as the current network key.
PassPhrase	You can set WEP encryption key by entering a word or group of printable characters in the Pass phrase box and click Generate WEP keys. These characters are case sensitive.
Generate WEP Keys	Force the wireless route to generate 4 WEP keys automatically.
Apply	Click to save the wireless configurations.

7.3.3 Access Control

This page allows configuration of the Access Control to the AP as well as status on the connected clients. Selects whether clients with the specified MAC address are allowed or restricted wireless access.



Label	Description
MAC Restrict Mode	Use to control wireless access control mechanism - Disable, to turn off this feature, any wireless card can connect to this wireless router. - Allow, white list of the wireless client, their MAC address should be inputted here manually. - Deny, black list of the wireless client, their MAC address should be inputted here manually.

MAC Addresses	Input the MAC address.
Apply	Click to save.
Connected Clients	List of current connected Wireless client.
MAC Address	MAC of the connected wireless client.
Age(s)	Duration since the wireless client connected to wireless router.
RSSI(dBm)	Received signal strength in a wireless environment
IP Addr	Display the IP address assigned to this wireless client.
Host Name	Host name of the wireless client.

7.3.4 Advanced

This page allows configuration of data rates and WiFi thresholds.

This page allows configuration of data rates and WiFi thresholds.

Label	Description
54g™ Network Mode	Select to run different mode, ・・ 11b only for only using 1 1bTM mode. ・・ Max Compatibility For maximum compatibility. ・・ 11g only for only using 54gTM mode. ・・ Max Performance for maximum performance among 54gTM certified equipment.

54g™ Protection	In Auto mode, the AP will use RTS/CTS to improve 802.1 1g performance in mixed 802.11 b/g networks. Turn protection OFF to maximize 802.11g throughput under most conditions.
XPress™ Technology	Broadcom's standards-based frame-bursting approach to improve 802.11g wireless LAN performance. It is a software-based implementation of the frame-bursting originally in the IEEE 802.11e draft specification, and is found in the Wireless Multimedia Extensions (WME) specification.
Afterburner™ Technology	40 % greater throughput than typical 802.11g
Rate	You can select to limit the rate speed.
Output Power	Output power of RF.
Beacon Interval	Specify the Beacon Interval from 100 to 6553 5ms.
DTIM Interval	Specify the DTIM interval from 3 to 255ms.
Fragmentation Threshold	Fragmentation takes place when a higher-level packets length exceeds the fragmentation threshold. You can set the packet length between 256-2346 bytes
RTS Threshold	Specify the RTS threshold from 0 to 2347ms
Apply	Click to submit changes.

