SWC-2100(VoIP CPE)

User Guide

SEOWON INTECH

Contents

1. VoIP CPE Overview

2. VoIP CPE Connection

3. PC Configuration

4. VoIP CPE built-in Web Server Access

5. VoIP CPE WiMAX Setup

6. VoIP CPE Setup

7. VoIP CPE LAN Setup

8. Application Support Setup

9. Administrator Function Setup

10.References

# 1. VoIP CPE Configuration and Connection

1.1 Product Introduction

This product receives external WiMAX signals to construct in-building infrastructure on WiMAX network and is covered by Ethernet network internally. The product serves as a relay as well as a USB Modem and an internet router.
But the product is purposed to supply to users, focusing on a relay part rather than a modem.
It is also a wired and wireless internet router which allows several systems to use one internet address supplied by high-speed internet service provider.

◎ Functional Features

Function	Features
IEEE802.16e WiMAX Support	Wave1 = DL : 10Mbps / UL : 4Mbps
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	Possible of max. 253 wired and connections and internet router*
Firewall function	Manages basic firewall and IP/Port/based access

1.2 Packaging Contents

<Figure: Main Unit>

<Figure: CD>

<Figure: Antenna X 2>

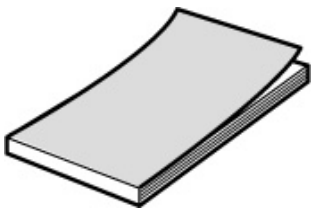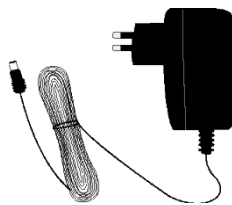<Figure: Quick Guide>

<Figure: UTP Cable>

<Figure: USB Cable>

<Figure: Adapter>
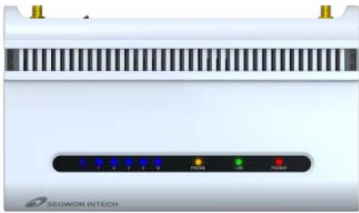
1.3 Description of Product Functions

<Figure: **VoIP CPE** Front LED part>

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.

<VoIP CPE Lateral side>

Description

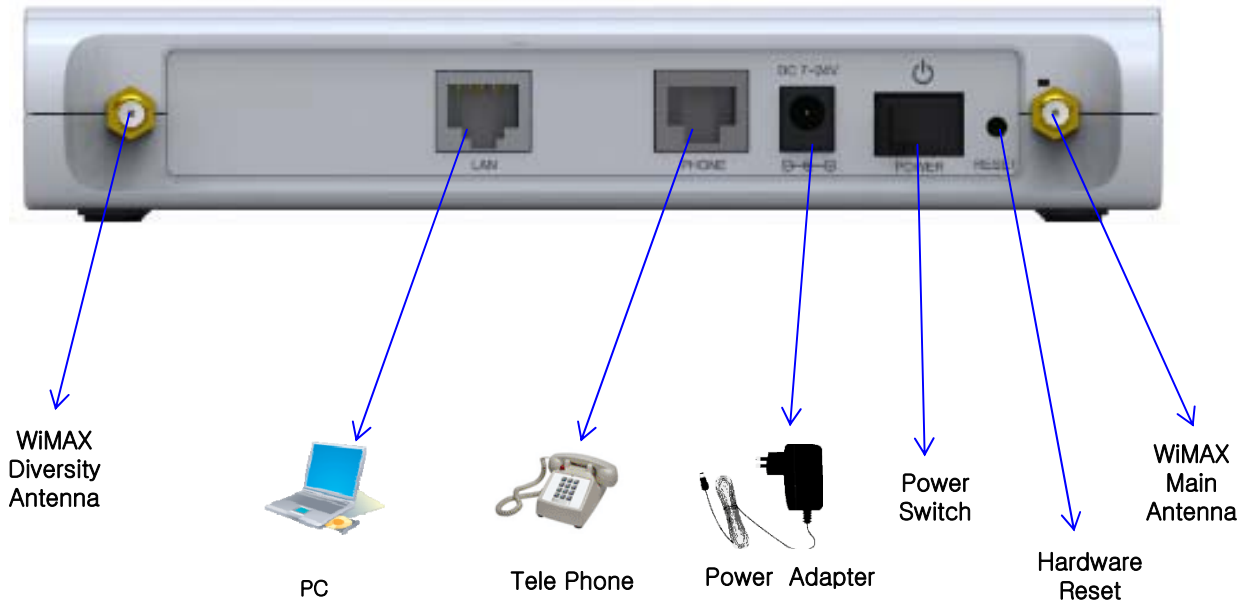| Item	Details
Mode Switch 　　-Router 　　-Modem	: Default Setting; Main function Mode; Mode for WiMAX, general router function : WiMAX Modem dedicated Mode; If VoIP CPE has no Power, you can use WiMAX Modem function by using the USB power of external PC.
USB	Uses external PC power; Port used when using WiMAX Modem's sole function

# 1.3 Description of Product Functions(Cont')

VoIP CPE Rear Side

WiMAX Diversity Antenna

PC

Tele Phone

Power Adapter

Power Switch

Hardware Reset

WiMAX Main Antenna

Description

Item	Details
External Antenna	ANT1: WiMAX Diversity ANT2: WiMAX Main Separable external antenna User external type antenna attachable * Antenna Classification - 3: 2.3GHz - 5: 2.5GHz
Power S/W	Power On/Off Switch (On/Off by pressing right or left)
DC IN	Power Adapter connection (DC12V)
PHONE	Telephone connection
LAN	PC or Hub connection
Factory 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.

1.4 Network Configuration

<VoIP CPE Connection Example>
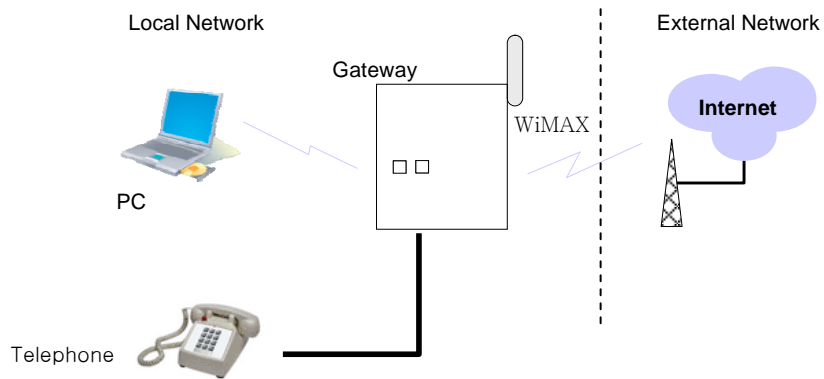
To Verify normal operation of router LEDs
You have to check if each LED of the router operates properly after connecting router, modem, and PC with LAN cable as follows:.

LED	Normal Operation	Actions to be taken at failure
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	Representation WiMAX received signal strength indication(RSSI), on when the mode was selected router.	Check the mode selected router

1.4 Network Configuration

If LED light is not in "normal operation", check if there is any failure according to actions to be taken.
Install a router after connecting to network.
„ If normal connection between router and PC is checked, you have to set up PC and router.
„ PC setup is to control network option such as Win98/2000/XP to enable to use Internet on condition that PC is connected to router. It is progressed by referring to Chapter II, depending on OS type.
Router setup is to connect a router to Internet, which is suitable for the Internet line type that is connected to router. It is progressed by referring to Chapter III, depending on Internet type.

