

WiMAX

# CPE

Customer  
Premise  
Equipmen

User Guide



SEOWON INTECH

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# 1. Multi User 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
WAN Port	ADSL, VDSL, Cable, LAN mode supportable to 10/100Mbps WAN
LAN Port	4 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 wireless PC connections and internet router*
QoS function	Ensures/Limits speed by PC connected to router
VPN Server function	Possible of VPN access to internal network inside the router from external Internet
Internet Wizard	Simple internet connection support
Firewall function	Manages basic firewall and IP/Port/Mac-based access
DDNS function	Converts the WAN IP address of router to domain URL **
VLAN function	Possible of logically segmenting LAN, independent of physical configuration

## 1.2 Packaging Contents



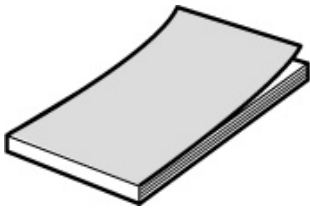
<Figure: Main Unit>



<Figure: CD>



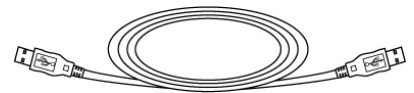
<Figure: Antenna X 2>



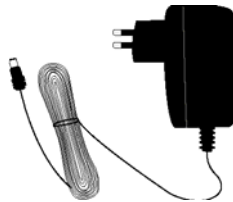
<Figure: Quick Guide>



<Figure: UTP Cable>



<Figure: USB Cable>



<Figure: Adapter>

## 1.3 Description of Product Function



<Figure: **MULTI USER CPE** Front LED part>

LED Indicator	Function
PWR	Power Supply status (On at Power ON)
WiMAX	Flashing at normal operation (Repeatedly ON/OFF at 0.1 sec intervals)
WAN	ON when connected to modem, Flashing at communication
LAN 1~4	ON when connected to PC, Flashing at communication

Multi User CPE Lateral side

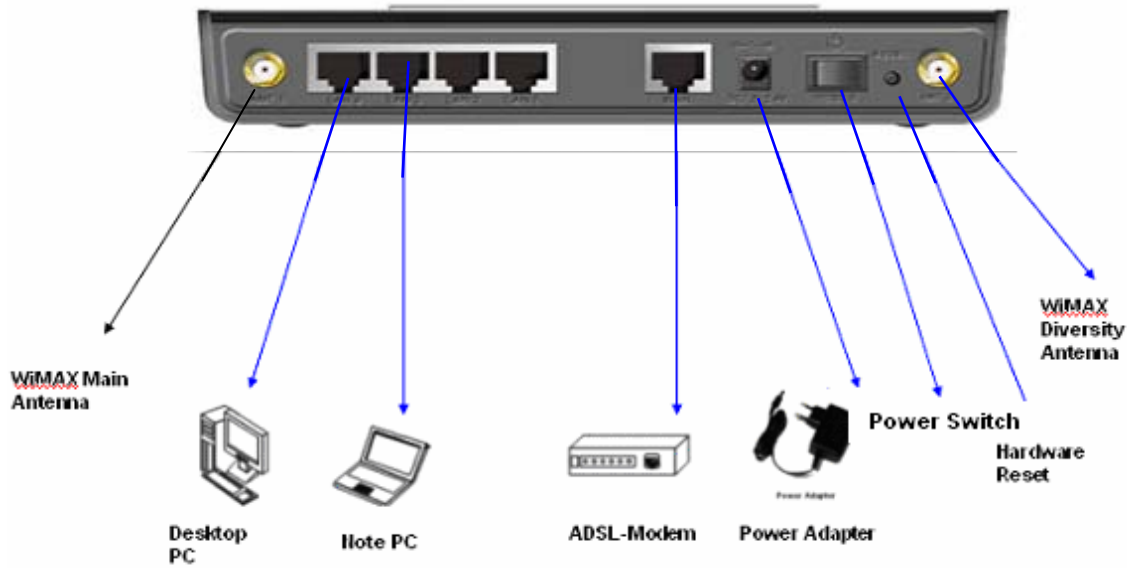


Description

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

## 1.3 Description of Product Function

MULTI USER CPE Rear Side

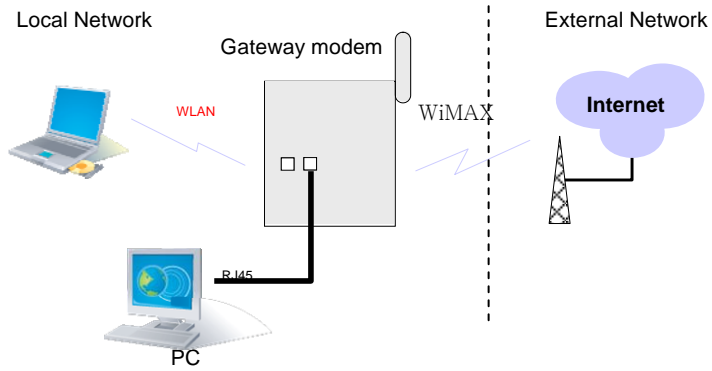


Description

Item	Details
External Antenna	ANT1: WiMAX Diversity ANT2: WiMAX Main Separable external antenna User external type antenna attachable * Antenna Classification - 5: 2.5GHz
Power S/W	Power On/Off Switch (On/Off by pressing right or left)
DC IN	Power Adapter connection (DC 7.5V ~ 24V)
WAN	External modem connection port
LAN 1~4	PC or Hub connection
RESET	System Reset

[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



<MULTI USER 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
WIMAX	Flashing at 0.1 sec intervals in normal operation	Check if wireless module is attached
WAN	ON when cable is connected normally	Check cable connection and modem power supply
LAN	ON when cable is connected normally	Check cable connection and PC power supply



## 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. Multi User CPE Connection

### 2.1 Wired Connection (WAN)

#### 1) Connecting Power Adapter

Connect Power Adapter to AC terminal and then connect DC connector.

When turning the power switch on, only Power LED keeps lighting up and all other lamps are turned ON

for about 1 second and then OFF.

When booting is completed, WiMAX lamps of **MULTI USER CPE** are flashing at about 0.1 sec intervals.

Always use the rated adapter of the product for a router. If not, it may cause malfunction and damage.

#### 2) Connecting Modem

Connect the LAN terminal of modem (varies depending on modem) and the WAN terminal of **MULTI USER CPE**.

(In case of LAN mode Internet service, there is no modem but a LAN line from wall outlet. Connect the LAN line of wall outlet to the WAN terminal.)

In case of internal modem, contact to the Internet service provider so as to replace it with an external type modem.

When LAN line is normally connected, the WAN lamp is ON, and flashing if there is any communication.

#### 3) Connecting PC

Connect the LAN card of PC or the LAN port of motherboard to the router LAN 1~4.

When connected normally, the appropriate LAN lamp is turned ON.

#### 4) Connecting Hub

- To connect more than 4 PCs, do through Hub.

- Connect the LAN port of HUB and one of the router LAN 1~4.

- If connected normally, the LAN lamp and the lamp of the port connected to HUB are turned ON.

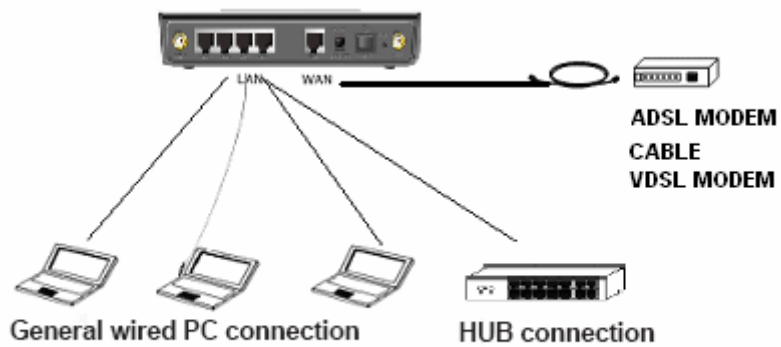
#### [Note]

\* If connected to the UP-LINK of HUB, you cannot use the next port to UP-LINK.

\* HUB and router connect to one port only. They cannot be used for more than 2 connections.

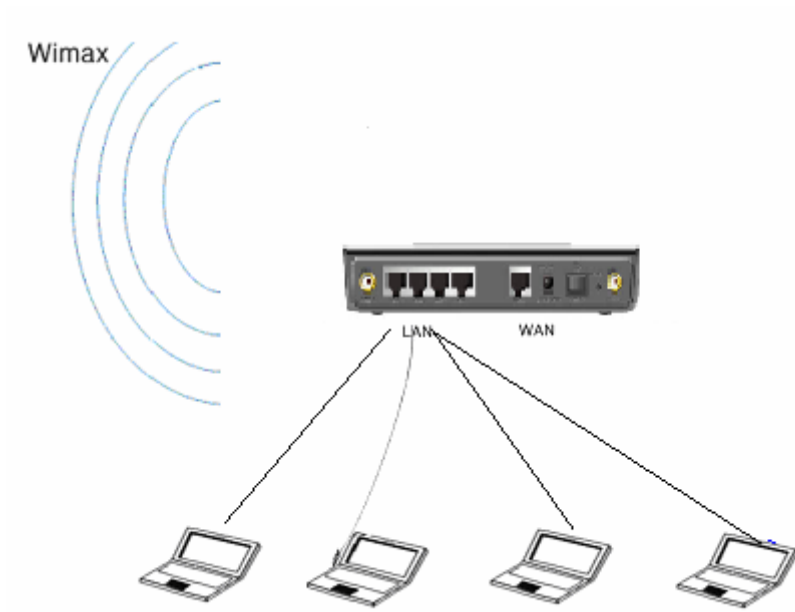
\* Since this product has the cable auto sensing function, direct (straight) and cross cables can be freely used when connecting LAN or WAN port.