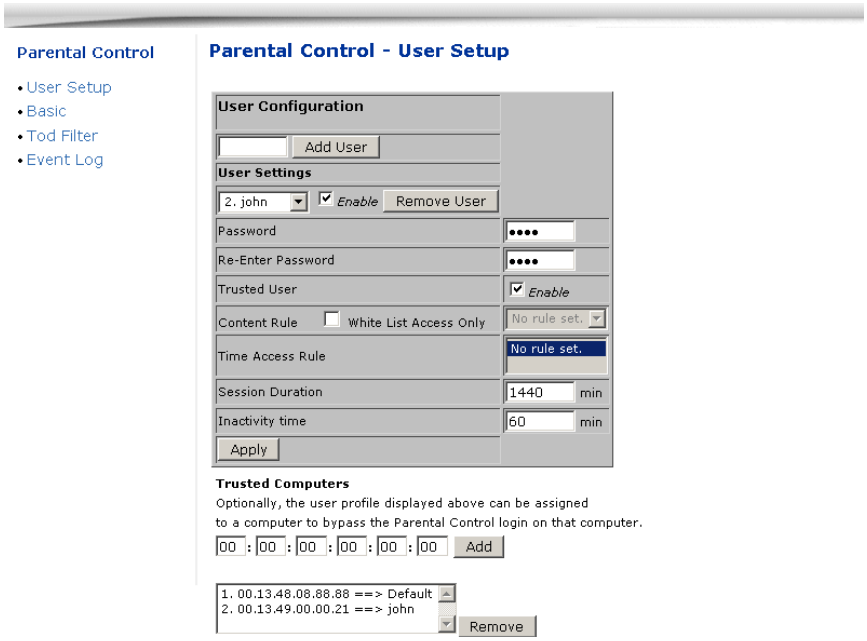
7.4 Parental Control

7.4.1 User Setup

This page allows configuration of users. 'White List Only' feature limits the user to visit only the sites specified in the Allowed Domain List of his/her content rule.

The Parental Control User Setup Page is the master page to which each individual user is linked to a specified time access rule, content filtering rule, and login password to get to the filtered content. Each specified user may also be enabled as a trusted user which means that person will have access to all Internet content regardless of filters that may be set up. This check box can be used as a simple override to grant a user full access but still having the ability to keep all of the previous filtering settings stored and available. Session duration timers can also be entered to allow a finite amount of time that a user has Internet access via the rules entered once entering their password to get to the Internet for the first time.

This allows access to the Internet for a defined user without having to enter a password every time a new web page is served to the client. Likewise, there is a password inactivity timer if there is no Internet access for the specified amount of time in minutes, requiring the user to re-login at expiration to continue using the Internet. These timed logins insure that a specific user is using the Internet gateway for access and logging/access can be provided appropriately. Any time a change is made on this page for a particular user, the Apply button at the bottom of the page needs to be pressed to activate and store the settings.

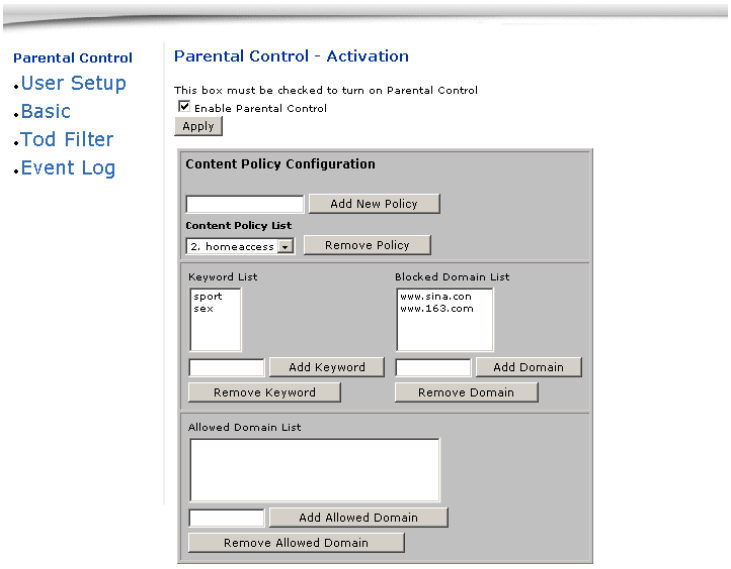


Label	Description
User configuration	Input username to create a new user.
Add user	Click to direct add this user into local database even you haven't finished the configuration for this user.
User Settings	
Enable	Click to active this user account, and to modify current selected user's profile. Unselect this checkbox, to disable this user account.
Remove User	Click to delete the selected user.
Password	Input the password of this user. It's required when this user tries to access Internet via wireless router.
Re-Enter Password	Double confirm with the password.
Trusted User	Active the Enable checkbox to allow the selected user to be trusted user. That means he's now limited to timing and content when visiting Internet. But you can define the session duration period which will trigger wireless router to disable this privilege after expiration.
Content Rule	Select an existing content rule that defines what kind of website he can visit and what can't be visited.