2. VoIP CPE Connection

2.1 WiMAX Wired LAN Connection (CPE)

WiMAX

PC
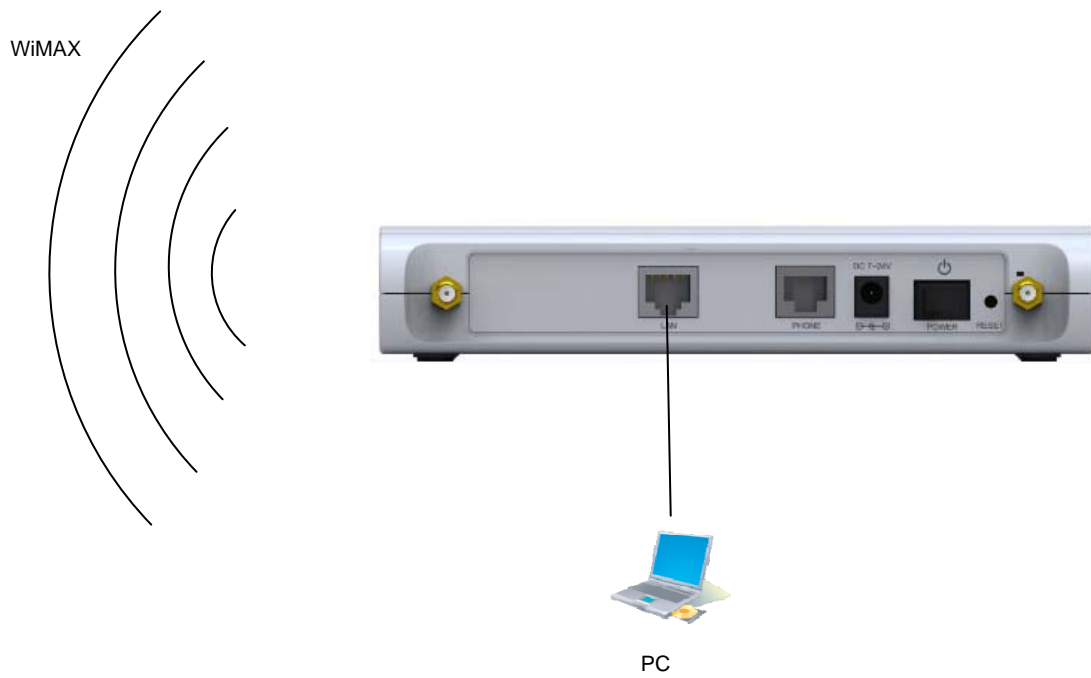
2.2 WiMAX Wired PHONE Connection

Telephone

3. PC Configuration

This chapter describes how to set up PC network environment by connecting to VoIP CPE according to Windows operating system.
To use Internet under operating system such as Windows, the protocol called 'TCP/IP' is required.

For normal use of VoIP CPE, you have to set up the TCP/IP protocol normally.
In general, the condition Windows is installed first in PC is the condition router can be used, in which no separate TCP/IP setup is required.

3.1 Windows 98/ME Setup

This procedure is to restore your Windows 98/ME TCP/IP settings to default values. If Windows is installed in your PC for the first time, there is no change and check if all values are normal as the following:
After completing the TCP/IP setup of your PC, connect PC and **VoIP CPE** with a LAN cable according to the instructions of Chapter 2 (STEP II) and turn the VoIP CPE on before Windows setup in order to check if IP address is being given automatically in the VoIP CPE.
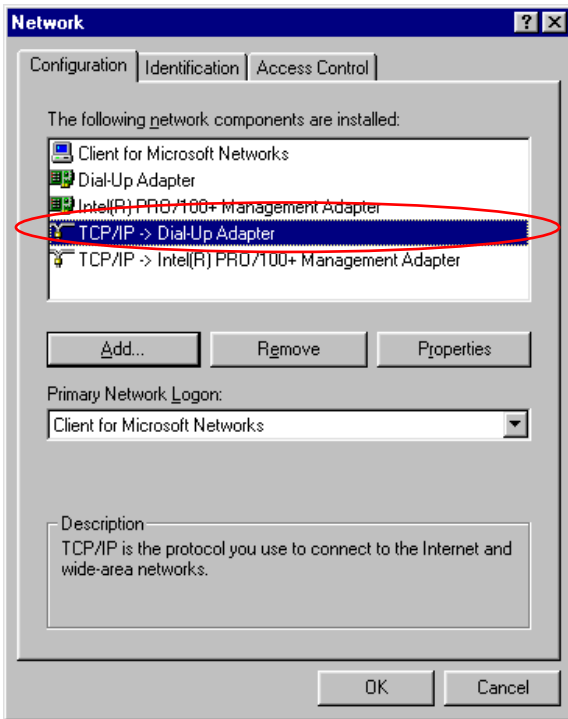Click the Windows Start button and select Settings >> Control Panel on the menu.
Double-click the Network icon on the Control Panel window.

\<Select Network Icon\>

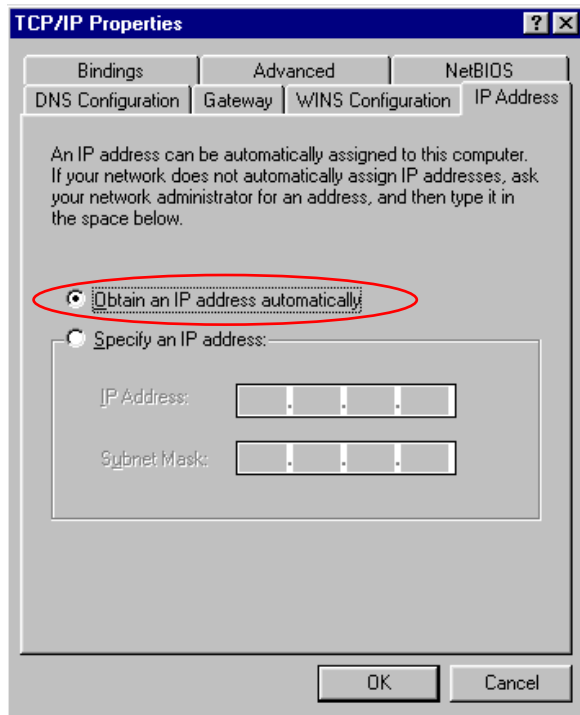## 3.1 Windows 98/ME Setup

< Select TCP/IP >

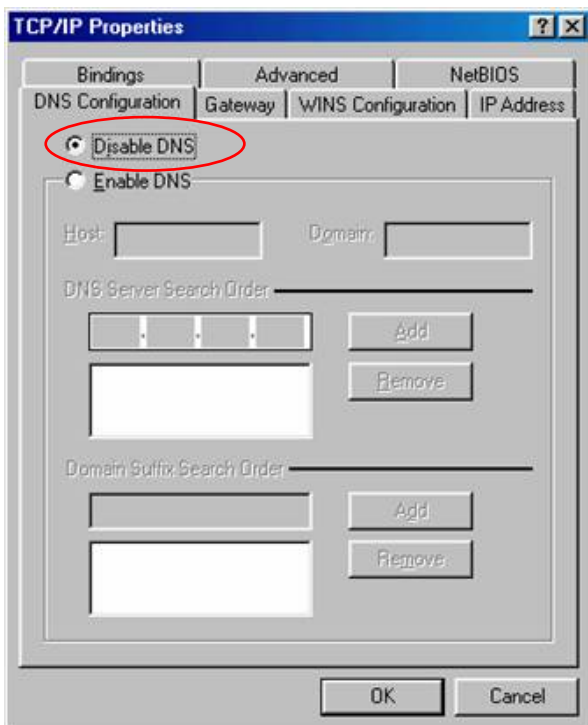< Select Obtain an IP address automatically >

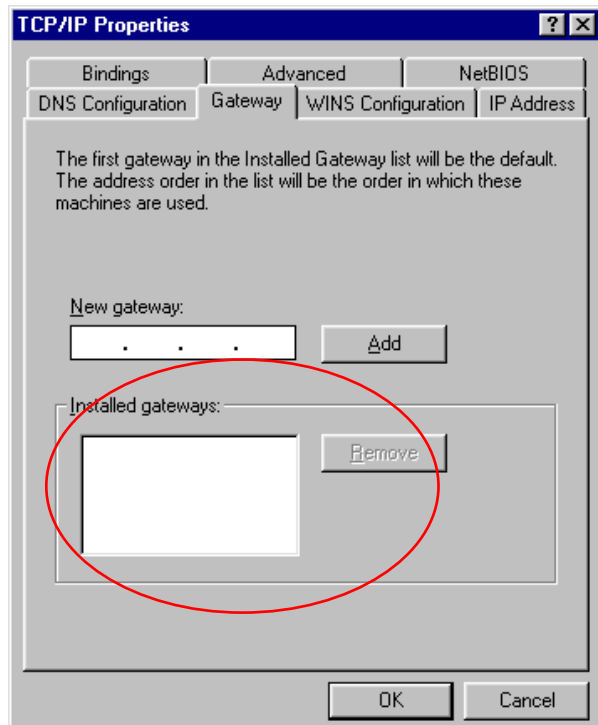- Remove all gateways installed in Gateway. ...
- Choose "Disable DNS" from DNS Configuration.

