

VoIP CPE

SWC-5100 Series User Manual

SEOWON INTECH

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Introduction to the Product

This product receives external WiMAX signals to construct in-building infrastructure on a WiMAX network, and is covered by Ethernet network internally. The product serves as a relay as well as an internet router.

However, the purpose of the product is mostly to supply signals to users, with the emphasis being its relay rather than its modem functions.

It is also a wired and wireless internet router that enables several systems to share a single internet address supplied by a high-speed internet service provider.

Functional Features

| Function | Features |
|-----------------------------|--|
| IEEE802.16e WiMAX Support | Wave1 = DL : 10Mbps / UL : 4Mbps Wave2 = DL : 30Mbps / UL : 6Mbps |
| IEEE802.3u Ethernet Support | 10/100Mbps wired LAN connectable |
| RJ-11 VoIP Support | 1 x RJ-11 for Analog Telephone Service |
| LAN Port | 1 Port 10/100Mbps Ethernet Switch built-in |
| Cable Auto Sense | Straight (Direct) or Cross Cable auto sensing |
| NAT function | Supports up to 253 wired and wireless connections and internet router* |
| Firewall function | Manages basic firewall and IP/Port/based access |

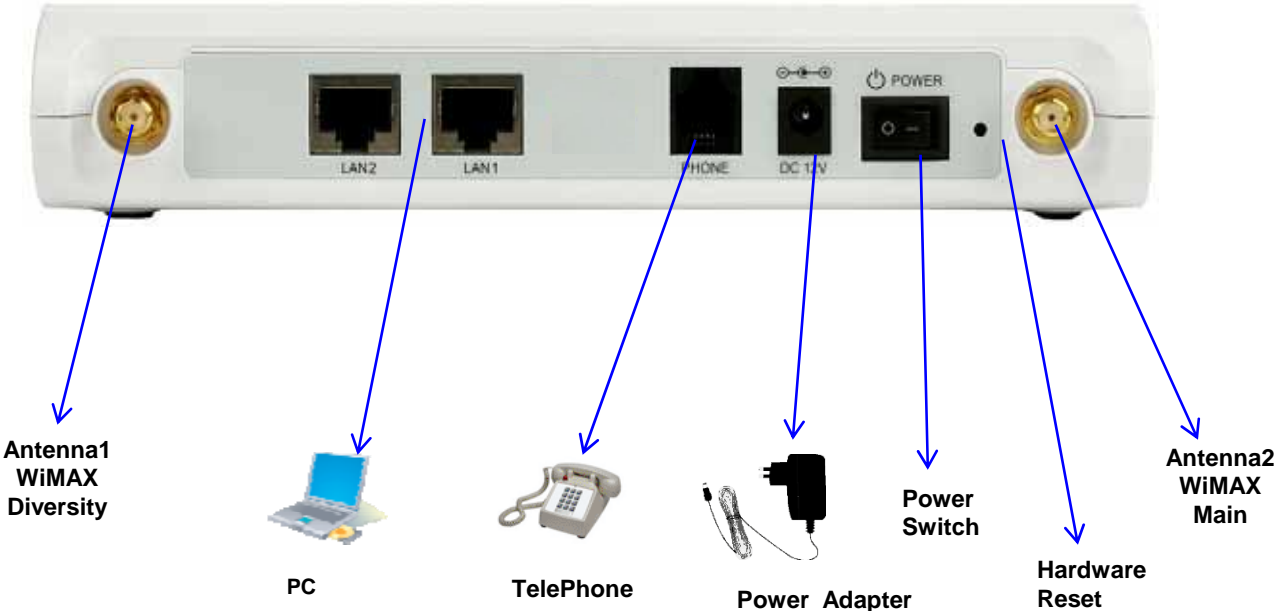
LED Information



| LED Indicator | Function |
|---------------|---|
| PWR | Power Supply status (On at Power ON) |
| LAN | ON when connected to PC, Flashing at communication |
| PHONE | ON when connected to Telephone, Flashing at communication |
| RSSI | Representation WiMAX received signal strength indication(RSSI), on when the mode was selected router. |

Introduction to the Product

Rear Side Information

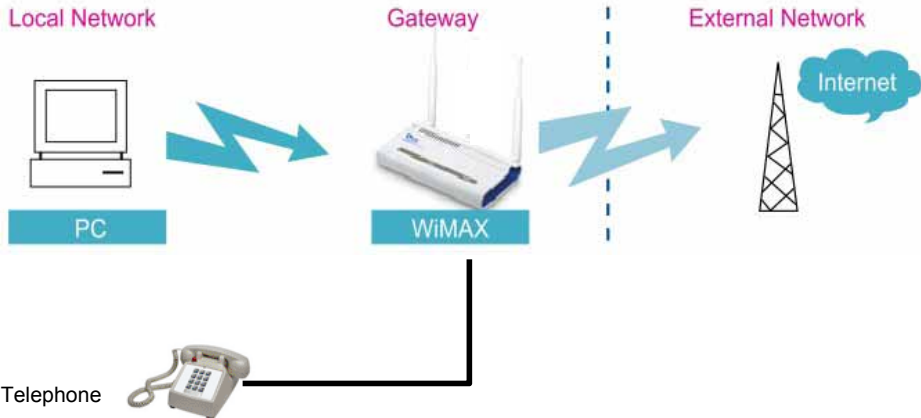


| Item | Details |
|-------------------------|--|
| External Antenna | Antenna1 : WiMAX Diversity Antenna2 : WiMAX Main Separable external antenna User external type antenna attachable * Antenna Classification - 2.3G : M23 - 2.5G : M25 - 3.5G : M35 |
| LAN | PC or Hub connection |
| PHONE | Telephone connection |
| DC 12V | Power Adapter connection (DC 12V 2.0A) |
| POWER | Power On/Off Switch (Switch between On/Off by pressing right or left) |
| RESET | Restore the VoIP CPE Factory Default |

[Note] If you lost LOGIN password for router or IP address after change, use the Reset switch to restore its original Factory Default settings.