White List Access Only	Suppose admin has created a content rule which defined black list and while list. Then admin can select “White List Access Only” checkbox to force to execute the policy to the selected user.
Time Access Rule	Select a defined time access rule to apply to the selected user.
Session Duration	This will trigger wireless router to disable this privilege after expiration.
Inactivity time	Define the time out value when user has no activity with his visiting to Internet.
Apply	Click to save.
Trusted Computers	Define the trusted host that will bypass the Parental Control Process.
Add	Input the trusted host’s MAC address. And click to save.
Remove	Click to delete the selected MAC record.

7.4.2 Activation

This page allows basic selection of rules which block certain Internet content and certain Web sites. When you change your Parental Control settings, you must click on the appropriate "Apply", "Add" or "Remove" button for your new settings to take effect. If you refresh your browser's display, you will see the currently active settings.

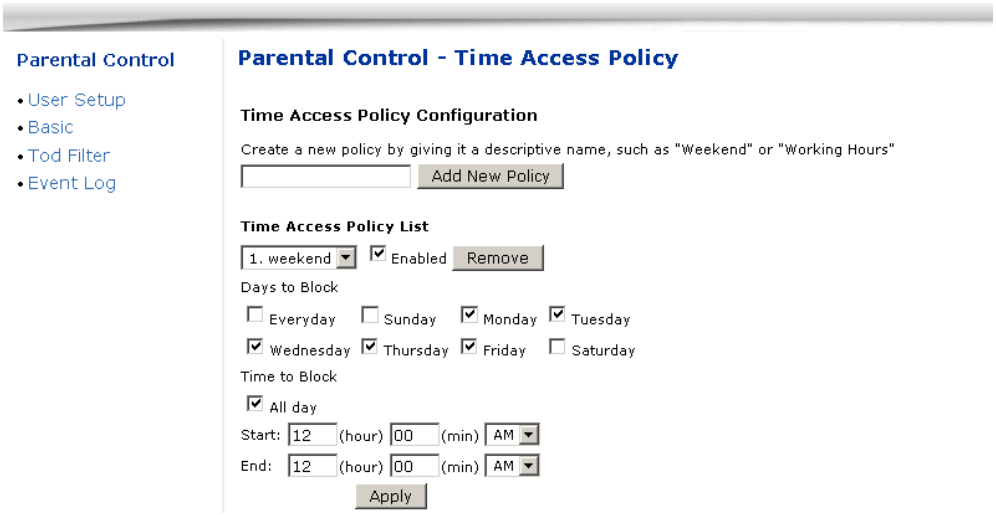


Label	Description
Enable Parental Control	Enable the checkbox to active the Parental Control feature.

Apply	Click to save.
Content Policy Configuration	Configure content policy configuration.
Add New Policy	Input rule name and click to create a new policy.
Content Policy List	Allow admin to select a certain policy rule.
Remove Policy	Click to delete the selected policy rule.
Keyword List	URL key word list that's used to be used.
Add Keyword	Click to insert a new keyword.
Remove Keyword	Click to delete an existing keyword.
Blocked Domain List	Domain list that's to be blocked.
Add Domain	Click to add a new domain.
Remove Domain	Click to delete an existing domain
Allowed Domain List	White list, which allows users to visit.
Add Allowed Domain	Click to insert new white list.
Remove Allowed Domain	Click to delete the selected URL list.

7.4.3 TOD Filter

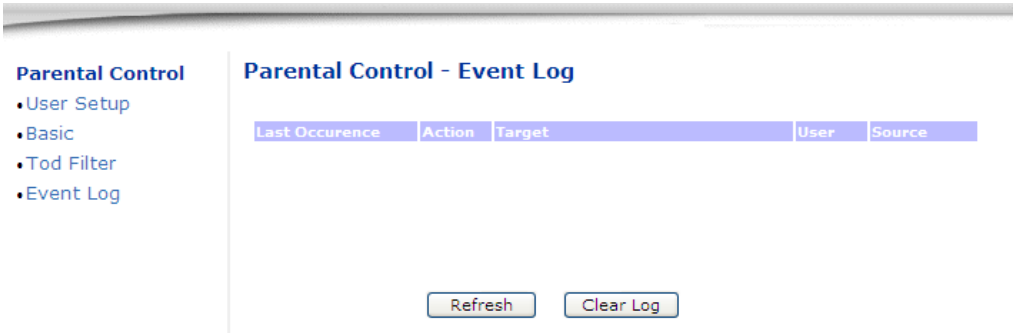
This page allows configuration of time access policies to block all internet traffic to and from specific network devices based on time of day settings.