<Chosse 'Disable DNS' >


<Remove all Gateway items>

14

3.1 Windows 98/ME Setup

– When IP Address, Gateway, DNS Configuration setups are completed, click on 'OK' to close the TCP/IP Properties dialog box. When "Network" window is displayed, click 'OK' again.
– In case of Windows 98, the system restarts automatically when network related setup is changed. When the 'Change System Setup' screen pops up, click 'Yes' to restart Windows.

<Confirm System Restarting>
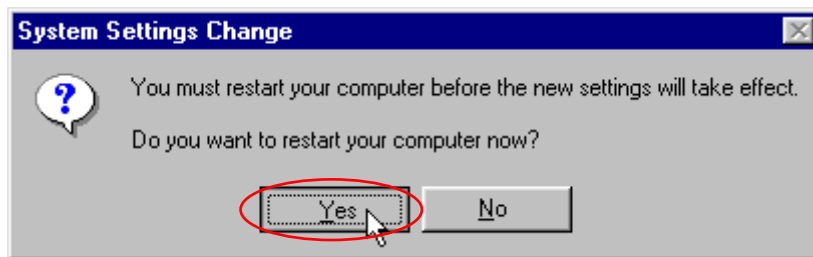
– When the PC is restarted, VoIP CPE assigns the IP address automatically. For automatic assignment, PC and **VoIP CPE** should be connected by LAN cable. If cable is not connected, connect a cable and then restart the PC.
– For automatic assignment of IP address, you can check it by using winipcfg program. Click the Windows Start button, and then select Run menu and enter "winipcfg" in the Open box, and click on 'OK' button.

<Run winipcfg >
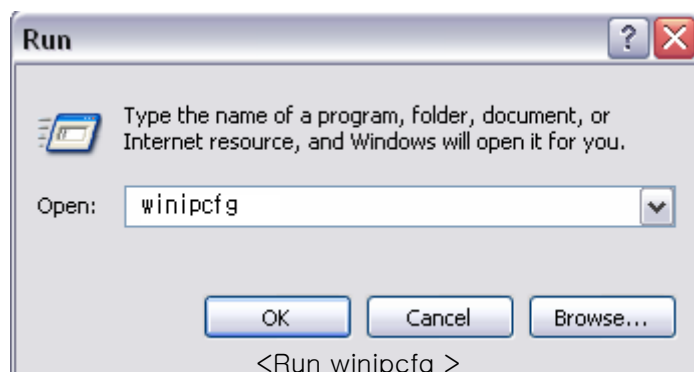
3.1 Windows 98/ME Setup

Select LAN card adapter used by connecting the router from the winipcfg IP Configuration window (Select NDIS 5.0 or the appropriate LAN card. Do not select PPP adapter) to check if the IP address of your PC is assigned to the value between 192.168.1.10 and 192.168.1.150 automatically. If you cannot see other LAN card than PPP adapter being used, you have to reinstall a LAN card driver. (Select LAN Card, click "Disconnect" and then "All Create" or "All Update" button to check IP assignment.)

[Note] All PCs connected to **VoIP CPE** will get each of assigned IP addresses respectively.
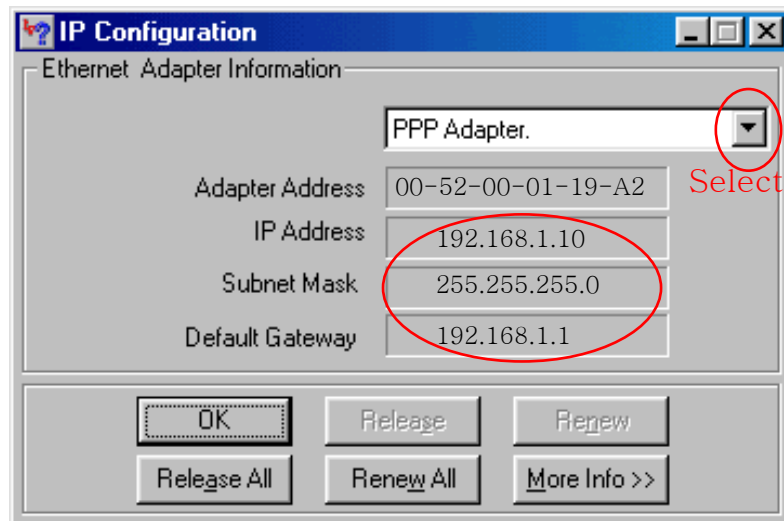
< Check IP Address >

Select LAN Card: Select NDIS 5.0 or the appropriate LAN card
Adapter Address: Different values on each adapter, ignorable
IP Address: 192.168.1.100 ~ 192.168.1.150
Subnet Mask: 255.255.255.0
Default Gateway: 192.168.1.1

[Note] If the IP address of PC is not assigned automatically, check the following and restart PC to check if the IP address is assigned.
- Connect a LAN cable between PC and **VoIP CPE**
- Check TCP/IP setup details

To use Internet after completion of PC setup, refer to Chapter IV and set the WAN port of VoIP CPE to connect to the Internet. Since Internet connection setup is made by **VoIP CPE**, you don't need to set up in all PCs but do just once.

3.2 Windows 2000 Setup

  This procedure is to restore Windows 2000's TCP/IP setup to default values. If Windows is not installed for the first time in PC or Internet is not operated properly, check all values are normal according to the following.

After completing the TCP/IP setup of PC, to check if IP address is obtained from VoIP CPE automatically, connect PC and VoIP CPE with a LAN cable according to the instructions of Chapter II and keep VoIP CPE turned on before Windows setting up. Click on the Windows Start button, select Settings >> Control Panel on the menu and then double-click the "Network Connections" icon.
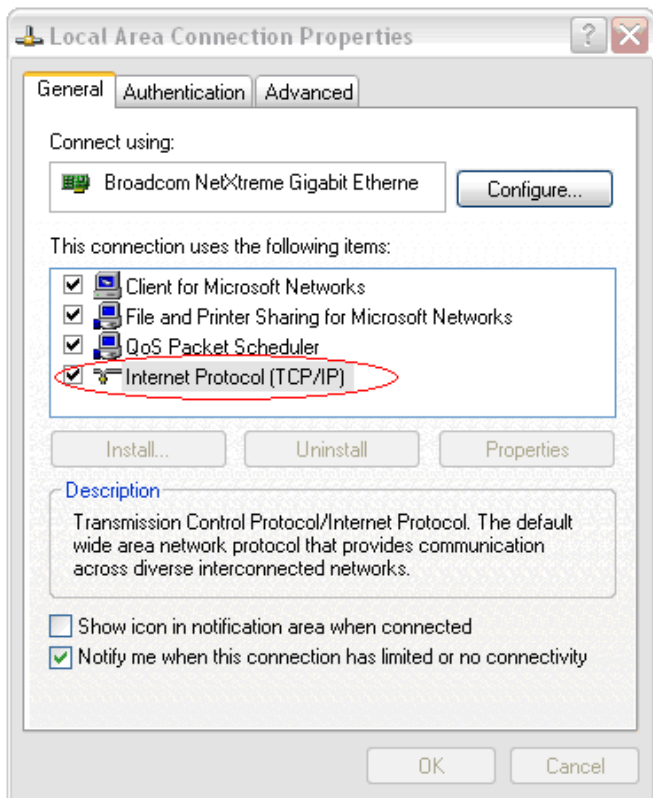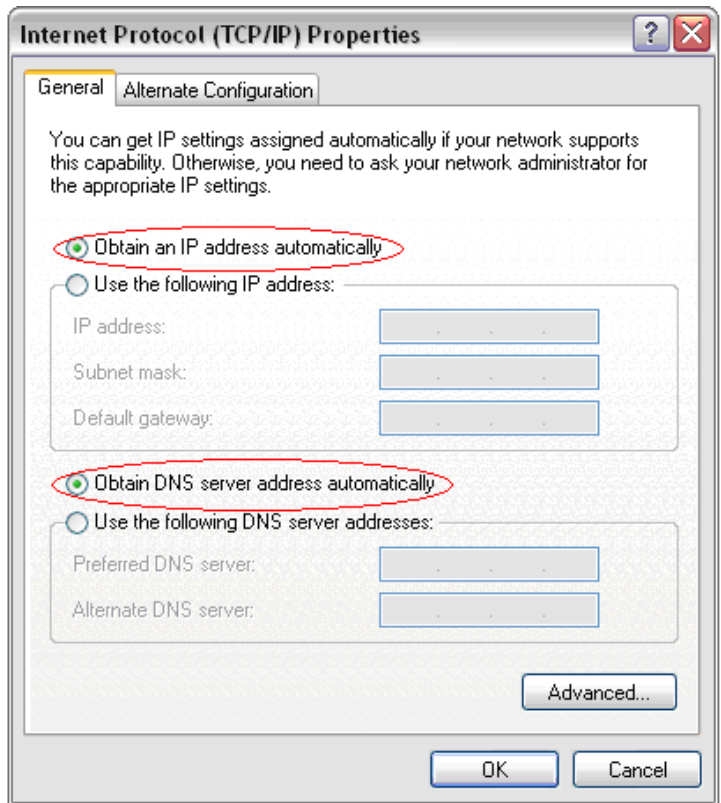