Configuration

Network Configuration



To verify the normal operation of the router, check the following LEDs after connecting the router, modem, and PC with a LAN cable, as follows:

| LED | Normal Operation | Actions to take if not illuminated |
|-------------------|---|--|
| PWR | ON when connecting adapter | Check for adapter power failure |
| LAN | ON when cable is connected normally | Check cable connection and PC power supply |
| PHONE | On when Phone cable is connected normally | Check cable connection and Telephone |
| WiMAX RSSI | Represents WiMAX received signal strength indication (RSSI), ON when in router mode | Check that router mode is selected |

If one or more LED lights is not in “normal operation”, take the actions specified in the table.

Install a router after connecting to the network.

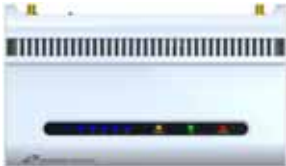
If normal connection between router and PC is checked, you have to set up the PC and router.

PC setup is to control network configuration for Windows 98, Windows 2000, or Windows XP to use the Internet while the PC is connected to a router.

Router setup is to connect a router to the Internet. Please refer to the **CPE Setup** chapter.

Configuration

Package Contents



Main Unit



CD



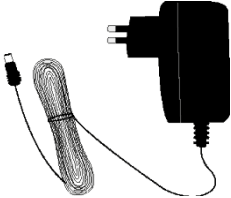
Antenna X 2



UTP Cable



Telephone Cable



Adapter

Configuration

PC Configuration (Windows XP)

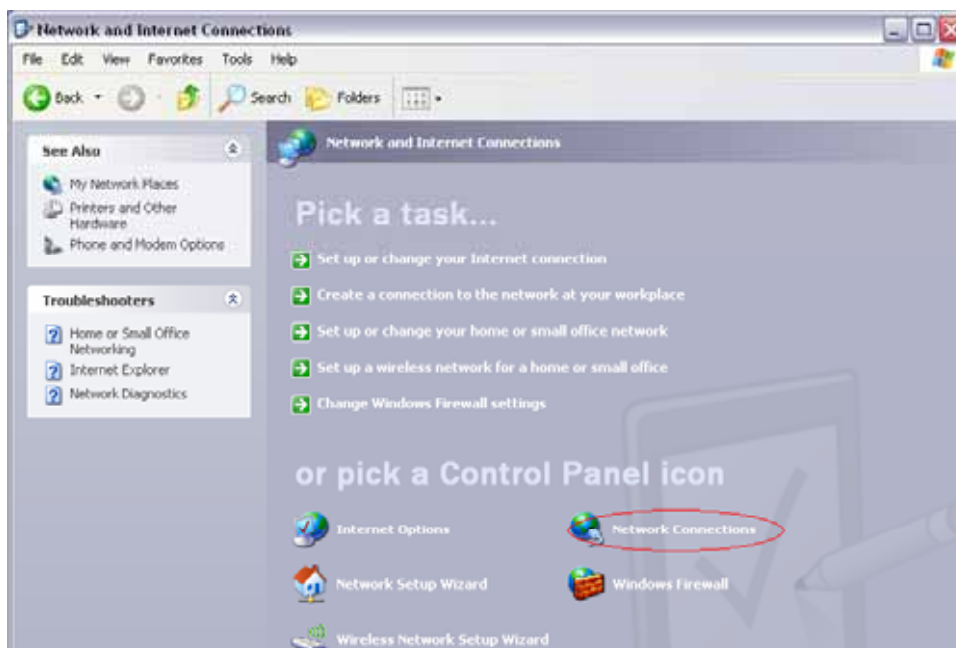
This procedure is used to restore Windows XP's TCP/IP setup to the default values. If Windows has just been installed for the first time on the PC, no changes should be required, but you should check to confirm that all values are normal according to the following.

After completing the TCP/IP setup of the PC, connect PC and CPE with a LAN cable and turn CPE on before Windows starts up to determine whether an IP address is obtained from CPE automatically.

- Click the Windows Start button, and select Settings >> Control Panel from the menu.
- Double-click the "Network Connection" icon in the Control Panel.



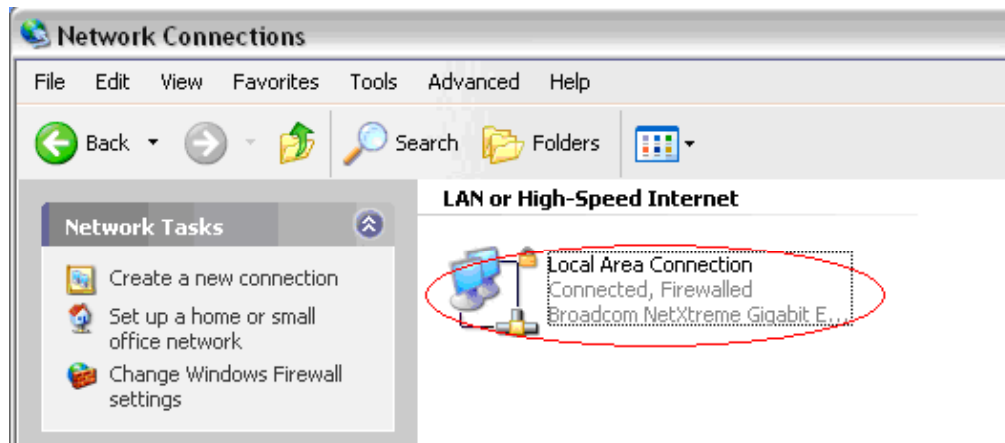
<Double-click the Network and Internet Connections> ...