Label	Description
Add New Policy	Input policy name, and click Add new Policy button to create a new Time Policy rule.
Time Access Policy List	Allow admin to select time policy rule to enable or remove a selected rule.
Enable	Select the checkbox to active this time policy rule, unselect the checkbox to disable this rule.
Remove	Click to delete a selected rule.
Days to Block	Select the day that this time policy rule limited user to visit Internet.
Time to Block	Define the detailed time for this policy rule.
All Day	Select All Day to eliminate any chance for access within the day blocked.
Apply	Click to save.

7.4.4 Event Log

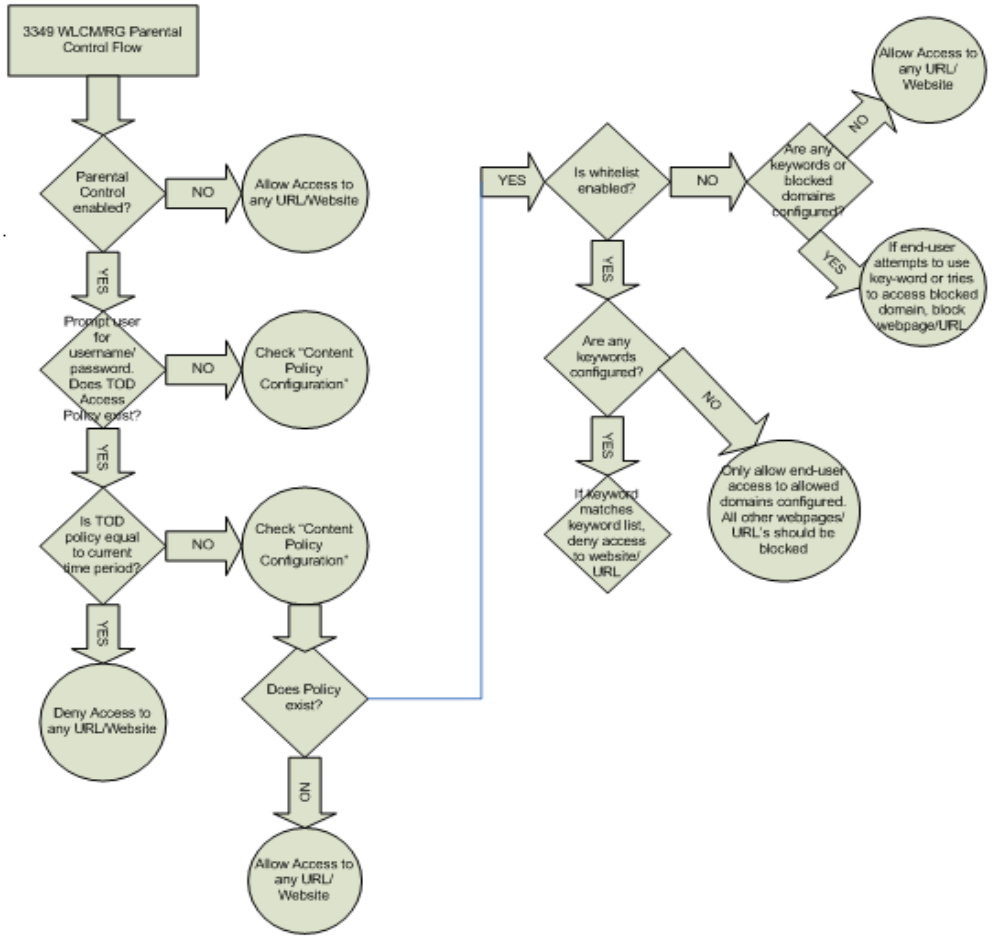
This page displays Parental Control event log reporting.