## 2.1 Wired Connection (WAN)



<Modem, Router, Wired (PC or HUB) connection>

## 2.2 WiMAX Wired LAN Connection(CPE)



### 3. PC Configuration

This chapter describes how to set up PC network environment by connecting to MULTI USER 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 MULTI USER 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.

As a computer used in ADSL service environment may have problem in the router environment if ADSL access program (PPPoE access program) is installed, delete this and then set the network environment according to the instructions of this chapter.

- In case of Windows 98/ME/2000, delete the ADSL access program installed separately
- In case of Window XP, delete the broadband connection installed

In case of the computer used in the internet service environment of LAN mode, VDSL mode, IP-ADSL mode, and cable modem mode, you can directly connect it to a router to use without changing the Windows configuration separately.

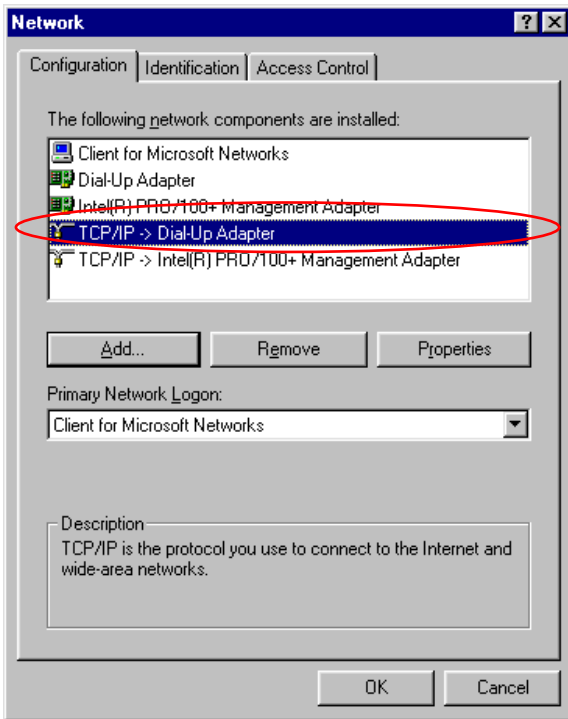
### 3.1 Windows 98/ME Setup

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 **MULTI USER CPE** with a LAN cable according to the instructions of Chapter 2 (STEP II) and turn the MULTI USER CPE on before Windows setup in order to check if IP address is being given automatically in the MULTI USER CPE. Click the Windows Start button and select Settings >> Control Panel on the menu. Double-click the Network icon on the Control Panel window.

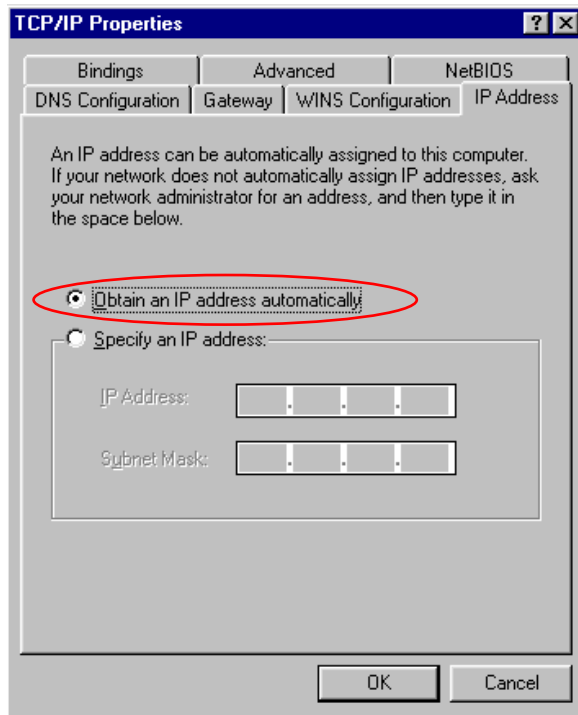


<Select Network Icon>

## 3.1 Windows 98/ME Setup

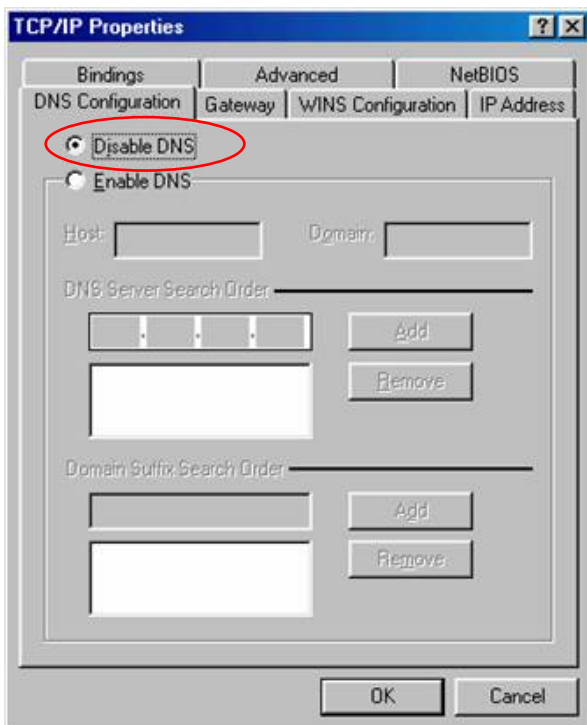


< Select TCP/IP >

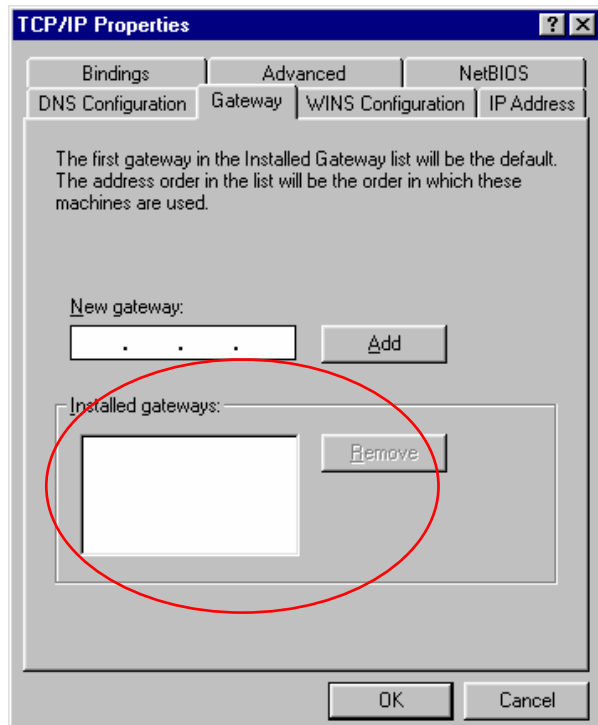


< Select Obtain an IP address automatically >

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



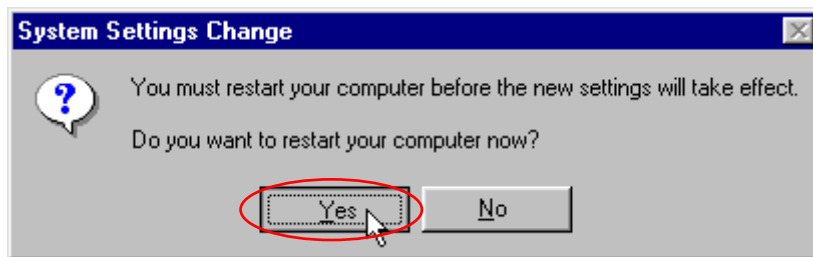
<Chosse 'Disable DNS' >



<Remove all Gateway items>

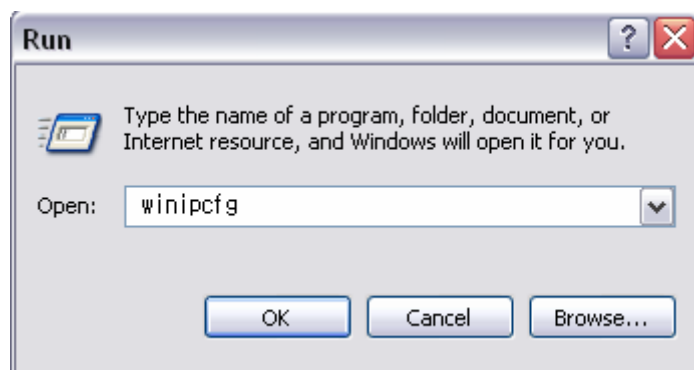
### 3.1 Windows 98/ME Setup

- 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, MULTI USER CPE assigns the IP address automatically. For automatic assignment, PC and **MULTI USER 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.



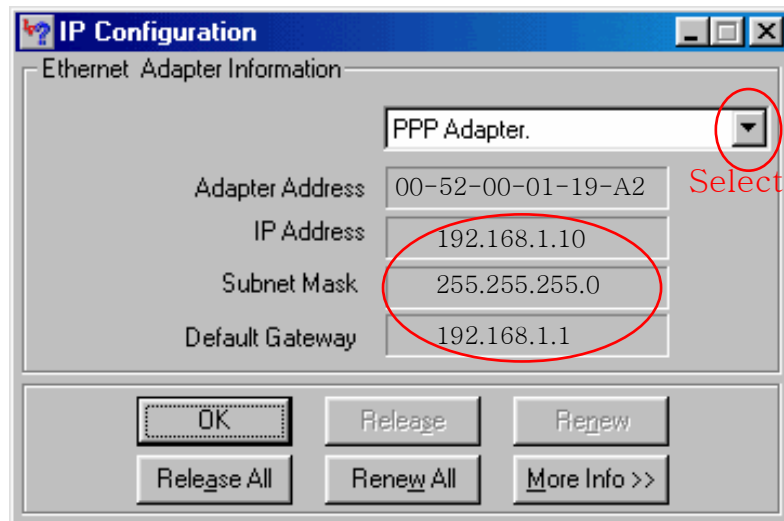
<Run winipcfg >



### 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 192.168.1.60 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 **MULTI USER 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: 192.168.1.10 ~ 192.168.1.60

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.