<Double-click the Network Connection>

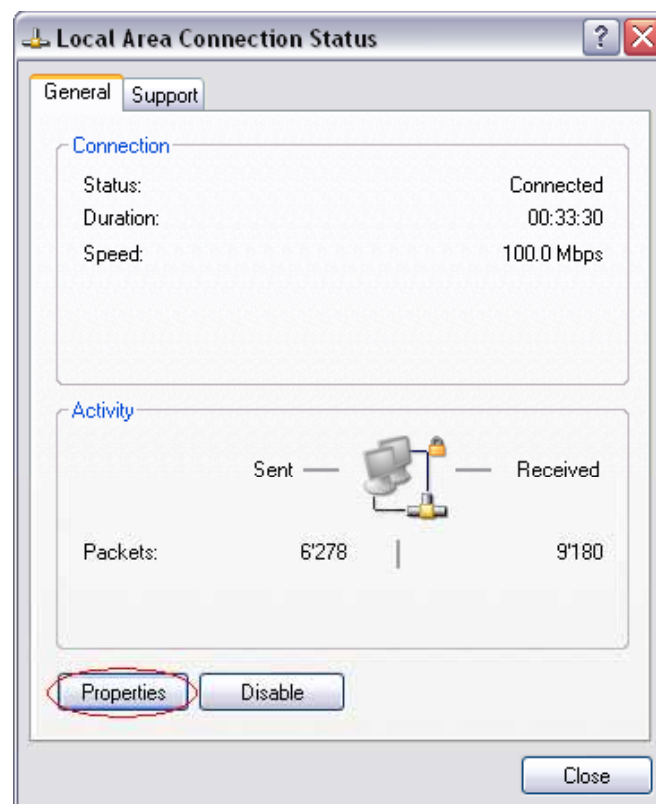
Configuration

- Double-click the Local Area Connection from the Network Connection list to select it.



<Double-click the Local Area Connection>

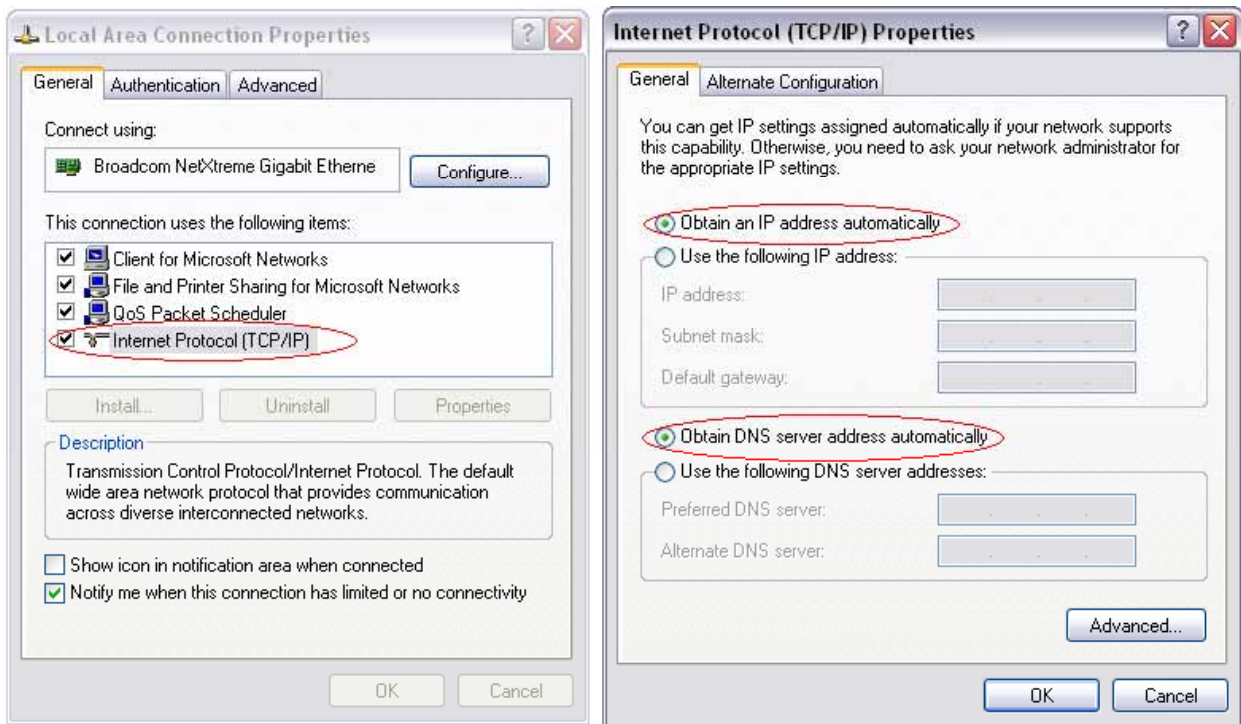
- Click “Properties” in the Local Area Connection Status window.



<Click Properties>

Configuration

- Double-click Internet Protocol (TCP/IP) to open its Properties window, and then select “Obtain an IP address automatically” and “Obtain a DNS Server address automatically”.



<Double-click TCP/IP >

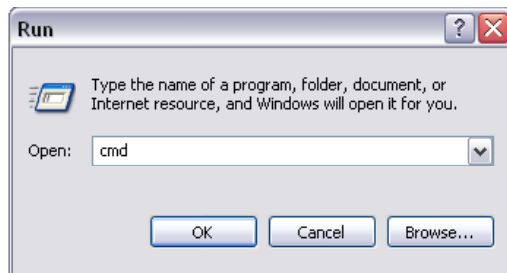
<Select the
'Obtain an IP address automatically' ,
'Obtain a DNS Server address automatically'
and click OK>

- After completing setup, click OK and close all of the Local Area Connection Properties windows.
- When TCP/IP setup is completed, an IP address is automatically assigned by CPE. For automatic assignment, the PC and the CPE should be connected with a LAN cable. If they are not connected with a cable, connect them with a LAN cable and restart the PC.
- You can check the automatic IP address assignment by using the ipconfig command from the Command Prompt.

Configuration

How to check your IP address

- To run the Command Prompt, click the Start button at the lower left corner of the Windows screen. Click Run, then enter “cmd” in the Open box, and click OK.