<Double-click the Local Area Connection >
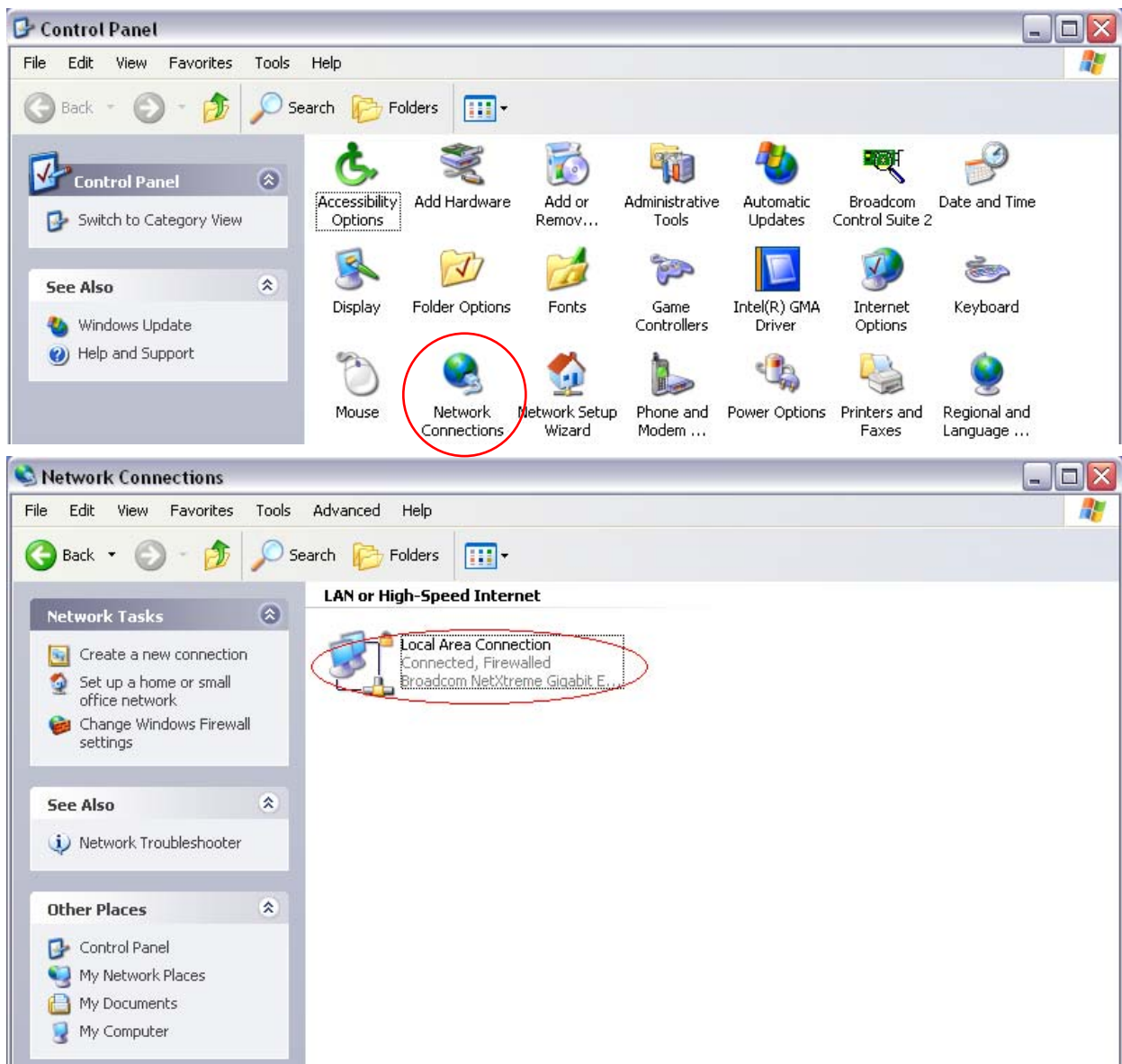
17

  - Click Properties from the Local Area Connection window.
  - Double-click Internet Protocol (TCP/IP) from the Properties window.

3.2 Windows 2000 Setup

<Double-click TCP/IP>

<Select "Obtain an IP address automatically" "Obtain DNS server address automatically" and click OK>

- After completion of setup, click OK button and close all of Network Connections windows.
- When TCP/IP setup is completed, IP address is automatically assigned by **VoIP CPE**. For automatic assignment, PC and **VoIP CPE** should be connected with a LAN cable. If it is not connected with a cable, connect the cable and restart the PC.

3.2 Windows 2000 Setup

- You can check the automatic IP address assignment by using the ipconfig command from Command Prompt.
- To run the Command Prompt, click the Start button on the lower left corner of Windows screen and click Run to enter "cmd" in the Open box, and then click OK button.
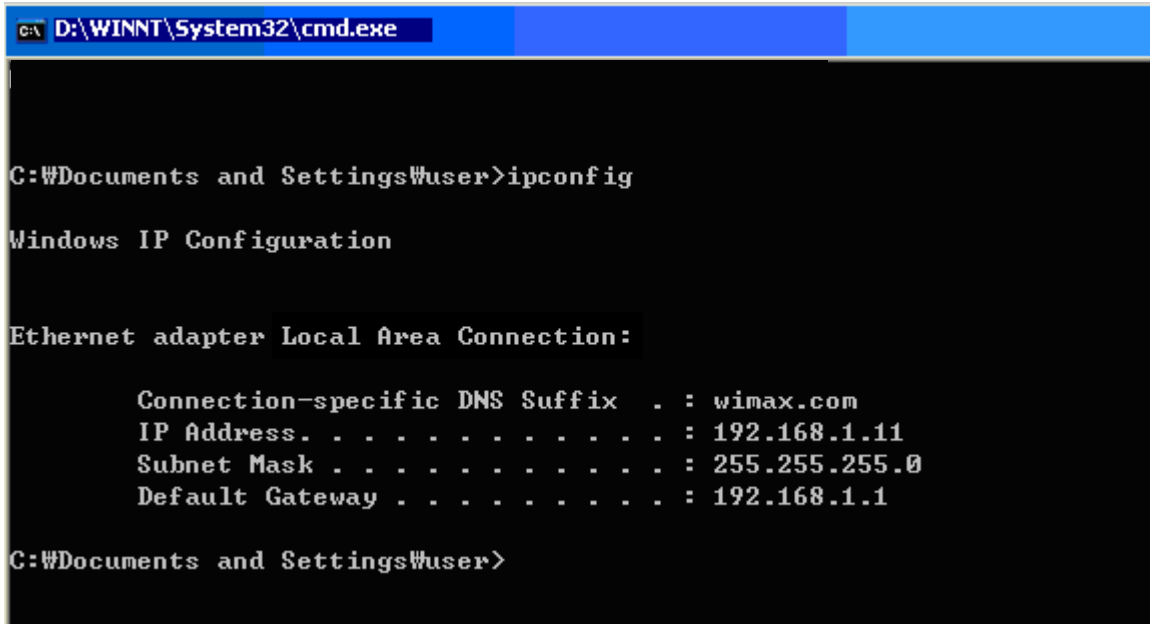
<Run cmd>
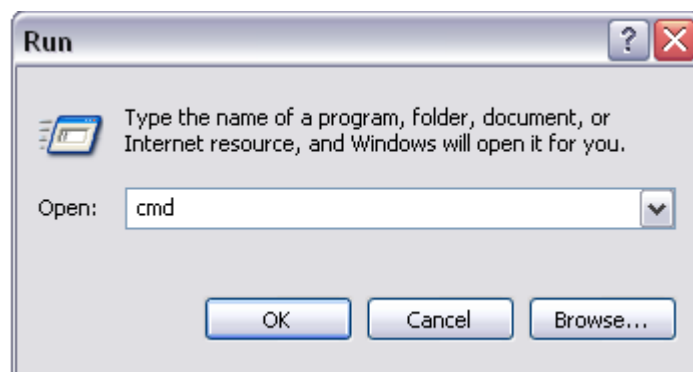
When the Command Prompt runs, enter the "ipconfig" command to verify IP address, Subnet mask, and Gateway, which are automatically assigned to PC.