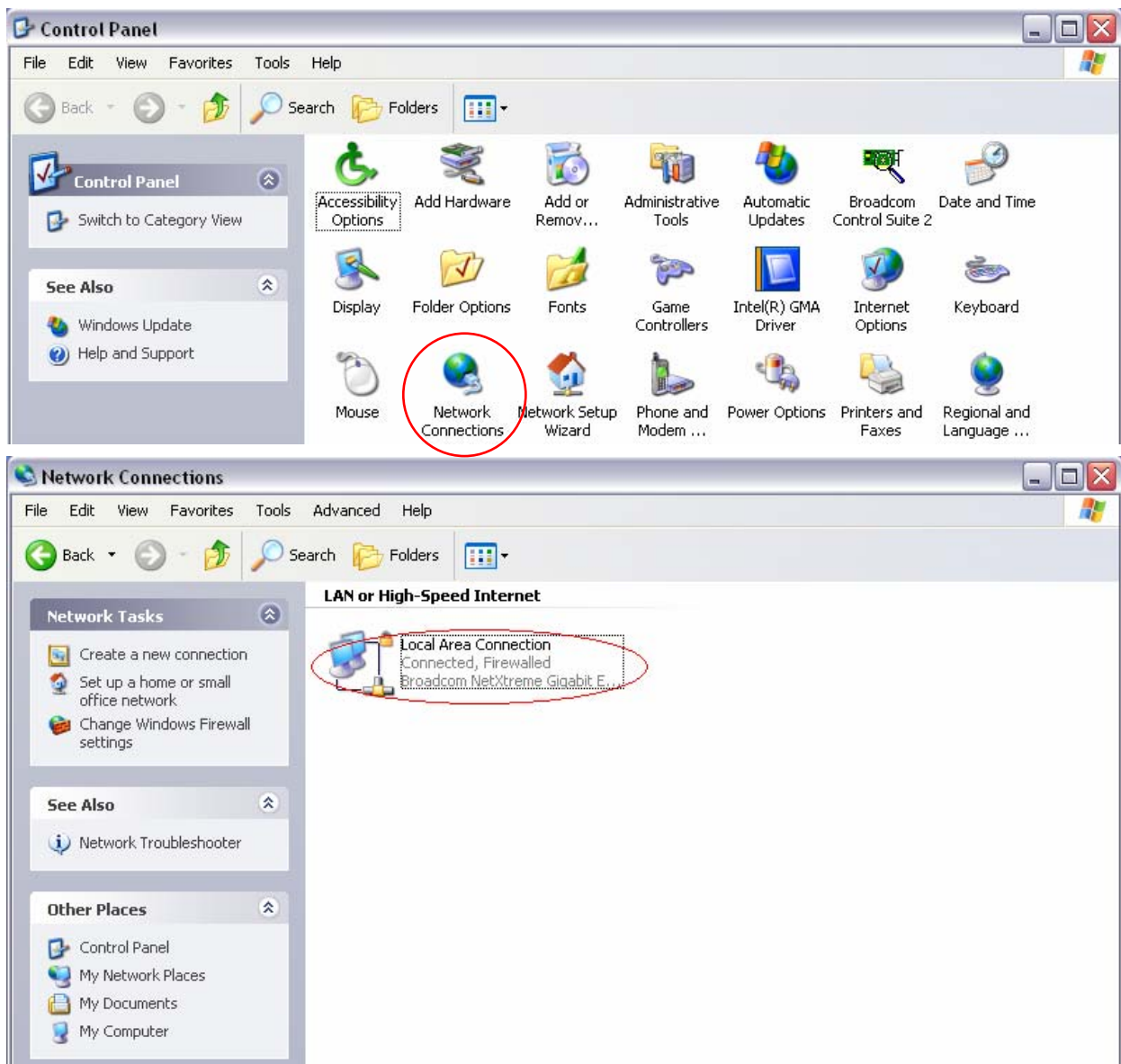
- Connect a LAN cable between PC and **MULTI USER CPE**
- Check TCP/IP setup details

To use Internet after completion of PC setup, refer to Chapter IV and set the WAN port of MULTI USER CPE to connect to the Internet. Since Internet connection setup is made by **MULTI USER 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 MULTI USER CPE automatically, connect PC and MULTI USER CPE with a LAN cable according to the instructions of Chapter II and keep MULTI USER 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.

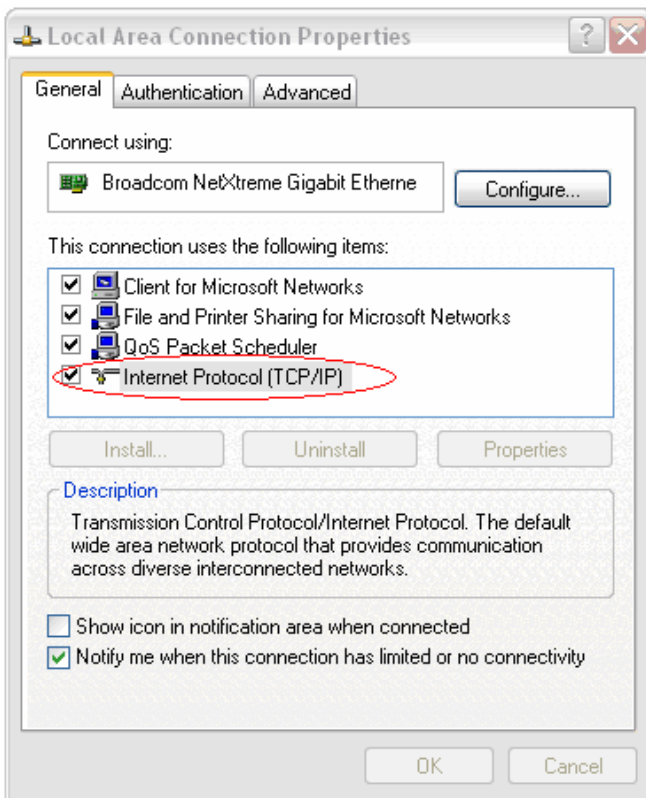


<Double-click the Local Area Connection >

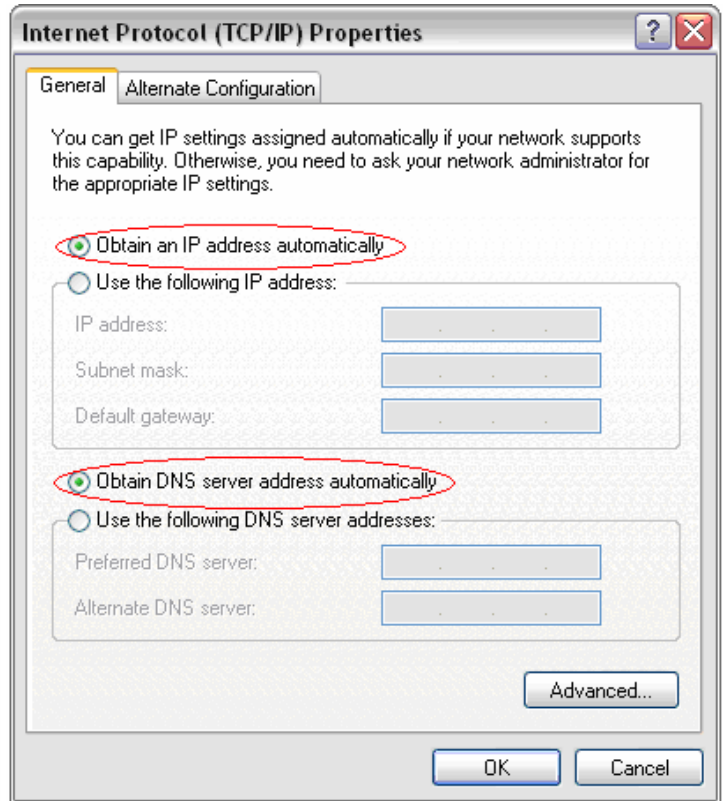
18

- 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>

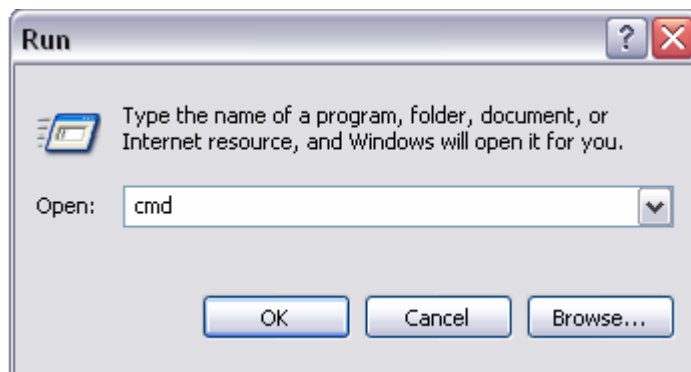


<Select "Obtain an IP address automatically" "Obtain DNS server address automatically" and click OK>

- 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 **MULTI USER CPE**. For automatic assignment, PC and **MULTI USER 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 **MULTI USER CPE** will get each of assigned IP addresses respectively.