<Run cmd>

- When the Command Prompt window opens, enter the “ipconfig” command to verify the IP address, Subnet mask, and Gateway, which are automatically assigned to PC.

[Note] All PCs connected to CPE will receive their own assigned IP address.

```
C:\ D:\WINNT\System32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\user>ipconfig

Windows IP Configuration

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . : wimax.com
    IP Address. . . . . : 192.168.1.11
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.1.1

C:\Documents and Settings\user>
```

<Verify IP address>

[Note] If an IP address is not assigned, check the following, and then restart the PC and check whether an IP address is assigned.

- ✓ LAN cable connection between PC and CPE
- ✓ Check TCP/IP setup details

CPE Built-in Web Server Access

The WEB GUI is used to manage a CPE and view its current status.

You can access the web server that is built into the CPE, even when not connected to the Internet.

To access the web server, open Internet Explorer or your Browser and type “192.168.1.1”, which is the IP address of CPE, in the address bar, as shown below:

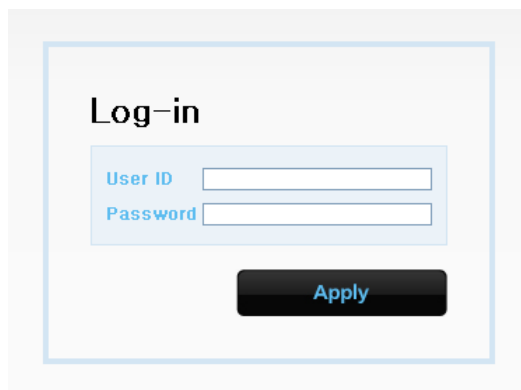
Address

[Note] If the PC is connected to the CPE but is not connected to the Internet, entering the IP address of 192.168.1.1 in the address box will connect the PC to the CPE web server. This function may not operate in some environments.

Upon accessing the CPE, the following Login screen will be displayed.

The default user ID and password are **admin**, which you can change on the web server.

ID / Password = admin / admin



[Note] If you have no input activity for 1 hour, your web connection is terminated. In this Case, please login again through the login page.

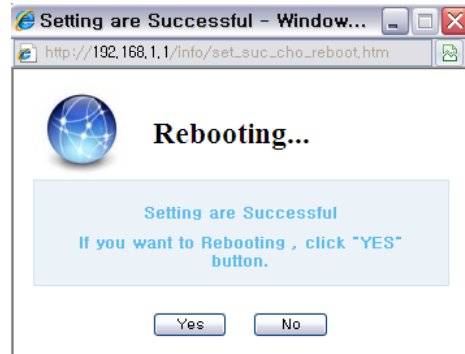
CPE Setup on the web page

LAN (LAN Configuration)

The screenshot displays the WIMAX web interface for LAN Configuration. The top navigation bar includes icons for Wizard, WiMAX, WAN, LAN (selected), Switch, WLAN, VoIP, Application, and Admin. The main content area is titled "LAN Configuration" and includes sub-links for "MAC Address" and "Status". A sidebar on the left shows "LAN Setup" and "LAN DHCP Server Setup". The main content area contains a text block explaining the DHCP server, followed by input fields for IP Address (192.168.1.1) and Subnet Mask (255.255.255.0). Below this is a section for DHCP Server settings, including a radio button for "Enable" (selected), "Maximum Lease Time" (864000 sec), "IP Starting Address" (192.168.1.100), "Number of users" (51), and "WINS server" (0.0.0.0). "Save" and "Cancel" buttons are at the bottom right.

- Select “LAN” → “LAN Configuration” menu.
- Configure LAN IP address
 - ✓ LAN IP address is used in the LAN that the CPE manages.
 - ✓ Configure LAN IP address in “IP Address/Subnet Mask” text boxes.
 - ✓ Initial Value is “192.168.1.1/255.255.255.0” and only the last byte in “Subnet Mask” box can be modified.
- Configure DHCP server
 - ✓ Enable DHCP server to lease IP address to the computer connecting to CPE with wired LAN.
 - ✓ Set Maximum lease time (in seconds), IP Starting address, Number of users and WINS server address.
- Finish setup by clicking the “Save” button. A pop-up window asking you to reboot the system will then appear.

CPE Setup on the web page



•If you have finished CPE setup and want to reboot the CPE, click “Yes” to reboot the CPE.

LAN (Status)

- Select “LAN” → "Status" from the menu
- You can see the details of the LAN configuration.

CPE Setup on the web page

Switch (Status)

- Select “Switch” → “Status” from the menu.
- You can see the various configurations related to Switch configuration, such as Switch mode and several filters.

CPE Setup on the web page

VoIP (Status)

- Select “VoIP” → “Status” from the menu.
- You can see the various configuration related VoIP configuration.

The screenshot displays the WIMAX VoIP2 2.0.3 web interface. The top navigation bar includes icons for Wizard, WiMAX, WAN, LAN, Switch, WLAN, VoIP, Application, and Admin. The VoIP menu is expanded, showing sub-menus for SIP Server Settings, RTP & VoIP Settings, Call Forwarding, and Status. The main content area is titled "VoIP Status" and is divided into two sections: "Network Information" and "SIP Information".

| - Network Information - | |
|----------------------------|-----------------|
| Domain or IP | 192.168.123.100 |
| Local IP | 192.168.155.27 |
| Outbound Proxy Active | Disable |
| Outbound Proxy Server Addr | |