[Note] All PCs connected to **VoIP CPE** will get each of assigned IP addresses respectively.

3.2 Windows 2000 Setup

<Verify IP address>

IP Address: 192.168.1.100~150
Subnet Mask: 255.255.255.0
Default Gateway: 192.168.1.1

[Note] If IP address is not assigned normally, check the following and restart PC so as to check if the IP address is assigned.

 - LAN cable connection between PC and **VoIP CPE**
 - Check TCP/IP setup details
 - Whether or not to remove ADSL access program

To use Internet after completion of PC setup, refer to Chapter IV and set the WiMAX of **VoIP CPE** to connect to the Internet. Since Internet connection setup is made by router, you don't need to set up in all PCs but do just once.

3.3 Windows XP Setup

This procedure is to restore Windows XP's TCP/IP setup to default values. If Windows is installed for the first time in PC, there is no change and check all values are normal according to the following.

After completing the TCP/IP setup of PC, to check if IP address is obtained from VoIP CPE automatically, connect PC and **VoIP CPE** with a LAN cable according to the instructions of Chapter 2 and keep **VoIP CPE** turned on before Windows setting up.

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

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

<Double-click the Network Connection>

21
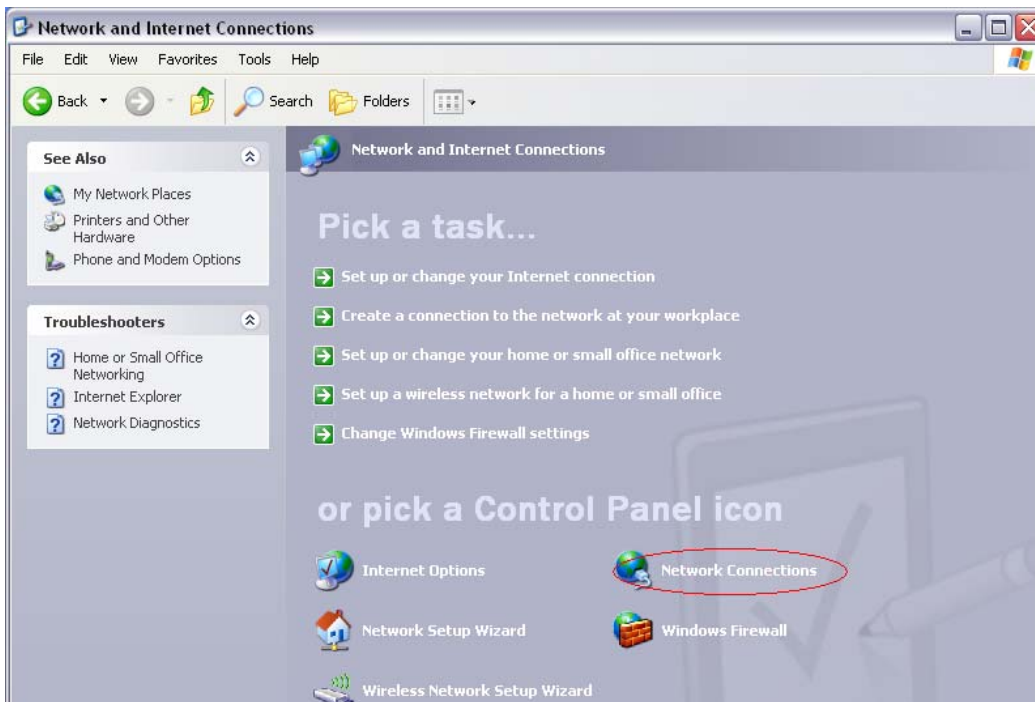
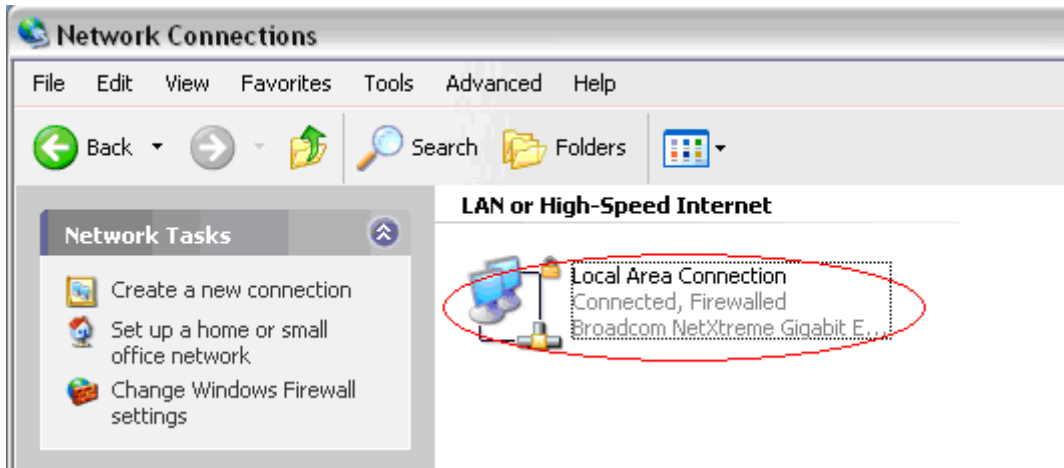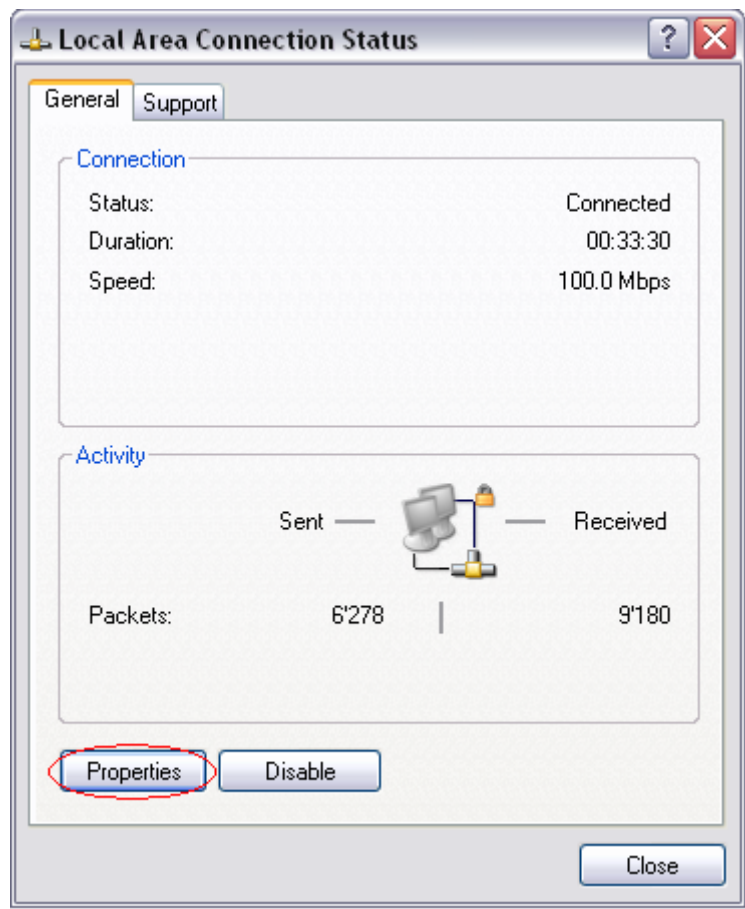## 3.3 Windows XP Setup

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

<Double-click the Local Area Connection>

- Click Properties in the Local Area Connection Status to select.