## 3.2 Windows 2000 Setup

```
C:\D:\WINNT\System32\cmd.exe

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>

IP Address: 192.168.1.10~60  
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 **MULTI USER 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 WAN port of **MULTI USER 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

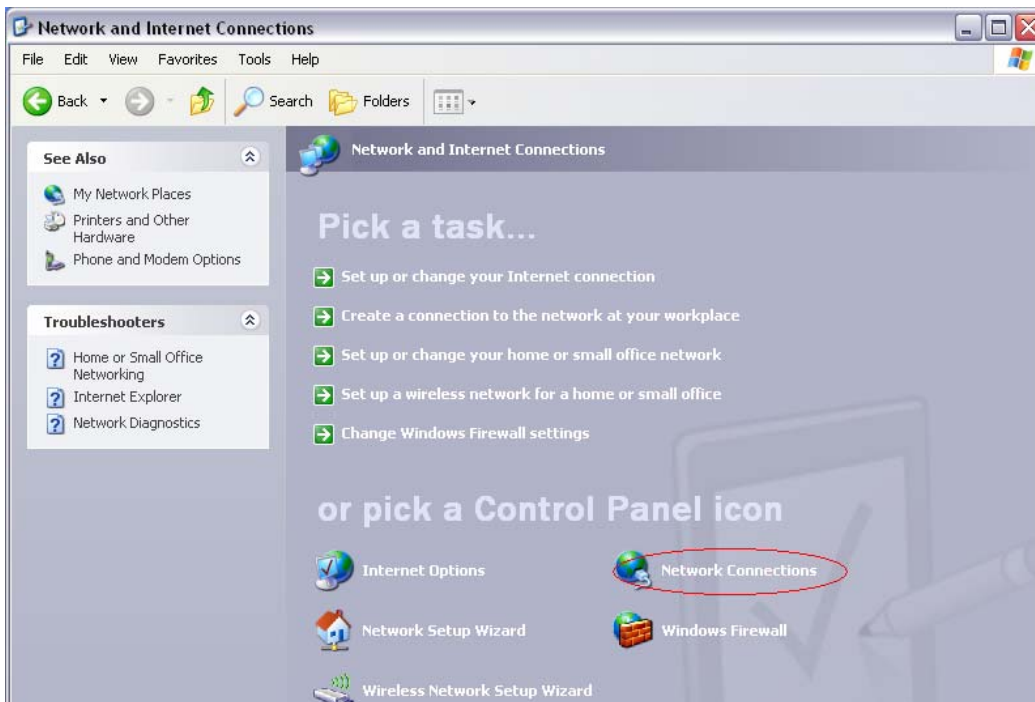
This procedure is to restore Windows XP's TCP/IP setup to default values. If Windows is installed for the first time in PC, there is no change and check all values are normal according to the following.

After completing the TCP/IP setup of PC, to check if IP address is obtained from MULTI USER CPE automatically, connect PC and **MULTI USER CPE** with a LAN cable according to the instructions of Chapter 2 and keep **MULTI USER 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.



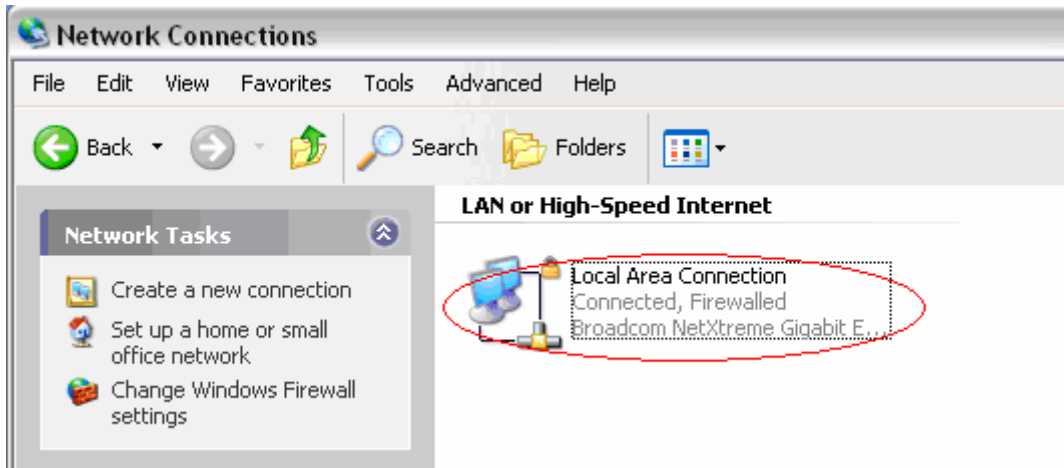
<Double-click the Network and Internet Connections > ...



<Double-click the Network Connection>

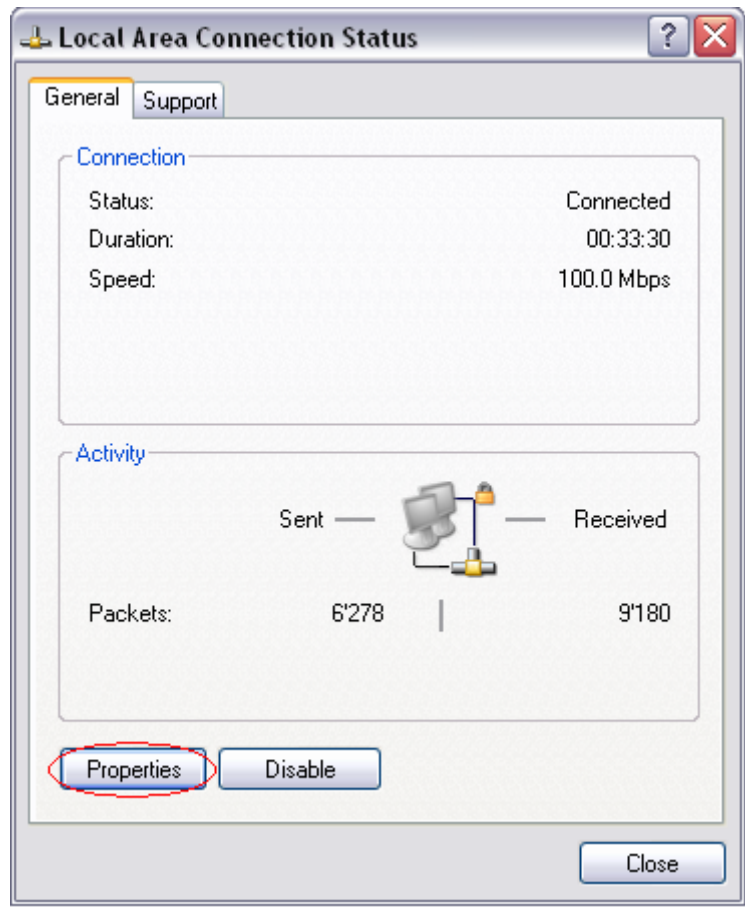
### 3.3 Windows XP Setup

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



<Double-click the Local Area Connection>

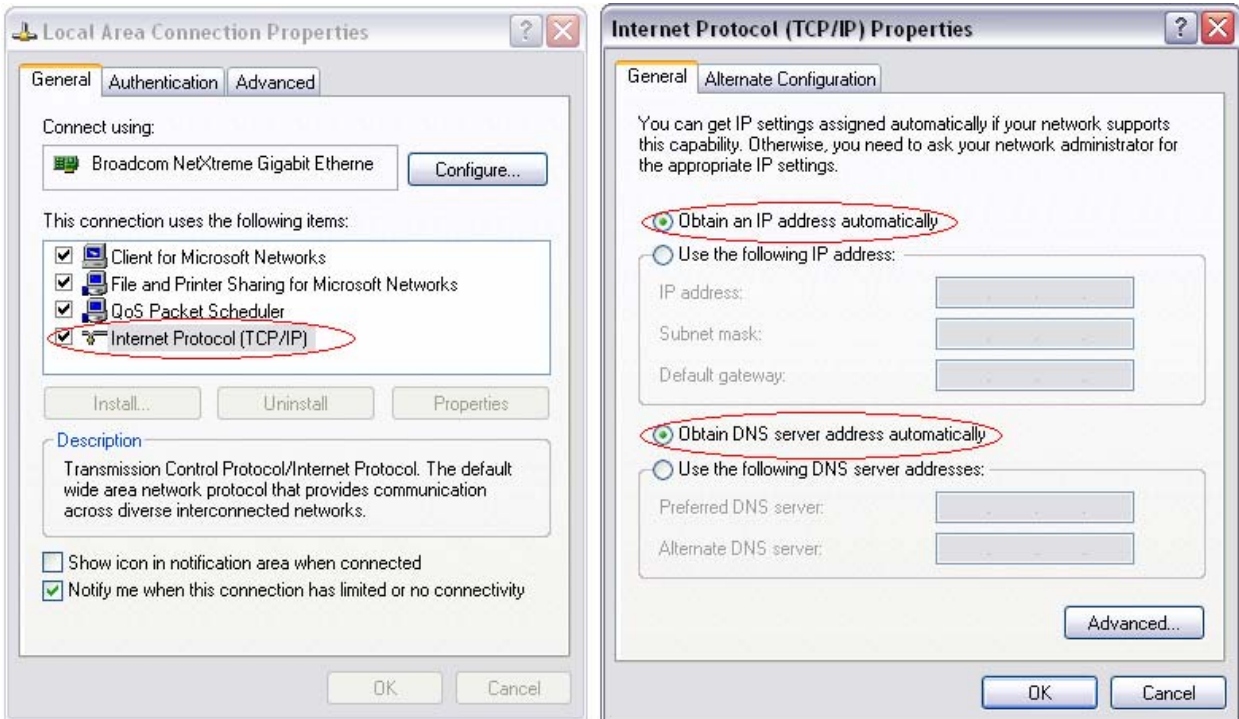
- Click Properties in the Local Area Connection Status to select.



<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 >

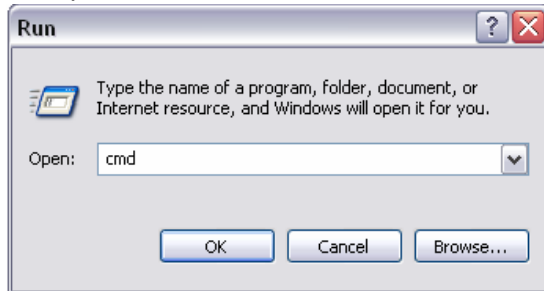
<Select the 'Obtain an IP address automatically', 'Obtain a DNS Server address automatically' and click OK>

- 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 **MULTI USER CPE**. For automatic assignment, PC and **MULTI USER 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

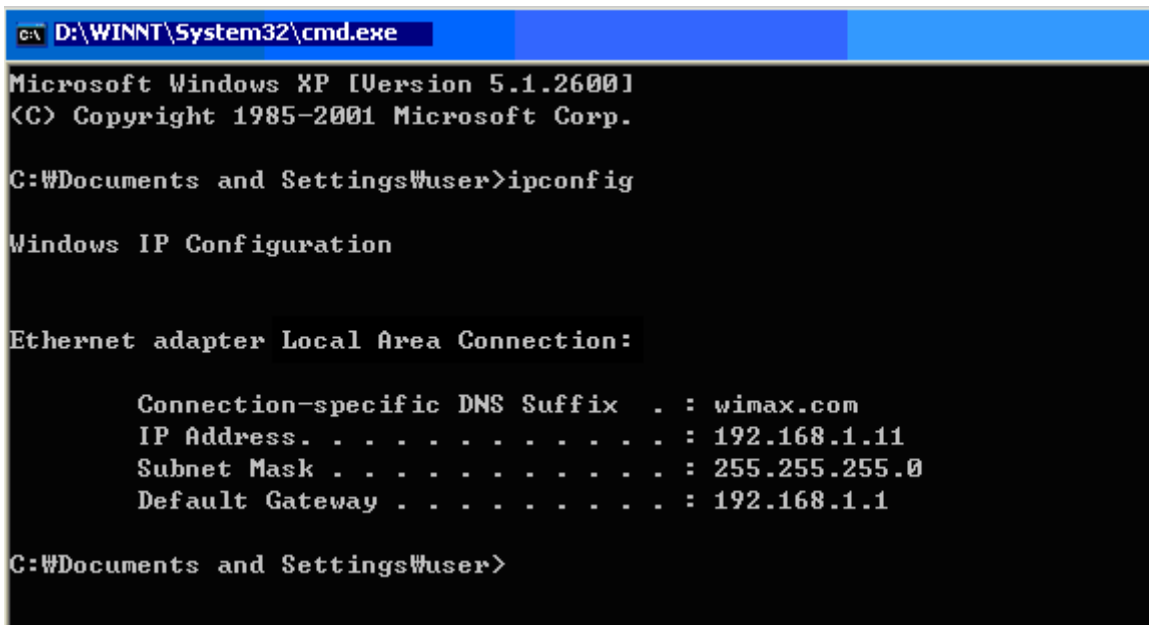
- To run the Command Prompt, click the Start button on the lower left corner of Windows screen and click Run to enter “cmd” in the Open box, and then click OK button.



<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 **MULTI USER CPE** will get each of assigned IP addresses respectively.



<Verify IP address>

IP Address: 192.168.1.10 ~ 60  
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 **MULTI USER CPE**
- Check TCP/IP setup details
- Whether or not to remove ADSL access program (Broadband Connection icon)

### 3.3 Windows XP Setup

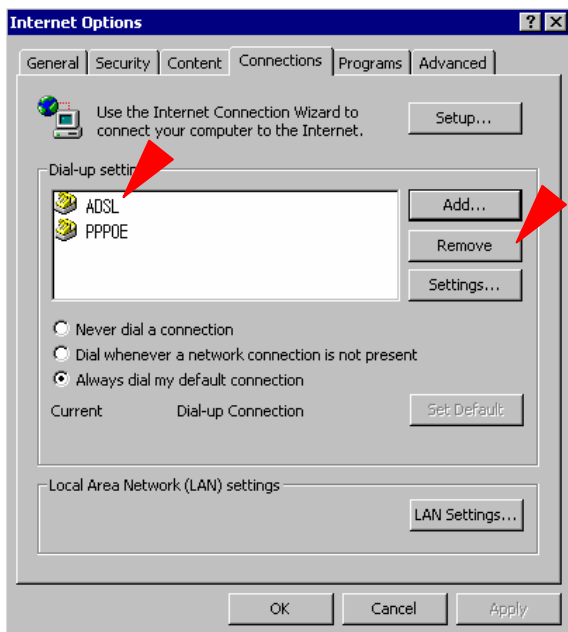
To use Internet after completion of PC setup, refer to Chapter IV and set the WAN port of **MULTI USER CPE** to connect to the Internet. Since Internet connection setup is made by router, you don't need to set up in all PCs but do just once.

[Note] How to remove Internet access program when using ADSL.

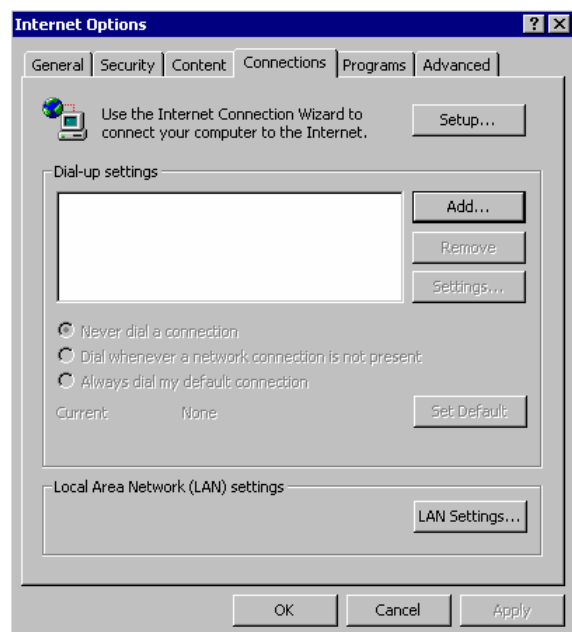
(Windows 98/ME, 2000)

In case of PPPoE connection mode, automatic running of access program while on Internet Explorer can cause no appearance of setup screen. In this case, always delete the connection icon that executes the program automatically.