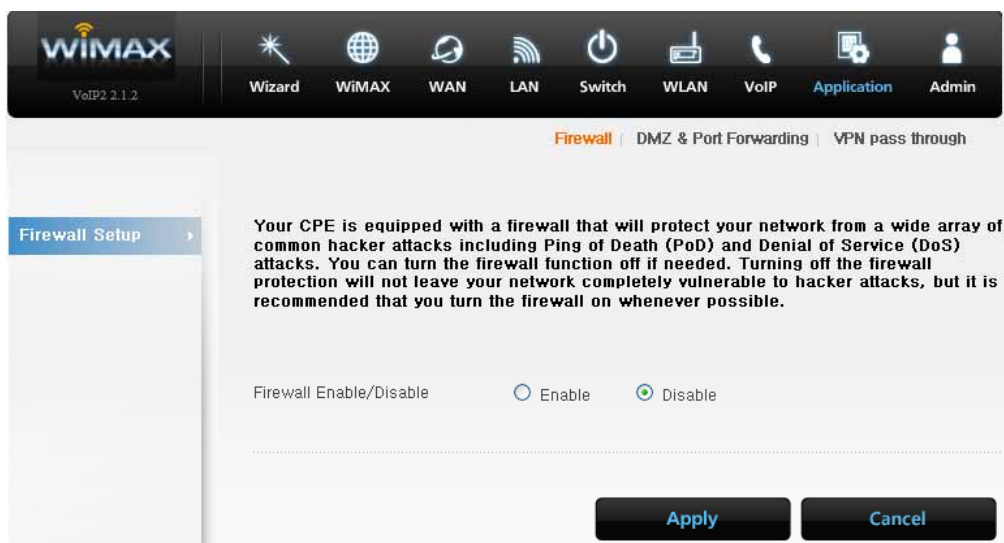
| - SIP Information - | |
|---------------------|-----------|
| User Name | 10001 |
| Status | NO Active |

At the bottom right of the interface, there are two buttons: "Apply" and "Cancel".

CPE Setup on the web page

Application (Firewall)

Firewall enables you to set the CPE so that it is not affected by external hacking attempts, including Ping Flooding or DoS. Internal LAN PCs are usually isolated/protected from external Internet attacks even when a firewall is not used, but it is still preferable to set the firewall to ON as much as possible. By default, the firewall is set to ON.



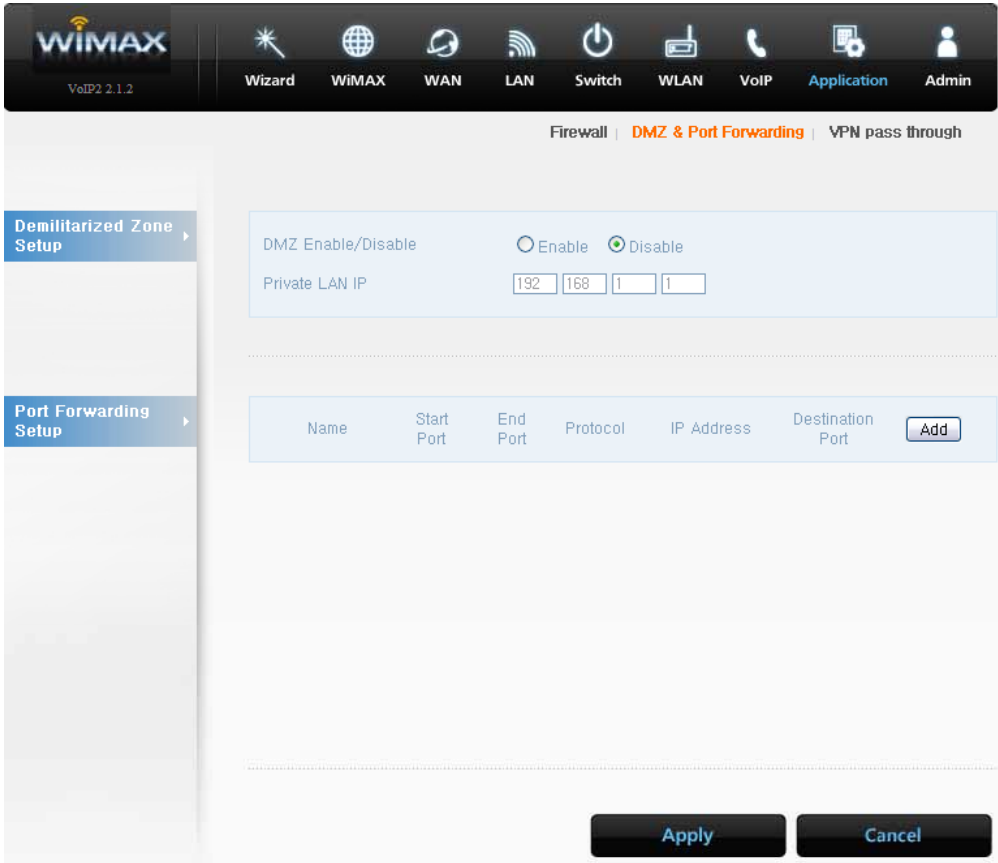
- Select “Application” → “Firewall” from the menu.
- If you want to use the Firewall function, check the “Enable” checkbox.
- Finish setup by clicking the “Apply” button. A pop-up window informing you of the result will appear.
- Changed configuration is applied immediately.

CPE Setup on the web page

Application (DMZ & Port Forwarding)

The DMZ feature allows you to specify one computer on your network to be placed outside of the NAT firewall. This may be necessary if the NAT feature is causing problems with an application, such as a game or video conferencing application. Use this feature on a temporary basis, as the computer in the DMZ is not protected from attacks by hackers.

The Port Forwarding function is used to forward incoming packets of specific TCP/IP port from outside to the assigned PC. This function is useful if you have to use VoIP or P2P applications, or have to operate HTTP or FTP servers from a PC in the internal LAN.