Label	Description
Last Occurrence	Display the time when the last event occurred.
Action	Display what's done by parental control, drop or permit an access request.
Target	Display the destination IP address of a certain access request.
User	Display the user who triggered this event log.

Source	Display the source IP address of this event.

Note: Parental Control Flow



7.5 Firewall

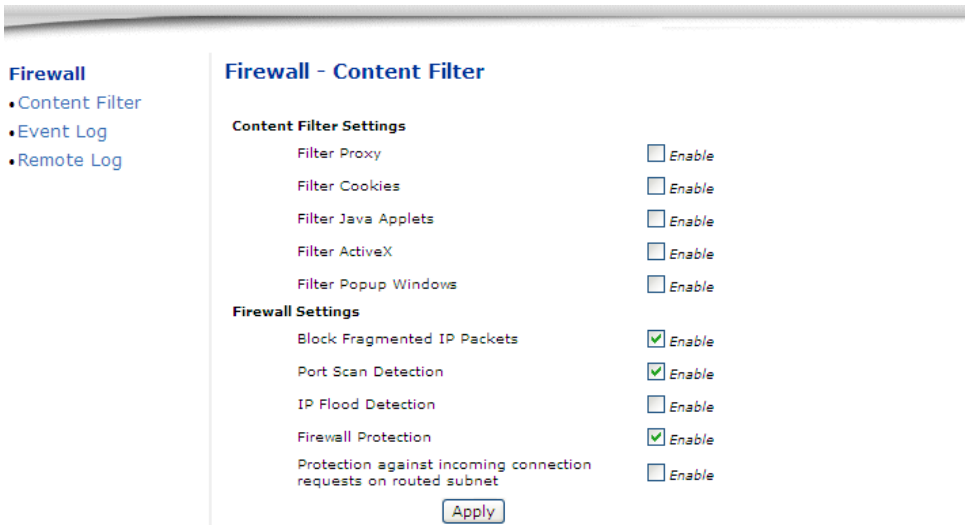
Originally, the term firewall referred to a construction technique designed to prevent the spread of fire from one room to another. The networking term firewall is a system or group of systems that enforces an access-control policy between two networks. It may also be defined as a mechanism used to protect a trusted network from an untrusted network. Of course, firewalls cannot solve all of the security problems. A firewall is one of the mechanisms used to establish a network security perimeter in support of a network security policy. It should never be the only mechanism or method employed. For a firewall to guard effectively, you must design and deploy it appropriately. This requires integrating the firewall into a broad information-security policy. In addition, specific policies must be implemented within the firewall itself.

7.5.1 Content Filter

This page allows certain Web-oriented cookies, java scripts, and pop-up windows to be blocked by the firewall. A list of "trusted computers" can also be defined that are not subject to any filters configured. Specific Firewall features can also be enabled. It is highly recommended that the Firewall is left enabled at all times for protection against Denial of Service attacks. Go to the Parental Control page to block internet access to specific sites.

7.5.2 Content Filter

This page allows certain Web-oriented cookies, java scripts, and pop-up windows to be blocked by the firewall. A list of "trusted computers" can also be defined that are not subject to any filters configured. Specific Firewall features can also be enabled. It is highly recommended that the Firewall is left enabled at all times for protection against Denial of Service attacks. Go to the Parental Control page to block internet access to specific sites.