For users of PPPoE mode ADSL, if the access program is not removed from the Add/Remove Programs or it is hard to find the program, click Tools on Internet Explorer >> Internet Option >> Connection and then "remove" the icon of ADSL and VPN (Virtual Private Network) Connection.



<In case ADSL connection icon exists>

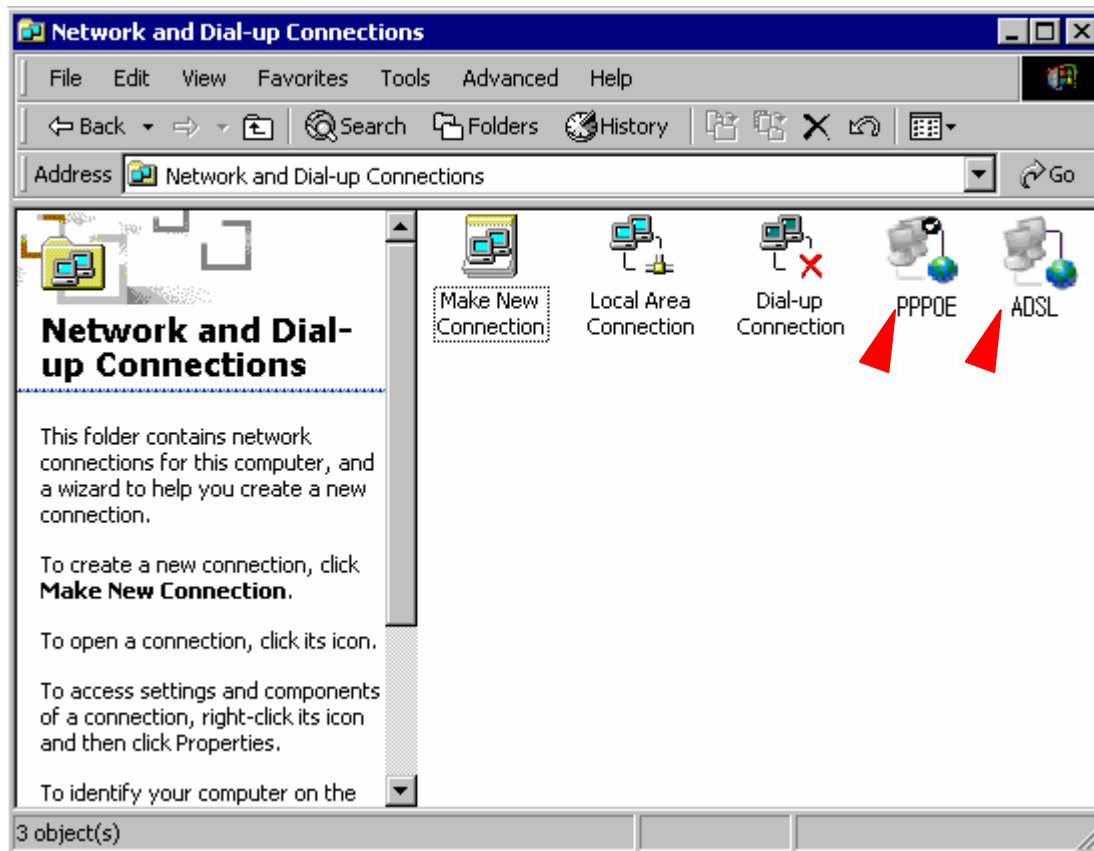


<All telephone line icons are removed>

### 3.3 Windows XP Setup

[Note] How to remove the Windows XP broadband connection when using ADSL.

Double-click the Start on Desktop – Control Panel – Network Connections to pop up. From the Network Connections window, right-click on the icon added in Broadband to “delete”. If not deleted, right-click on “Disconnect” and “delete” the icon.



<PPPoE connection icon in Broadband>

## 4. Multi User CPE Internet Connection with Internet Setup Wizard

This chapter describes how to connect **MULTI USER 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 **MULTI USER CPE** by executing just once.

To access to the web server built in the **MULTI USER 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 **MULTI USER CPE**.

The Chapter IV describes how to proceed Internet setup by using this web server.


When completing the setting of PC and **MULTI USER CPE** according to the instructions from Chapter II to Chapter IV, you can use Internet from the PC connected to **MULTI USER 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 Multi User CPE Built-in Web Server

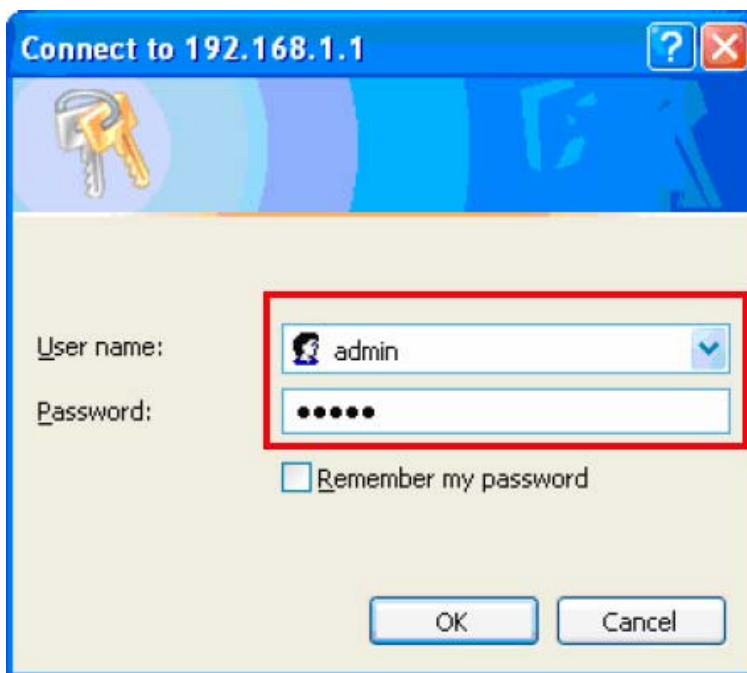
You can access to the web server built in the MULTI USER CPE, even in the environment not connected to Internet.

To access to the web server, run  Internet Explorer and input 192.168.1.1, the address of **MULTI USER CPE**, in the address box as shown below.

Address

[Note] If PC is connected to the MULTI USER 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 MULTI USER CPE web server. This function may not operate in specific environment.

Accessing to the...MULTI USER CPE, the following Login screen will be displayed.



Connect to 192.168.1.1

User name:

Password:

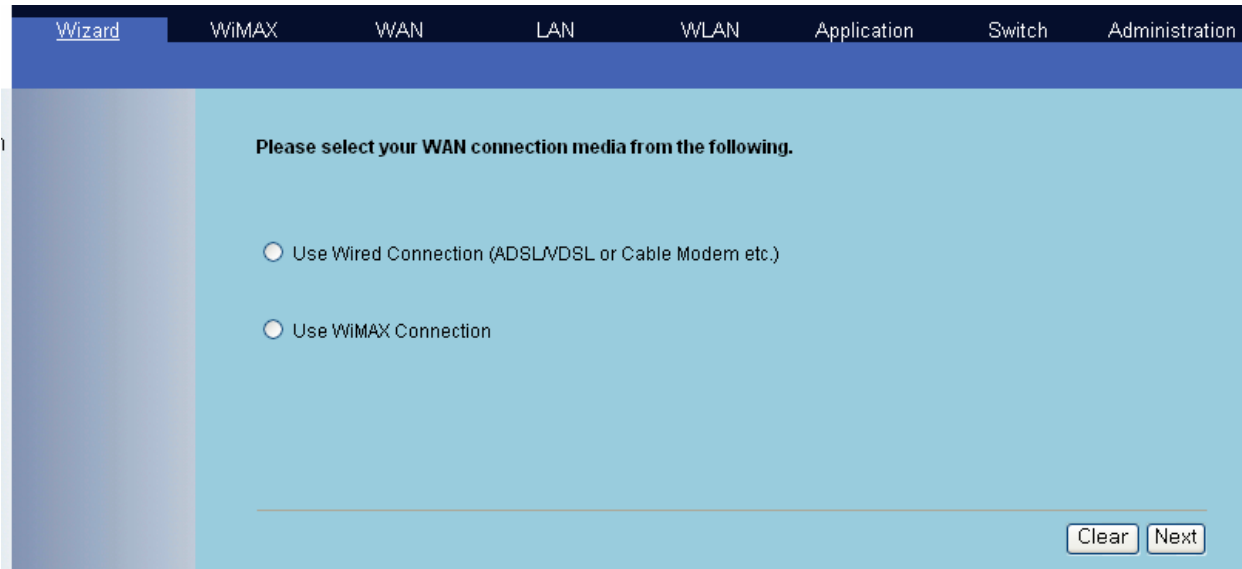
Remember my password

OK Cancel

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

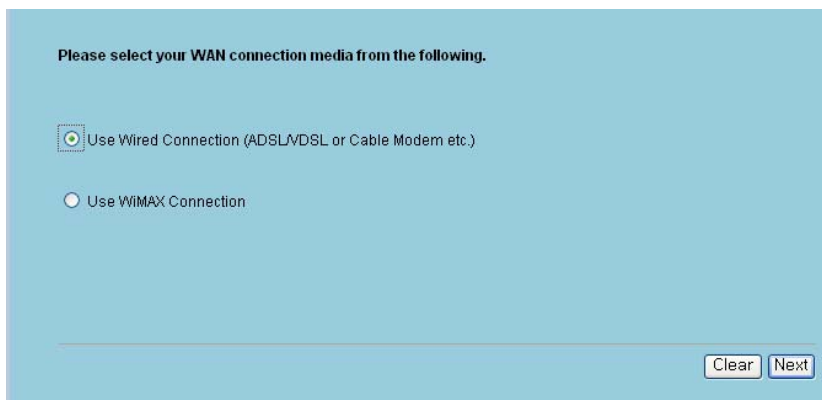
## 4.2 Running Multi User CPE Internet Setup Wizard

If you click Wizard LINK at the top left from the initial screen of MULTI USER CPE, the following screen appears.



The above screen provides the window to select Internet line. Two types of Internet connection are available depending on your selection.

- 1) Use Wired Connection (ADSL/VDSL or Cable Modem etc.): Wired Connection Mode  
Check the appropriate circle, and it allows wired setting in sequence as shown below.  
Press the Next button to start Wired Connection Mode Setting.



## 4.2 Running Multi User CPE Internet Setup Wizard

The following screen describes how to get the IP address.  