CPE Setup on the web page

- Select “Application” → “DMZ & Port Forwarding” from the menu.
- Configure DMZ
 - ✓ Select whether or not to enable the DMZ function.
 - ✓ Set the IP address to have all ports opened in “Private LAN IP” content.
 - ✓ Finish setup by clicking the “Apply” button. A pop-up window informing you of the result will appear.
- Configure Port Forwarding
 - ✓ The port forwarding function can be configured when DMZ is disabled.
 - ✓ To add Port Forwarding, click “Add”. You will then see the pop-up window for Port Forwarding.
 - ✓ Enter the information for Port Forwarding.
 - ✓ Click “Apply”.
 - ✓ The pop-up window will close, and added Port Forwarding is shown.
 - ✓ To modify/delete the existing Port Forwarding list, use the “Edit”/”Delete” button.
 - ✓ Changed configuration is applied immediately



The screenshot shows a web browser window with the title bar "(A)j\$~z€ | WiMAX - Windows Inter...". The address bar contains the URL "http://192.168.1.1/cgi-bin/dmz_port_forwarding.cgi?". The main content area is titled "Port Forwarding" and includes a "Message" section. Below this, there is a form with the following fields:

- Name:
- Start Port:
- End Port:
- Protocol:
- Destination IP:
- Destination Port:

At the bottom of the form, there are two buttons: "Apply" and "Cancel".

CPE Setup on the web page

Application (VPN pass through)

The VPN (Virtual Private Network) function is used to obtain access to a security network installed in a company or an organization via the Internet network.

If there is a VPN Server outside, and one has access to the VPN Server via the Internet network by using CPE, this screen shows how to activate the security protocol supported by the appropriate VPN Server.



- Select “Application” → “VPN pass through” from the menu.
- SWC-5100 supports 3 types of service: PPTP, L2TP and IPSEC.
- Select the type(s) of VPN pass-through to use with the checkboxes.
- Finish setup by clicking the “Apply” button. A pop-up window informing you of the result will appear.
- Changed configuration is applied immediately.

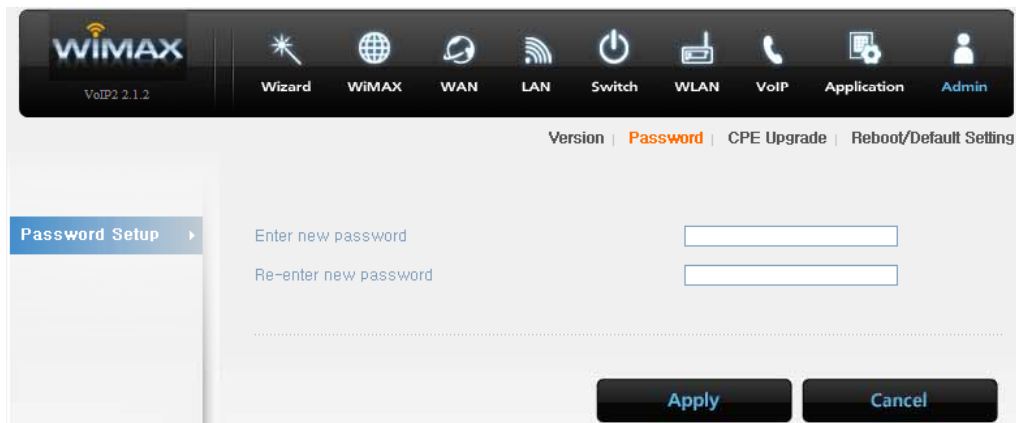
CPE Setup on the web page

Admin (Version)



- Select “Admin” → “Version” from the menu.
- You can see the versions of the SWC-5100 firmware and the Wimax firmware in use.

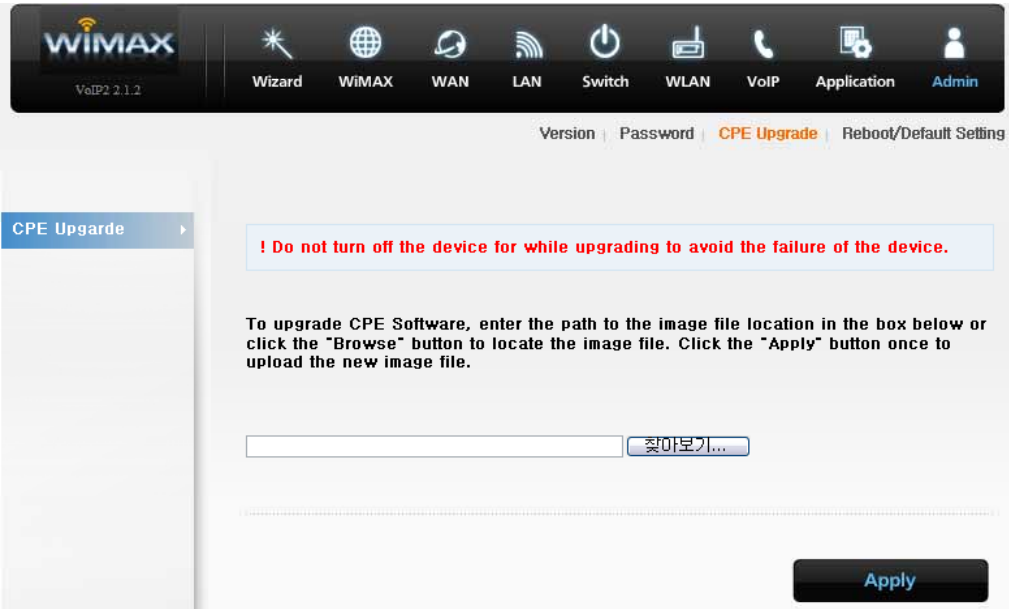
Admin (Password)