Label	Description
Content Filter Settings	
Filter Proxy	A server that acts as an intermediary between a user and the Internet to provide security, administrative control, and caching service. When a proxy server is located on the WAN it is possible for LAN users to circumvent content filtering by pointing to this proxy server.
Filter Cookies	Cookies are files stored on a computer's hard drive. Some web servers use them to track usage and provide service based on ID.
Filter Java Applets	Java is a programming language and development environment for building downloadable Web components or Internet and intranet business applications of all kinds.

Filter ActiveX	ActiveX is a tool for building dynamic and active web pages and distributed object applications. When you visit an ActiveX web site, ActiveX controls are downloaded to your browser, where they remain in case you visit the site again.
Filter Popup Windows	Filter those pop windows when visiting some website.
Firewall Settings	
Block Fragmented IP Packets	Enable the firewall to detect fragmented IP packet.
Port Scan Detection	Enable firewall to detect port scan attack.
IP Flood Detection	Enable firewall to detect IP flood attack.
Firewall Protection	Enable firewall function.
Protection against incoming connection requests on routed subnet	Enable firewall to protect all of the routed subnet connected to the wireless router.
Apply	Click to save the configuration.

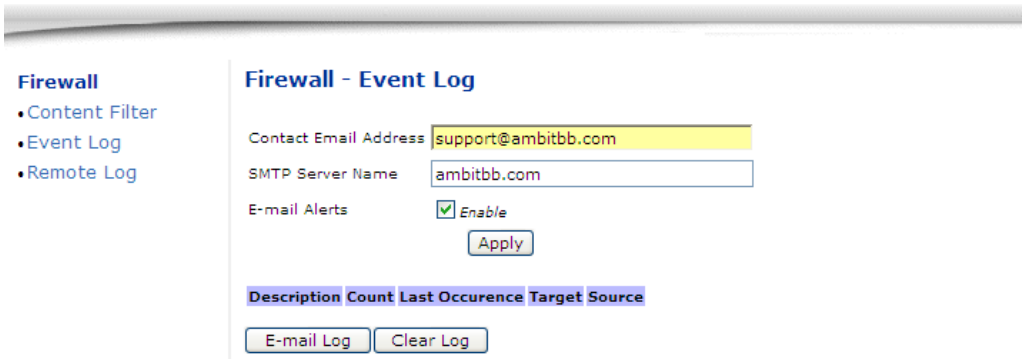
Note:

Block Fragmented IP Packets

"With this feature enabled, all packets are checked to determine if the packet contains a "fragment" flag. If the flag exists, the CM will discard the packet. This feature is used primarily to protect against any intruders/hackers from gaining access to the router or network." "Under certain conditions, this feature may cause communication issues with other devices on the network and should be disabled. For example, streaming media applications may fragment the packets depending on the encoding used for the video stream. Depending on the encoding used for the clip, some or a majority of the packets will become fragmented. For clips encoded at 300 Kbps, 66% of the packets are IP fragments, while below 100 Kbps there is no fragmentation.

7.5.3 Event Log

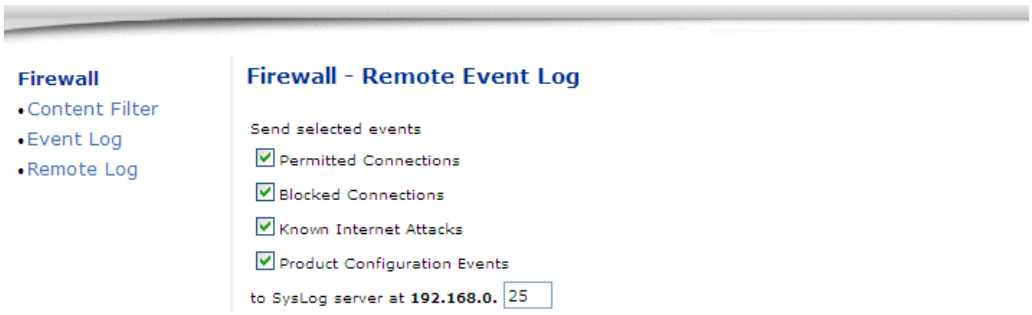
This page allows configuration of Firewall event log reporting via email alerts and a local view of the attacks on the system.