Do appropriate setup for ISP of three Modes.

- Check the following circle, to obtain an IP address automatically. Press Next.

Please select how to obtain your IP address from the following.

Obtain an IP Address Automatically.

Specify a static IP Address.  
IP Address: 10.31.1.208  
Subnet Mask: 255.255.255.0  
Default Gateway: 10.31.1.1  
DNS: 168.126.63.1

Use PPPoE.  
Username: soho.router@wimax.com  
Password: ●●●●

Clear Next

- Select the following to use the static IP.

Please select how to obtain your IP address from the following.

Obtain an IP Address Automatically.

Specify a static IP Address.  
IP Address: 10.31.1.208  
Subnet Mask: 255.255.255.0  
Default Gateway: 10.31.1.1  
DNS: 168.126.63.1

Use PPPoE.  
Username: soho.router@wimax.com  
Password: ●●●●

Clear Next

- The following is used when using ADSL Modem and ID/Password are issued.

Please select how to obtain your IP address from the following.

Obtain an IP Address Automatically.

Specify a static IP Address.  
IP Address: 10.31.1.208  
Subnet Mask: 255.255.255.0  
Default Gateway: 10.31.1.1  
DNS: 168.126.63.1

Use PPPoE.  
Username: soho.router@wimax.com  
Password: ●●●●

Clear Next

## 4.2 Running Multi User CPE Internet Setup Wizard

– The following screen is to set up internal network managed by MULTI USER CPE. If there isn't any particular problem, you can set up and use it as default. You can change its setup and use it when linking to and using external router and other settings are required. Press Next to proceed.

**Please specify LAN information as you wish.**

Gateway IP:

Subnet Mask:

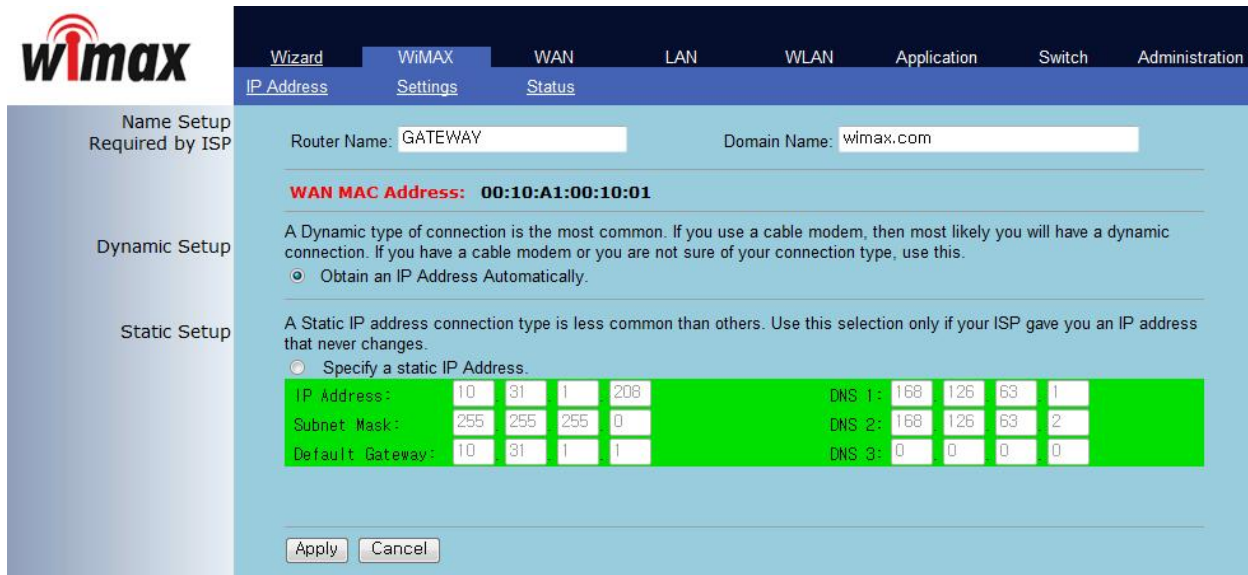
DHCP Server:  Enable  Disable

---



## 5. Multi User CPE WiMAX Connection and Setup

### 5.1 IP Address Setup



The screenshot shows the WiMAX IP Address Setup Wizard. The interface includes a sidebar with navigation options: Name Setup (Required by ISP), Dynamic Setup, and Static Setup. The main content area is titled 'IP Address' and contains the following fields and options:

- Router Name: GATEWAY
- Domain Name: wimax.com
- WAN MAC Address: 00:10:A1:00:10:01
- Dynamic Setup:  Obtain an IP Address Automatically.
- Static Setup:  Specify a static IP Address.

IP Address:	10	31	1	208		DNS 1:	168	126	63	1	
Subnet Mask:	255	255	255	0		DNS 2:	168	126	63	2	
Default Gateway:	10	31	1	1		DNS 3:	0	0	0	0	

Buttons: 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 MULTI USER CPE but also set the IP address to DHCP(Dynamic IP) or Static IP address.

## 5.2 WiMAX Modem Setup

**wimax**

Wizard WiMAX WAN LAN WLAN Application Switch Administration

IP Address Settings Status

**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-TTLS-MSCHAPV2

Identity : wimax@wimax.com

Password : ●●●●●●

Anonymous Identity : eap\_ttls@wimax.com

Server Certificate:  **Browse**

**DM Command Setup**

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

Initial DM Command:

```
d ver
wb_ru
sf
```

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 MULTI USER 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.

## 5.3 WiMAX Modem Status Information.

The screenshot shows a web interface for a WiMAX modem. The top navigation bar includes links for Wizard, WiMAX (selected), WAN, LAN, WLAN, Application, Switch, and Administration. Below this, there are sub-links for IP Address, Settings, and Status. The main content area is divided into three sections: Names Required by ISPs, Firmware Version, and WiMAX Information. The WiMAX Information section displays the following details:

Names Required by ISPs	Router Name: GATEWAY Domain Name: wimax.com
Firmware Version	1.0.2-E0
WiMAX Information	<b>Current Status:</b> Base Station ID: RSSI: CINR: Connection Type: DHCP MAC Address: 00:0A:3B:F1:06:8B Internet IP Address: Broadcast Address: Subnet Mask: Default Gateway: 192.168.1.1 MTU: 2048 DNS1: 168.126.63.1 DNS2: 168.126.63.2 DNS3:

This screen displays various kinds of information of WiMAX modem.

## 6. Multi User CPE WAN Connection and Setup

### 6.1 IP Address Setup

The screenshot shows the 'wimax' router configuration interface. The 'WAN' tab is selected, and the 'IP Address' sub-tab is active. The interface is divided into four main sections: Name Setup, Dynamic Setup, Static Setup, and PPPoE Setup.

**Name Setup:** Router Name: GATEWAY, Domain Name: wimax.com

**Dynamic Setup:** A Dynamic type of connection is the most common. If you use a cable modem, then most likely you will have a dynamic connection. If you have a cable modem or you are not sure of your connection type, use this.  
 Obtain an IP Address Automatically.

**Static Setup:** A Static IP address connection type is less common than others. Use this selection only if your ISP gave you an IP address that never changes.  
 Specify a static IP Address.

IP Address:	10	31	1	208	DNS 1:	168	126	63	1
Subnet Mask:	255	255	255	0	DNS 2:	168	126	63	2
Default Gateway:	10	31	1	1	DNS 3:	0	0	0	0

**PPPoE Setup:** If you use a DSL modem and/or your ISP gave you a User Name and Password, then your connection type is PPPoE. Use this connection type.  
 Use PPPoE.  
Use User Name: soho.router@wimax.com Password: ●●●●

Buttons: Apply, Cancel

This screen is to set the mode assigning the IP address of wired WAN connection. You can not only assign the host name and domain name of MULTI USER CPE but also set the DHCP/Static address or IP address for PPPoE mode.

## 6.2 MAC Address Setup

**wimax**

Wizard WIMAX **WAN** LAN WLAN Application Switch Administration

IP Address **MAC Address** Status

MAC Address Setup

Some ISPs require that you clone (copy) the MAC address of your computer's network card into the Router. If you are not sure then simply clone the MAC address of the computer that was originally connected to the modem before installing the Router. Cloning your MAC address will not cause any problems with your network.

WAN MAC Station Address: 00 : 10 : A1 : 00 : 10 : 01

Apply Cancel

This screen is to change the MAC address used for WAN access. If access setup is allowed only for the PC having specific MAC address depending on ISP, it is used to change to the appropriate MAC address.

## 6.3 WAN Status Information



The screenshot displays the WAN Status Information page of a wimax router. The interface includes a top navigation bar with tabs for Wizard, WiMAX, WAN (selected), LAN, WLAN, Application, Switch, and Administration. Below the navigation bar, there are sub-tabs for IP Address, MAC Address, and Status. The main content area is divided into three sections: Names Required by ISPs, Firmware Version, and WAN Information. The WAN Information section provides detailed configuration and status data for the WAN connection.

Section	Value
Names Required by ISPs	Router Name: GATEWAY Domain Name: wimax.com
Firmware Version	1.0.2-E0
WAN Information	Connection Type: DHCP MAC Address: 00:10:A1:00:10:01 Internet IP Address: 192.168.1.102 Broadcast Address: 192.168.1.255 Subnet Mask: 255.255.255.0 Default Gateway: 192.168.1.1 MTU: 1500 DNS1: 168.126.63.1 DNS2: 168.126.63.2 DNS3:

The screen shows all sorts of status information on WAN access.

## 7. Multi User CPE LAN Setup

### 7.1 DHCP Server Setup

The screenshot shows the DHCP Server Setup page in a WiMAX router's web interface. The page is titled "7.1 DHCP Server Setup" and features a sidebar with navigation options: LAN Setup, LAN Gateway Setup, and DHCP Server Setup. The main content area is light blue and contains the following information:

- Gateway MAC Address:** 00:10:A1:00:10:02
- Gateway IP:** IP Address: 192.168.1.1, Subnet Mask: 255.255.255.0
- DHCP Server:**  Enable  Disable
- Maximum Lease Time:** 604800 seconds
- DNS 1:** 168.126.63.1
- DNS 2:** 168.126.63.2
- IP Starting Address:** 192.168.1.10, **Number of users:** 50
- WINS server:** 0.0.0.0

At the bottom of the page, there are "Apply" and "Cancel" buttons.

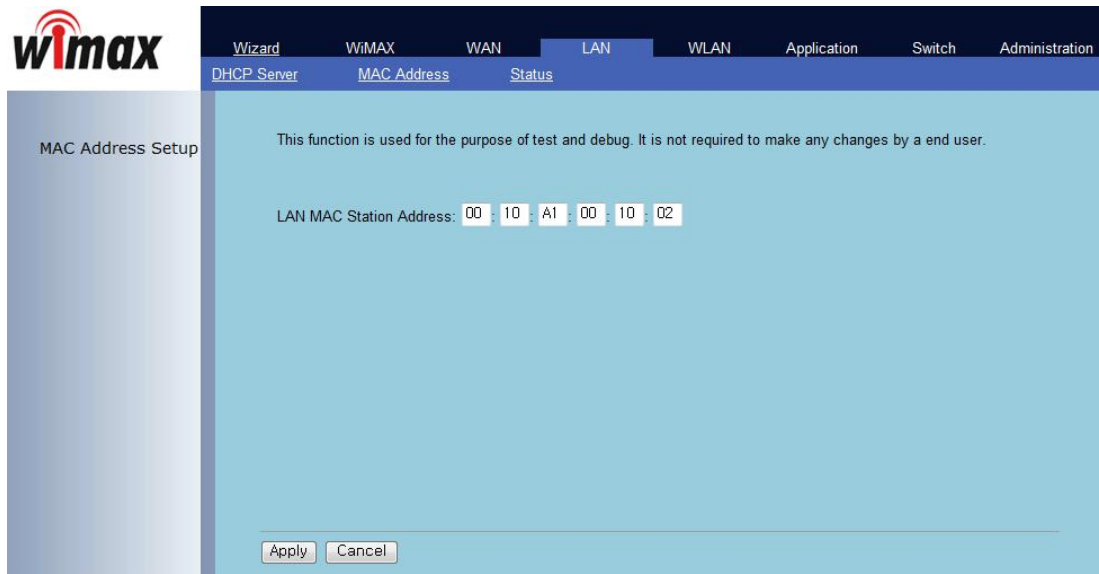
This screen is to perform all kinds of setup related internal LAN.

First of all, you can assign the IP address of gateway and subnet mask to be used in the LAN that MULTI USER 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 MULTI USER CPE, and additionally set up the expiration date of IP address, DNS Server address, the range of IP address, and IP address of WINS Server.

## 7.2 MAC Address Setup



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

The screenshot displays the wimax web interface. The top navigation bar includes links for Wizard, WiMAX, WAN, LAN (selected), WLAN, Application, Switch, and Administration. Below this, there are sub-links for DHCP Server, MAC Address, and Status. The main content area is divided into two sections: 'Local Network' and 'DHCP'. The 'Local Network' section shows the following information:

- Local MAC Address: 00:10:A1:00:10:02
- Router IP Address: 192.168.1.1
- Subnet Mask: 255.255.255.0

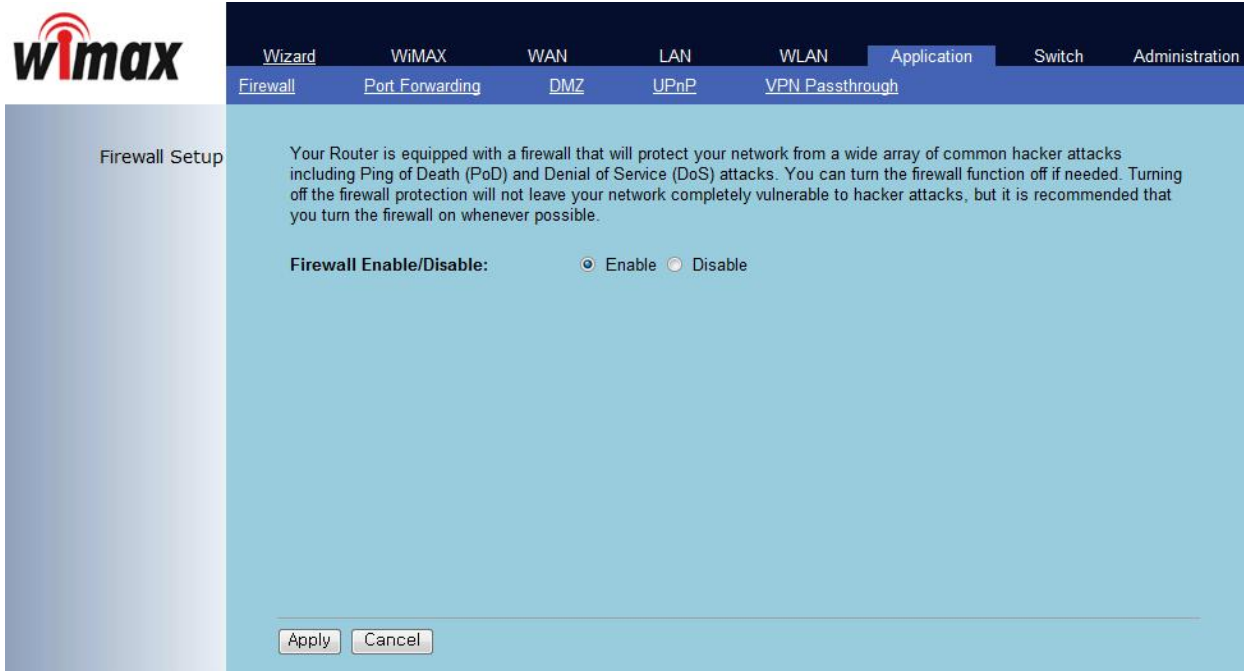
The 'DHCP' section shows the following information:

- DHCP Server: Enabled
- Start IP Address: 192.168.1.10