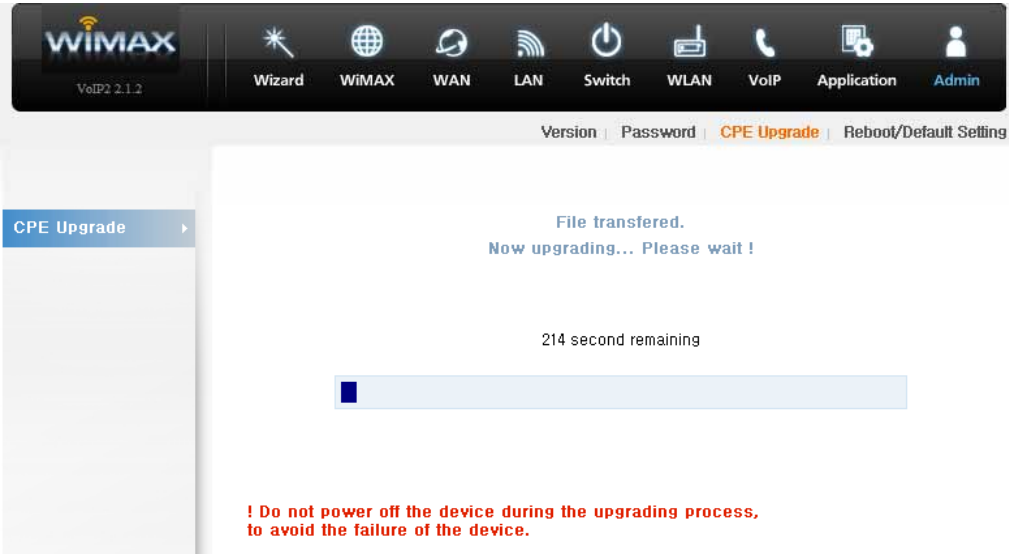
- Select “Admin” → “Password” from the menu.
- Set the Password to be given to the Administrator who manages the CPE.
- Enter the new password, and re-type it to confirm.
- Finish setup by clicking the “Apply” button. A pop-up window informing you of the result will appear.

CPE Setup on the web page

Admin (CPE Upgrade)



- Select “Admin” → “CPE Upgrade” from the menu.
- Input the CPE firmware path directly, or search for the firmware file by clicking the “Browse” button.
- To start the firmware update, click “Apply”.

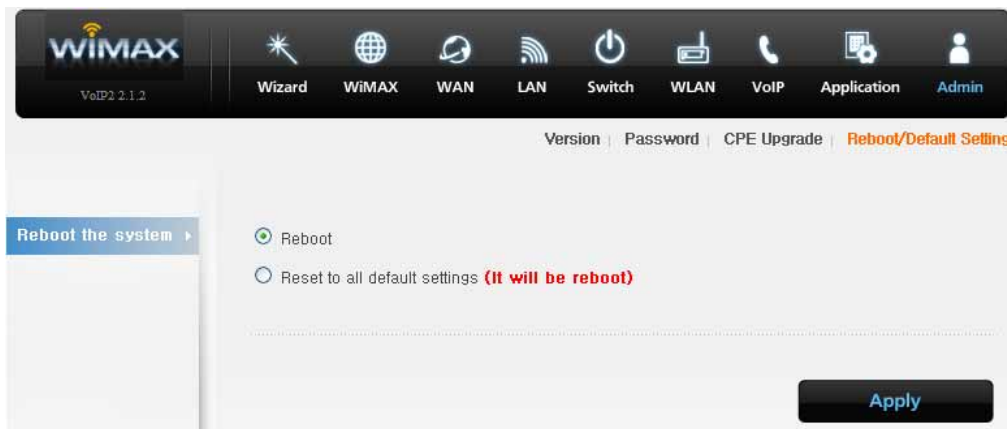


CPE Setup on the web page

- This will take several minutes, and time will vary according to the environment.
- In some case, a pop-up window asking to rebuild the system will be opened due to a version difference. If this occurs, click “Yes” to rebuild the system.
- CPE is rebooted automatically after the upgrade process is complete.

[Caution] To avoid failure of the CPE, do not power off the CPE during the upgrading process.

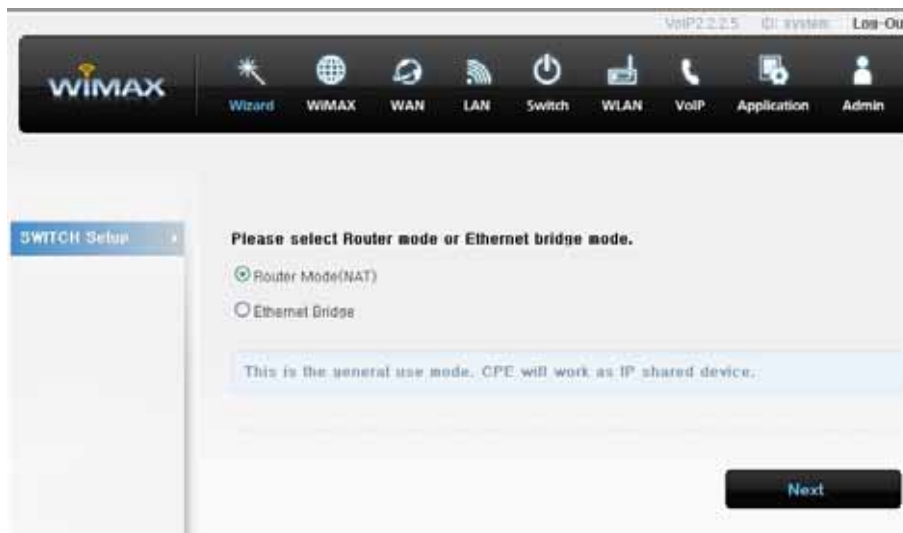
Admin (Reboot/Default Setting)



- Select “Admin” → “Reboot/Default Setting” from the menu.
- Select “Reboot” to reboot the CPE.
- Select “Reset to all default settings” to reboot the CPE and initialize CPE configuration.
- To reboot the CPE, click “Apply”.
- The CPE is rebooted automatically. This takes about 40 seconds.

CPE Setup on the web page

Wizard Setting



Wizard Setup is an easy tool to setup CPE. Wizard Setup take place in the following sequence: Wizard Start → Switch mode setup → Wimax IP setup → Wimax authentication setup → Wimax CA Certification setup → LAN IP setup → WiFi setup → Password setup → Wizard Finish.