Label	Description
Contact E-mail Address	Enter E-mail address for sending Firewall event log.
Email Address Password	The password of the E-mail you enter
SMTP Server Name	Enter SMTP Server Name for sending Firewall event log.
E-mail Alerts	If you enable ,the alert can appearance when have a new mail
Apply	Click to submit changes.
Description	Summary of this firewall event log.
Count	If a certain firewall event log repeated for several times, value in count will increase.
Last Occurrence	Display the time when the last of the firewall event occurred.
Target	Display the destination IP address of this access event.
Source	Display the source IP address of this access event.
E-mail log	Click to send current Firewall event log to e-mail address specified.
Clear log	Click to clear event log.

7.5.4 Remote Log

This page allows optional configuration of events to be sent to a local SysLog server.

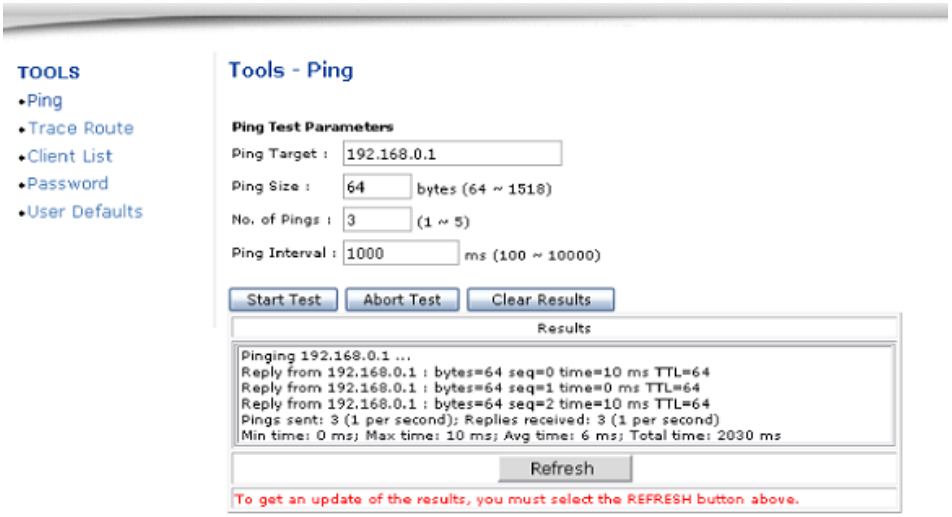


Label	Description
Permitted Connections	Select to record all of the access attempts that are allowed by firewall.
Blocked Connections	Select to record all of the access attempts that are blocked by firewall.
Known Internet Attacks	Record event log for known attacks from Internet.
Product Configuration Events	Record into event log once device configuration is modified by user or admin.
SysLog server	Define the IP address of the Syslog server.
Apply	Click to make the configuration to take effect.