22

<Double-click Properties>

3.3 Windows XP Setup

- Double-click Internet Protocol (TCP/IP) and then select the 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>
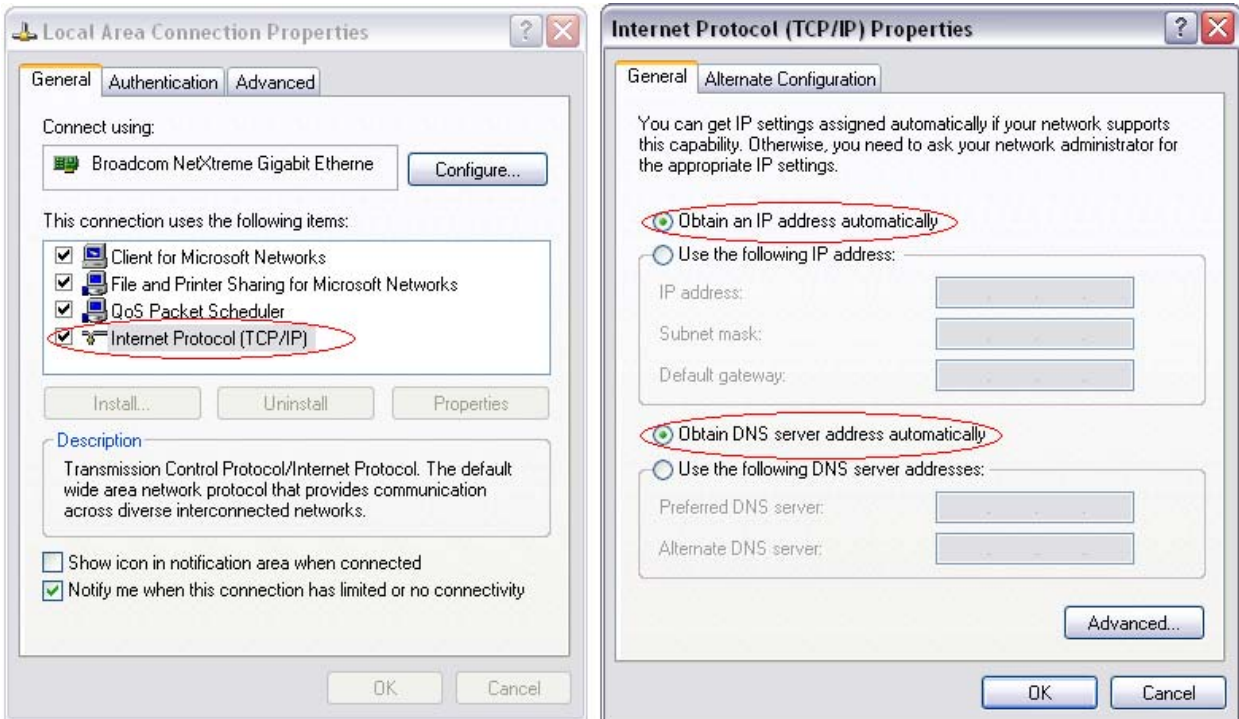
- After completion of setup, click OK button and close all of Local Area Connection Properties windows.
- When TCP/IP setup is completed, IP address is automatically assigned by **VoIP CPE**. For automatic assignment, PC and **VoIP CPE** should be connected with a LAN cable. If it is not connected with a cable, connect the cable and restart the PC.
- You can check the automatic IP address assignment by using the ipconfig command from Command Prompt.

3.3 Windows XP Setup

- To run the Command Prompt, click the Start button on the lower left corner of Windows screen and click Run to enter "cmd" in the Open box, and then click OK button.

<Run cmd>
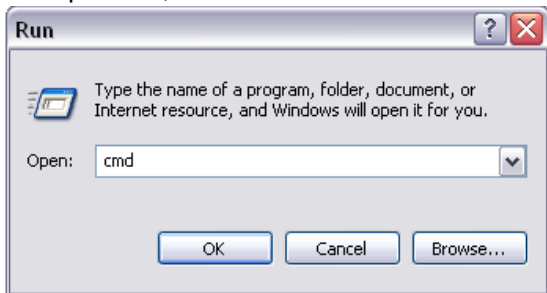
- When the Command Prompt runs, enter the "ipconfig" command to verify IP address, Subnet mask, and Gateway, which are automatically assigned to PC.

［Note］ All PCs connected to **VoIP CPE** will get each of assigned IP addresses respectively.

<Verify IP address>

IP Address: 192.168.1. 100~150
Subnet Mask: 255.255.255.0
Default Gateway: 192.168.1.1

［Note］If IP address is not assigned normally, check the following and restart PC so as to check if the IP address is assigned.

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

24

4. VoIP CPE Internet Connection

This chapter describes how to connect **VoIP CPE** to Internet. Internet connection setup is made by accessing to internal web setup screen. Therefore, Internet connection setup can be done from one of PCs connected to the **VoIP CPE** by executing just once.

To access to the web server built in the **VoIP CPE**, you have to set up PC normally.

For details how to set up PC, refer to Chapter III of this manual.
Internet connection setup is possible through internal web server in the **VoIP CPE**.
The Chapter IV describes how to proceed Internet setup by using this web server.
When completing the setting of PC and **VoIP CPE** according to the instructions from Chapter II to Chapter IV, you can use Internet from the PC connected to **VoIP CPE**.
In case of the cable modem mode Internet service environment, proceed the Chapter II of this manual and then turn off power to both modem and router. Turn the modem on and next the router on when linked after about 1 minute, then they will be connected without any separate setup.

- It may not connected immediately depending on user environment, and follow the instructions of this Chapter IV.

4.1 Access to the VoIP CPE Built-in Web Server
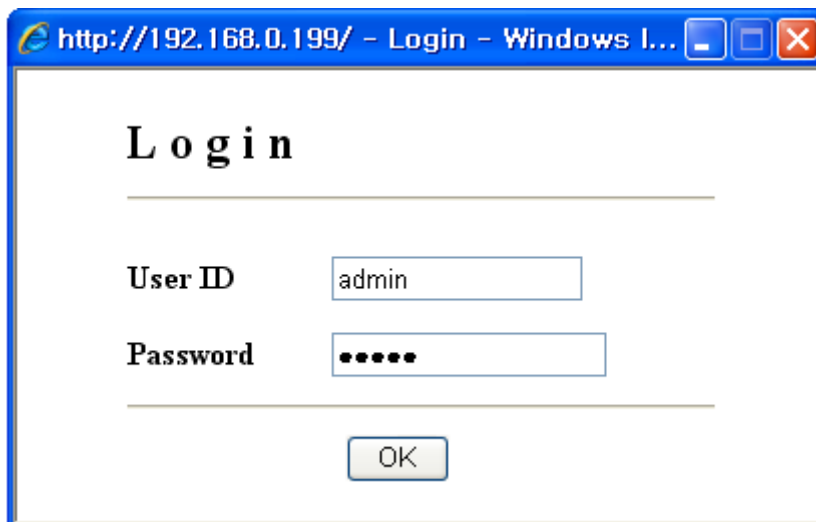
You can access to the web server built in the VoIP CPE, even in the environment not connected to Internet.

To access to the web server, run [icon] Internet Explorer and input 192.168.1.1, the address of **VoIP CPE**, in the address box as shown below.

Address | 192.168.1.1

[Note] If PC is connected to the VoIP CPE normally but not connected to Internet, only inputting the address of 192.168.1.1 in the address box correctly can lead to be connected to the VoIP CPE web server. This function may not operate in specific environment.

Accessing to the…VoIP CPE, the following Login screen will be displayed.