Trouble Shooting

Actions to be taken when internet is disconnected

1. Check the status of external type modem.

Check that the Link lamps of cable, modem are illuminated.

2. Check the LED status of CPE.

- ✓ Check that the POWER LED is illuminated.
- ✓ Check if the LEDs of WiMAX are illuminated.
- ✓ For LAN port, check that the lamp of the port connected to the PC is illuminated.

3. Check the IP address of PC.

- ✓ For Windows 98/ME
Click [Start] -> [Run] and enter the [winipcfg] command to open the [IP Address] window, and then check the [IP Address].
 - ✓ For Windows 2000/XP
Run [Command Prompt] and enter the [ipconfig] command to check the [IP address].

4. If IP Address is not normal – Set the IP Address of the PC manually.

- ✓ For Windows 98/ME
 1. Execute [Run -> Control Panel -> Network], and then click Properties of [TCP/IP] for LAN card.
 2. Check [Use the assigned IP address], enter [192.168.1.100] for [IP Address] and [255.255.255.0] for [Subnet Mask].
 3. Select [Gateway] and enter [192.168.1.1] for [New Gateway], and then click [Add].
 4. Select [DNS Configuration], check [Use DNS], enter any name for [Host], enter [DNS Server Address to search], and click [Add].
 5. Click [OK], click [OK] again in the [Network Properties] window, and then click [OK] from the [Change System Setup] window to reboot the PC.

Trouble Shooting

✓ For Windows 2000

1. Execute [Start -> Control Panel -> Network and Dial-UP Connections], double-click [Local Area Connection], and click [Properties].
2. Click Properties of [Internet Protocol (TCP/IP)] among Components.
3. Click [Use the following IP address].
4. Enter [192.168.1.100] for [IP Address], [255.255.255.0] for [Subnet Mask], and [192.168.1.1] for [Default Gateway].
5. Click [Use the following DNS Server Address].
6. For [Basic Setup DNS Server], enter the communication company server of each country.
7. Click [OK]. Click [OK] again in the [Local Area Connection Properties] window.

✓ For Windows XP

1. [Start -> Control Panel -> Network and Internet Connection], double-click [Local Area Connection], and click [Properties]. Click Properties of [Internet Protocol (TCP/IP)] among Components.
2. Click [Use the following IP address].
3. Enter [192.168.10.100] for [IP Address], [255.255.255.0] for [Subnet Mask], and [192.168.1.1] for [Default Gateway].
4. Click [Use the following DNS Server Address].
5. For [Basic Setup DNS Server], enter the communication company server of each country.
6. Click [OK]. Click [OK] again in the [Local Area Connection Properties] window.

✓ For MAC OS

1. Execute ["apple" icon -> System setup -> Internet & Network -> Network -> Ethernet].
2. Select "manual" for IP Configuration.
3. Enter [192.168.1.100] for [IP Address], [255.255.255.0] for [Subnet Mask], and [192.168.1.1] for [Router].
4. For [DNS Server], enter the communication company server of each country.
5. Click [Apply].

5. Run [MS-DOS] or [Command Prompt] and then perform PING Test with [192.168.1.1]

A message [Reply from 192.168.1.1: bytes=32 time=1ms TTL=64] should appear when running [ping 192.168.1.1] command. If the result of the Ping test does not arrive properly, please contact the Customer Support Center.

Operating Information

Temperature Range and power rating for the SWC-5100

- Operating temperature for the units is 0 ~ 40 C

Power Rating AC for the SWC-5100

- 110-240V ~ 50/60Hz 0.6A Max

Caution

- Modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
- During transmitter operation, in order to meet RF Maximum Permissible Exposure Safety Guidelines, a minimum distance of 20Cm shall be maintained between antenna and personnel.

This equipment has been tested and found to comply with the limits for a Class B digital device, Pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio Frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

Hereby, SEOWON INTECH CO., LTD, declares that this WIMAX CPE is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

Product Warranty and Customer Support

Product Warranty

Product Name: Gateway Modem Model Name: SWC-5100

This product comes with a one-year warranty, which is described in the following:

Contents of Warranty Rules

1. Equipment for Warranty: SWC-5100

2. Warranty Period: 1 year

3. Free Repair Service or Replacement

If a defect or failure of the product occurs within the warranty period.

4. Warranty does not cover the following.

✓ If a defect or failure of the product occurs after the expiration of the warranty period.

✓ If a defect or failure of the product occurs due to a natural disaster, such as fire, flood, and lightning.

✓ If a defect or failure of the product occurs due to any unauthorized alteration or repair to the product.

✓ If a defect or failure of the product occurs due to other actions of the consumer.

Warranty Information

Safety Precaution



Caution

When minor injury or product damage can occur from violation of the following directions.

- Do not put any object on the product.
- Avoid heating devices.
- Never disassemble, repair or redesign the product.
- Be careful not to let any alien particle get inside the product.
- Do not leave the Product near a magnet or direct magnetic field.
- If you use the product at a location where static electricity is severe, it can cause malfunction to the product.
- Do not put any metallic object (coin, hair pin) or flammable object inside the product or drop the product.

Warranty Information

Quality Warranty

1. This product is manufactured through strict quality control and inspection process.
2. In case of a problem in normal condition, the product will be repaired free of charge during the warranty period.
3. If the service applies to "charged After-sale Service type" during the warranty period, service fee will be charged.
4. When requesting for repair, you must provide the warranty.
5. Keep the warranty in a safe location because it is not reissued.

| | | |
|-------------------------|------------------|--|
| Purchase date | | |
| Quality warranty period | 1(one) year | |
| Seller | | |
| Telephone number | | |
| Consumer | Name | |
| | Address | |
| | Telephone number | |
| | E-mail | |

In the following cases, service fee can be charged as charged After-sale Service type.

- In case of issue due to inappropriate use.
- In case of issue after repair by uncertified service center.
- In case of issue after disassembling Product by consumer.
- In case of problem by natural disaster such as fire, earthquake etc.