7.6 Tools

7.6.1 Ping

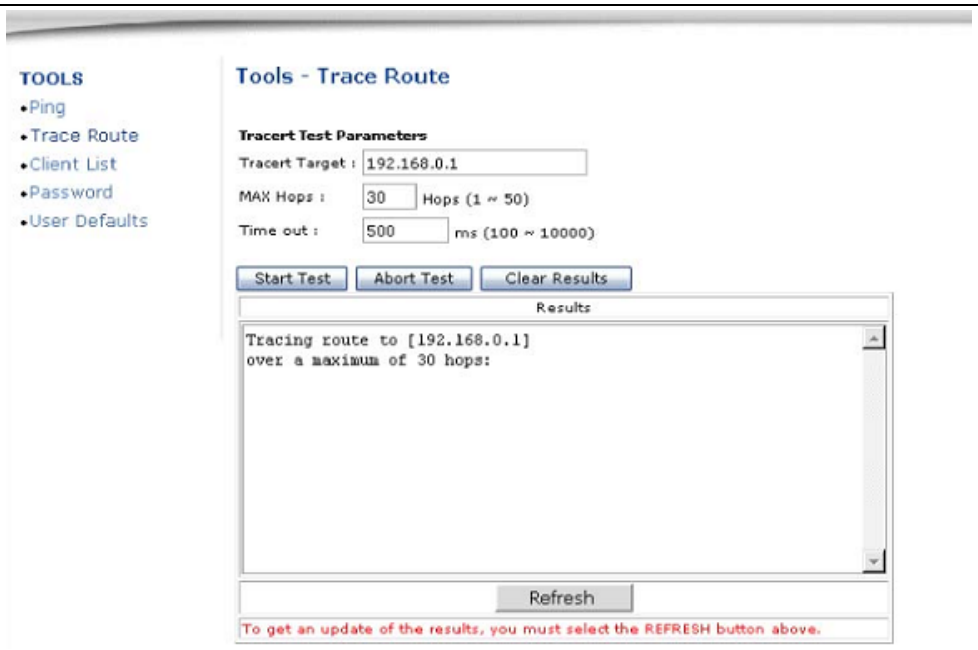
This page provides ping diagnostics to help with IP connectivity problems.



Label	Description
Ping Target	Input the IP address user wants to pin to.
Ping Size	Define the packet size of ping operation.
No. of Pings	Define the amount of the batch ping operation.
Ping Interval	Define the interval between 2 ping operations.
Start Test	Click to start test
Abort Test	Click to stop test
Clear Results	Click to clear existing testing result.
Results	This area will display result.
Refresh	Click to refresh old logs.

7.6.2 Trace Route

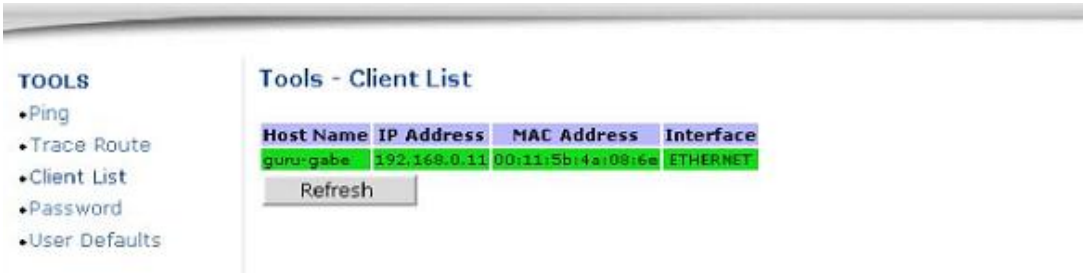
This page provides trace route diagnostics to help with IP connectivity problems.



Label	Description
Tracert Target	Input the specific IP address user wants to trace route to it.
MAX Hops	Define the MAX hop.
Time out	Define the expiration time for this tracert operation.
Start Test	Click to start tracert test
Abort Test	Click to stop test
Clear Results	Click to clear existing testing result.
Results	This area will display tracert route operation result.
Refresh	Click to refresh old logs.

7.6.3 Client List

This page shows connected computer in client list.



Label	Description
Host Name	Display the host name of the DHCP client.
IP address	Display the IP address assigned to this DHCP client.
MAC address	Display the MAC address.
Interface	Display the method via which the DHCP client is connected to wireless router.
Refresh	Click to refresh the client list.

7.6.4 password

This page allows configuration of password and username

Label	Description
Old Password	Input the original password.
New Password	Input the value of new password
Confirm Password	Double confirm with the new password.
Apply	Click to save.

7.6.5 Factory Defaults

This page allows you to restore factory defaults to the system.

Label	Description
Restore Defaults	Select restore factory defaults value to firewall and parental control. That means your current configuration over firewall and parental control will be lost.
Apply	Click to save.