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

5. VoIP CPE WiMAX Connection and Setup

5.1 IP Address Setup

Wimax CPE

| WiMax | Voip | Lan | Application | Administration |

IP Address | Setting

Name Setup Required by ISP

Router Name: GATEWAY

Domain Name: wimax.com

IP Setup

○ Obtain an IP Address Automatically.
◉ Specify a static IP Address.

IP Address: 192 . 168 . 10 . 1
Subnet Mask: 255 . 255 . 255 . 0
Default Gateway: 192 . 168 . 10 . 1

DNS1: 0 . 0 . 0 . 0
DNS2: 0 . 0 . 0 . 0
DNS3: 0 . 0 . 0 . 0

Apply   Cancel

This screen is to set the mode assigning the IP address from the WiMAX modem. You can not only assign the host name and domain name of VoIP CPE but also set the IP address to DHCP(Dynamic IP) or Static IP address.

5.2 WiMAX Modem Setup

Wimax CPE

WiMax	Voip	Lan	Application	Administration

IP Address | Setting

Frequency Setup Channel Index: [ ] Center Frequency: [ ] kHz

PKM Setup Some ISPs require that you should authenticate yourself for proper WiMAX connection. Please refer to your ISP for the authentication configuration.

PKM: ○ Enable ● Disable

PKM Type: [EAP-AKA ▼]

Identity: [name=Identity]

Password: [●●●●●●●●●●●●●]

Anonymous Identity: [name=AnonymousIdentity]

Server Certificate: /syscfg/ [ ] [Browse]

DM Command Setup This command is used for proper intializing WiMAX modem device. Don't change this settings if you don't know exactly what you are doing!

Initial DM Command:

[   ]

[Apply] [Cancel]

The screen is to perform various settings for WiMAX modem. You can assign whether or not to use the PKM Authentication on the top and accordingly set the PKM Authentication mode, ID/Password, anonymous ID, and ISP Certificate in the VoIP CPE.
At the bottom, you can assign to perform customized command at initial boot of WiMAX modem. It is used when any particular setup is required for base station (BS) by the corresponding ISP.

6. VoIP CPE Setup

6.1 VoIP Setting

This screen is to perform all kinds of set up related VoIP. In first, you can assign SIP URL, Port, Username, Password, Registration Expire. Secondly, can select RTP Port Range. Thirdly, set up the Voice Compression type, Primary, Secondary, Third compression Type. In the following section, you can set up 'Outbound Proxy'. In last item, can select Fax Option.

7. VoIP CPE LAN Setup

7.1 DHCP Server Setup

Wimax CPE

WiMax	Voip	Lan	Application	Administration

DHCP Server | MAC Address | Status

LAN Setup

Your Gateway is equipped with a DHCP server that will automatically assign IP addresses to each computer on your network. The factory default settings for the DHCP server will work in most any application. If you need to make changes to the settings, you can do so.

LAN Gatway Setup

Gateway IP:

IP Address: 192 . 168 . 1 . 1

Subnet Mask: 255 . 255 . 255 . 0

DHCP Server Setup

DHCP Server: ● Enable ○ Disable

Maximum Lease Time: 864000 seconds

IP Starting Address: 192 . 168 . 1 . 100

Number of users: 51

WINS server: 0 . 0 . 0 . 0

[Apply] [Cancel]

This screen is to perform all kinds of setup related internal LAN.
First of all, you can assign the IP address of gateway and subnet mask to be used in the LAN that VoIP CPE manages. If you use the system by linking with external router, some cases may need setup change, otherwise you can use default value.
The following describes setting up whether or not to use DHCP and detailed information.
By using DHCP, you can decide whether or not to give the IP address automatically to each PC connected to VoIP CPE, and additionally set up the expiration date of IP address, DNS Relay(you have to set the DNS in the IP Address tap of WiMax part(5.1 IP Address Setup)), the range of IP address, and IP address of WINS Server.

7.2 MAC Address Setup

Wimax CPE

WiMax	Voip	Lan	Application	Administration

DHCP Server | MAC Address | Status

MAC Address Setup

LAN MAC Station Address: `00` : `AA` : `DD` : `02` : `04` : `04`

[Apply] [Cancel]

This screen is to change MAC address used for internal LAN connection. In most of cases you can use default setup.

7.3 LAN Status Information

Wimax CPE

WiMax	Voip	Lan	Application	Administration

DHCP Server | MAC Address | Status

Local Network

Local MAC Address: 00:00:00:02:04:00

Gateway IP Address: 192.168.0.199

Subnet Mask: 255.255.255.0

DHCP

DHCP Server: Enabled

Start IP Address: 192.168.0.100

End IP Address: 192.168.0.150

Wins Server: 0.0.0.0

This screen displays all sorts of status information on internal LAN.

8. Application Support Setup

8.1 Firewall Setup

Wimax CPE

WiMax	Voip	Lan	Application	Administration

Firewall | Port Forwarding | VPN

Firewall Setup

Your Router is equipped with a firewall that will protect your network from a wide array of common hacker attacks including Ping of Death (PoD) and Denial of Service (DoS) attacks. You can turn the firewall function off if needed. Turning off the firewall protection will not leave your network completely vulnerable to hacker attacks, but it is recommended that you turn the firewall on whenever possible.

Firewall Enable/Disable: ○ Enable ◉ Disable

[Apply] [Cancel]

This screen is to set whether or not to use firewall. Using firewall enables to set VoIP CPE to being not affected by hacking from the outside, including Ping Flooding or DoS. Internal LAN PCs are usually isolated/protected from external Internet even though they do not use firewall, but it is preferable to use firewall to be ON as possible. Default value is set to using firewall.

8.2 Port Forwarding

Wimax CPE

WiMax	Voip	Lan	**Application**	Administration

Firewall | Port Forwarding | VPN

Port Forwarding	Application	Start	End	Protocol	IP Address	Enable	Del
				TCP	192.168.0.	☐	☐
				TCP	192.168.0.	☐	☐
				TCP	192.168.0.	☐	☐
	4	2006	2007	UDP	192.168.0.23	☐	☐
	5	2008	2009	TCP	192.168.0.24	☐	☐
	6	2010	2011	UDP	192.168.0.25	☐	☐
	7	2012	2013	TCP	192.168.0.26	☑	☐
	8	2014	2015	BOTH	192.168.0.27	☐	☐
	9	2016	2017	BOTH	192.168.0.28	☐	☐
	10	2018	2019	BOTH	192.168.0.29	☑	☐

Apply Cancel

Port Forwarding function is used to forward incoming packets of specific TCP/IP port from outside to the assigned PC. If you have to use programs, such as VoIP and P2P, or have to operate servers, such as HTTP and FTP, in a PC of internal LAN, packets from outside may be forwarded.

8.3 VPN Pass through Setup

Wimax CPE

| WiMax | Voip | Lan | Application | Administration |

Firewall | Port Forwarding | VPN

VPN Pass Through   ☑ PPTP Service

☑ L2TP Service

☑ IPSEC Service

[Apply] [Cancel]

VPN (Virtual Private Network) function is used to get access to security network installed in a company or organization via Internet network.
If there is a VPN Server outside and one has access to the VPN Server via Internet network by using VoIP CPE, this screen shows to activate security protocol supported by the appropriate VPN Server. Supportable protocols include IPSec, PPTP, and L2TP.

9. Administrator Function Setup

9.1 Administrator Time Server

Wimax CPE

| WiMax | Voip | Lan | Application | Administration |

Time | Password | Firmware Upgrade | Rebooting

Time Setting

Time Zone   Current Time:Fri Dec 31 23:28:46 1999

Atlantic Time(Canada),Brazil west

☐ Automatically adjust clock for daylight saving changes

[Apply]

The 'Time' function is to set up time of the VoIP CPE system. Please select your time zone.

9.2 Administrator Password Setup

Wimax CPE

WiMax	Voip	Lan	Application	**Administration**

Time | Password | Firmware Upgrade | Rebooting

Password Setup   Enter new password:

Re-enter new password:

[Apply] [Cancel]

This screen is to set up Password to be given to Administrator who manages all setups of VoIP CPE. Default password is "admin" and by changing the default password he can input and use the password set up every time he/she gains first access to web interface.

9.3 Administrator Firmware Upgrade

Wimax CPE

WiMax	Voip	Lan	Application	**Administration**

Time | Password | Firmware Upgrade | Rebooting

Kernel upgrade   [   ] Browse [Upgrade]

The screen is used for Firmware Upgrade. If there is a Firmware Upgrade file, press the Browse button to select and press the Upgrade Now button to start Firmware transmission and Upgrade. It takes about 2-3 minutes for Firmware Upgrade. And please pay attention because interruption during upgrade may cause damage to or malfunction of VoIP CPE. When Firmware Upgrade is made properly, red letters in the upper part of the screen will be changed to a blue message that Upgrade is completed. Reboot to apply upgraded firmware, like reset to factory default.

9.4 Administrator Rebooting

The Reboot tab is used for rebooting the VoIP CPE via the web-based configuration page. To apply any changes, you should reset the VoIP CPE using 'Apply' button.

10. References

10.1 LAN CABLE Standards

LAN Cable includes straight cable (direct cable) and cross cable.
VoIP CPE has Cable Auto Sense feature, so either of the two can be used.
However, it is not possible of normal communication if you use the cable that does not maintain the #1-2 and 3-6 twisted pairs according to the regulations. Always manufacture or purchase regulation cables to use.

<Structure of Direct Cable > <Structure of Cross Cable>
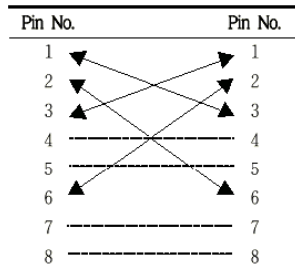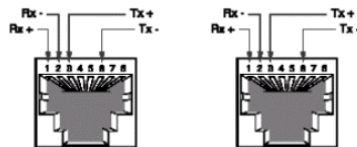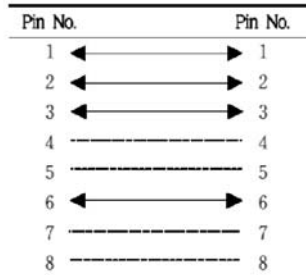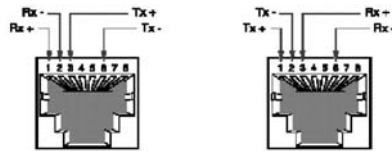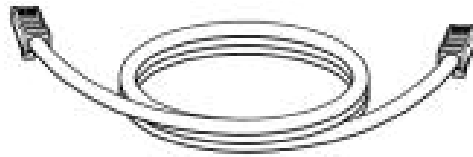
10.2 IP Router PING Test Method

PING Test through router in the PC shows whether PC is normally connected to IP router or not. You must check if the IP address of your PC is normal before PING Test.
To perform a PING Test, run MS-DOS in Win98/ME, while Command Prompt in Windows 2000/XP. To do this, click the "Start" button at the lower left on the Windows screen and select "Run".
In the Open dialog box, enter "command" in case of Windows 98/ME, while "cmd" in Windows 2000/XP, and then click OK button to run MS-DOS or Command Prompt.

<Run "command" or "cmd">
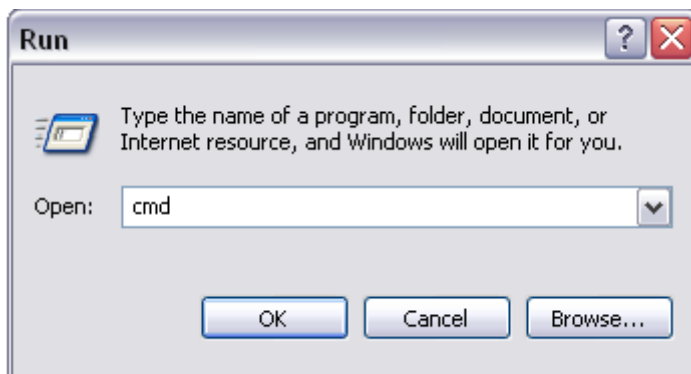
Enter "ping 192.168.1.1" command in MS-DOS or the Command Prompt window.

<Running the Ping 192.168.1.1 command and its result >

If four messages "Reply from...." appear as shown in the above figure, you can verify normal connection between IP router and PC so that there may be no problem in communication. 41

10.3 Product Specification

Parameter	Description	Parameter	Description
WiMAX System Profile	IEEE 802.16e, Wave 2 compliant	Receiver Noise Figure	Under 7dB @ High Gain Mode
Multiple Access	OFDMA	RF Sensitivity	-88dBm @QPSK1/2
Frequency Band	2.3GHz / 2.5GHz	UICC	UICC Support(1.8/3.0/5.0V)
Maximum RF Output	23dBm(200mW)	SAR Limits	Comply with FCC regulation
Antenna	Enternal 2 ANT (1 ANT Gain = 5dBi)	Power	Host Power 3.3V
Service	Only data	Power Consumption	Under 1W
Channel Bandwidth	**8.75 or 10MHz for 2.3GHz 5 or 10MHz for 2.5GHz**	TX / RX Configuration	SISO(1Tx, 1Rx) / MISO(1Tx, 2Rx)
Modulation	DL : QPSK, 16-QAM, 64-QAM UL : QPSK, 16-QAM	Transfer Rate	Wave1 = DL : 10Mbps / UL : 4Mbps Wave2 = DL : 20Mbps / UL : 6Mbps
Interface to Host	Mini PCI full size	Authentication and Security	PKM V2-EAP/EAP-AKA/EAP Client

10.4 Troubleshooting(Actions to be taken when internet is disconnected)

1. Check the status of external type modem.
   : Check if Link lamps of cable, modem is turned ON.
2. Check the LED status of VoIP CPE.
      1) Check if POWER LED is turned ON.
      2) Check if LEDs of WiMAX are turned ON.
      3) LAN port, check if the lamp of the port connected to PC is turned ON.
3. Check the IP address of PC.
      1) In case of Windows 98/ME, click [Start] -> [Run] and enter the [winipcfg] command to pop up the [IP Address] window, and then check the [IP Address].
      2) In case of 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 PC manually.
   If IP Address is normal – Go to 5.

  1) In case of 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 on [Add] button.
      ④ Select [DNS Configuration], check [Use DNS], enter any name in [Host], enter [DNS Server Address to search], and click [Add] button.
      ⑤ Click [OK], and click [OK] again on the [Network Properties] window, and then click [OK] from the [Change System Setup] window to reboot the PC.
  2) In case of Windows 2000
      ① Execute [Start -> Control Panel -> Network and Dial-UP Connections], 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 [192.168.1.100] 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 communication company server of each country.
      ⑥ Click [OK] button. Click [OK] again in the [Local Area Connection Properties] window.

10.4 Troubleshooting(Actions to be taken when internet is disconnected)

3) In case of Windows XP

① Execute [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 follwing 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 communication company server of each country.

⑥ Click [OK] button. Click [OK] again in the [Local Area Connection Properties] window.

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 Ping test may not come properly, please contact the Customer Support Center.

10.5 Product Warranty and Customer Support

Product Warranty

Product Name: Gateway Modem Model Name: SWC-2000

This product comes with a one-year warranty and its compensation will be based on the following:

Contents of Warranty Rules

1.   Equipment for Warranty: VoIP CPE
2.   Warranty Period: 1 year
3.   Free repair service
     - If a defect or failure of the product occurs within the warranty period
4.   Charged repair service
     - 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 lightening
     - If a defect or failure of the product occurs due to any alteration or repair work
     - If a defect or failure of the product occurs due to other consumer faults

SEOWON INTECH CO., LTD. WWW.SEOWONINTECH.CO.KR	SEOWONINTECH.CO.,LTD. R&D Center 689-47, Kumjung-Dong, Kunpo-City, Kyunggi-Do, 435-862, Korea Tel : 82-31-428-9531 | Fax : 82-31-428-9598 e-mail : wimax@seowonintech.co.kr http://www.seowonintech.co.kr

Regulatory Notices

Caution: The **WiMAX device** has been tested for compliance with FCC RF exposure limits.   The **WiMAX device** should not be used with external antennas that are not approved for use with this device. Use of this device in any other configuration may exceed the FCC RF exposure compliance limits.

To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons.

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 communication.   There is no guarantee that interference will not occur in a particular installation

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.

Caution: Any changes or modifications not expressly approved by Sprint could void the user's authority to use the equipment.