- End IP Address: 192.168.1.60

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

## 8. Application Support Setup

### 8.1 Firewall Setup



This screen is to set whether or not to use firewall. Using firewall enables to set MULTI USER 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. Application Support Setup

### 8.2 Firewall regulation Setup(Filter)

The screenshot shows the Wimax Firewall Filter Setup configuration page. The page is titled "Filter Setup" and includes a navigation menu with options like Wizard, WIMAX, WAN, LAN, WLAN, Application, Switch, and Administration. The "Application" tab is selected, and the "Filter" sub-tab is active. The page contains a "Filter Setup" section with a description: "This function will allow you to block Internet traffic by MAC address or IP address/port." Below this, there are three main sections: "MAC Address", "Source", and "Destination".

**MAC Address**

<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>

**Source**

IP Address	Network Mask	Protocol	Port Number (0-65535)
<input type="text"/>	<input type="text"/>	TCP	<input type="text"/> ~ <input type="text"/>
<input type="text"/>	<input type="text"/>	TCP	<input type="text"/> ~ <input type="text"/>
<input type="text"/>	<input type="text"/>	TCP	<input type="text"/> ~ <input type="text"/>
<input type="text"/>	<input type="text"/>	TCP	<input type="text"/> ~ <input type="text"/>
<input type="text"/>	<input type="text"/>	TCP	<input type="text"/> ~ <input type="text"/>
<input type="text"/>	<input type="text"/>	TCP	<input type="text"/> ~ <input type="text"/>
<input type="text"/>	<input type="text"/>	TCP	<input type="text"/> ~ <input type="text"/>
<input type="text"/>	<input type="text"/>	TCP	<input type="text"/> ~ <input type="text"/>
<input type="text"/>	<input type="text"/>	TCP	<input type="text"/> ~ <input type="text"/>
<input type="text"/>	<input type="text"/>	TCP	<input type="text"/> ~ <input type="text"/>

**Destination**

IP Address	Network Mask	Protocol	Port Number (0-65535)
<input type="text"/>	<input type="text"/>	TCP	<input type="text"/> ~ <input type="text"/>
<input type="text"/>	<input type="text"/>	TCP	<input type="text"/> ~ <input type="text"/>
<input type="text"/>	<input type="text"/>	TCP	<input type="text"/> ~ <input type="text"/>
<input type="text"/>	<input type="text"/>	TCP	<input type="text"/> ~ <input type="text"/>
<input type="text"/>	<input type="text"/>	TCP	<input type="text"/> ~ <input type="text"/>
<input type="text"/>	<input type="text"/>	TCP	<input type="text"/> ~ <input type="text"/>
<input type="text"/>	<input type="text"/>	TCP	<input type="text"/> ~ <input type="text"/>
<input type="text"/>	<input type="text"/>	TCP	<input type="text"/> ~ <input type="text"/>
<input type="text"/>	<input type="text"/>	TCP	<input type="text"/> ~ <input type="text"/>
<input type="text"/>	<input type="text"/>	TCP	<input type="text"/> ~ <input type="text"/>

Apply Cancel

This Screen is to set whether or not to permission/block for specification site. The block setting up has three ways – by MAC address by IP address of the starting point, by IP address of destination.

## 8.3 Port Forwarding

Virtual Server Setup

This function will allow you to route Internet traffic for services such as a web server, FTP server or other applications through your Router to your internal private network.

Virtual Servers:  Enable  Disable

Service Port Range (0-65535)	Protocol	LAN IP Address
~	TCP	
~	TCP	
~	TCP	
~	TCP	
~	TCP	
~	TCP	
~	TCP	
~	TCP	
~	TCP	
~	TCP	

Apply Cancel

Port Forwarding function is used to set incoming connections on specific TCP/IP port from outside to being connected to the assigned PC. If you have to use programs, such as VoIP and P2P, or operate servers, such as HTTP and FTP, in a PC on internal LAN, connections from outside may be allowed when assigning IP address of the PC connected to the appropriate port area.

## 8. Application Support Setup

### 8.4 Port Trigger

**wimax**

Wizard    WiMAX    WAN    LAN    WLAN    **Application**    Switch    Administration

Firewall    Filter    Port Forwarding    **Port Trigger**    DMZ    UPnP    VPN Passthrough    QoS    DDNS

Port Trigger

This screen instructs the Router to watch outgoing data for specific port numbers. The IP address of the computer that sends the matching data is remembered by the Router, so that when the requested data returns through the Router, the data is sent to the proper computer by way of IP address and port mapping rules.

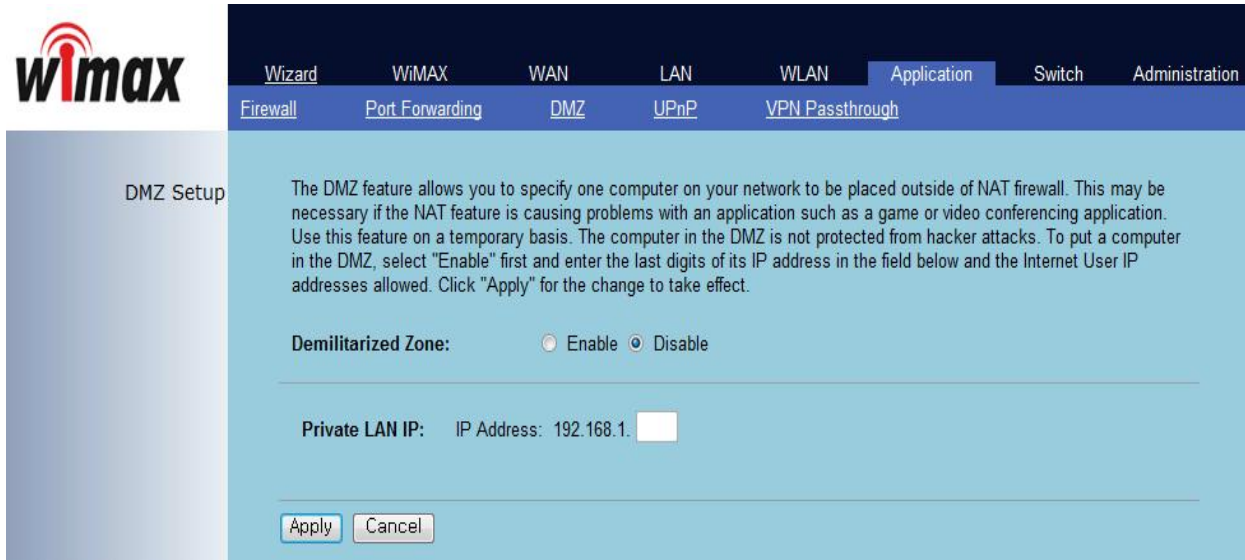
Port Trigger:     Enable     Disable

Application Name	Trigger Port Range	Forward Port Range

Apply    Cancel

Port Trigger function is perceived TCP/UDP port number that is used in Application using Internet and automatically forward to the PC using currntly from port needed relevant application.

## 8.5 DMZ Setup



The screenshot shows the WiMAX web interface for DMZ Setup. The top navigation bar includes links for Wizard, WiMAX, WAN, LAN, WLAN, Application (selected), Switch, and Administration. Below this, a sub-menu shows Firewall, Port Forwarding, DMZ (selected), UPnP, and VPN Passthrough. The main content area is titled "DMZ Setup" and contains the following text: "The DMZ feature allows you to specify one computer on your network to be placed outside of 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. The computer in the DMZ is not protected from hacker attacks. To put a computer in the DMZ, select "Enable" first and enter the last digits of its IP address in the field below and the Internet User IP addresses allowed. Click "Apply" for the change to take effect."

Demilitarized Zone:  Enable  Disable

Private LAN IP: IP Address: 192.168.1.

Apply Cancel

DMZ setup is used to place specific PC outside the firewall that is managed by MULTI USER CPE in order to be connected to the outside. Such PC specified in the DMZ may give and take packets freely from the outside internet irrespective of firewall setup, but special attention to PC protect should be paid because it is not protected by MULTI USER CPE's basic firewall and protective features.

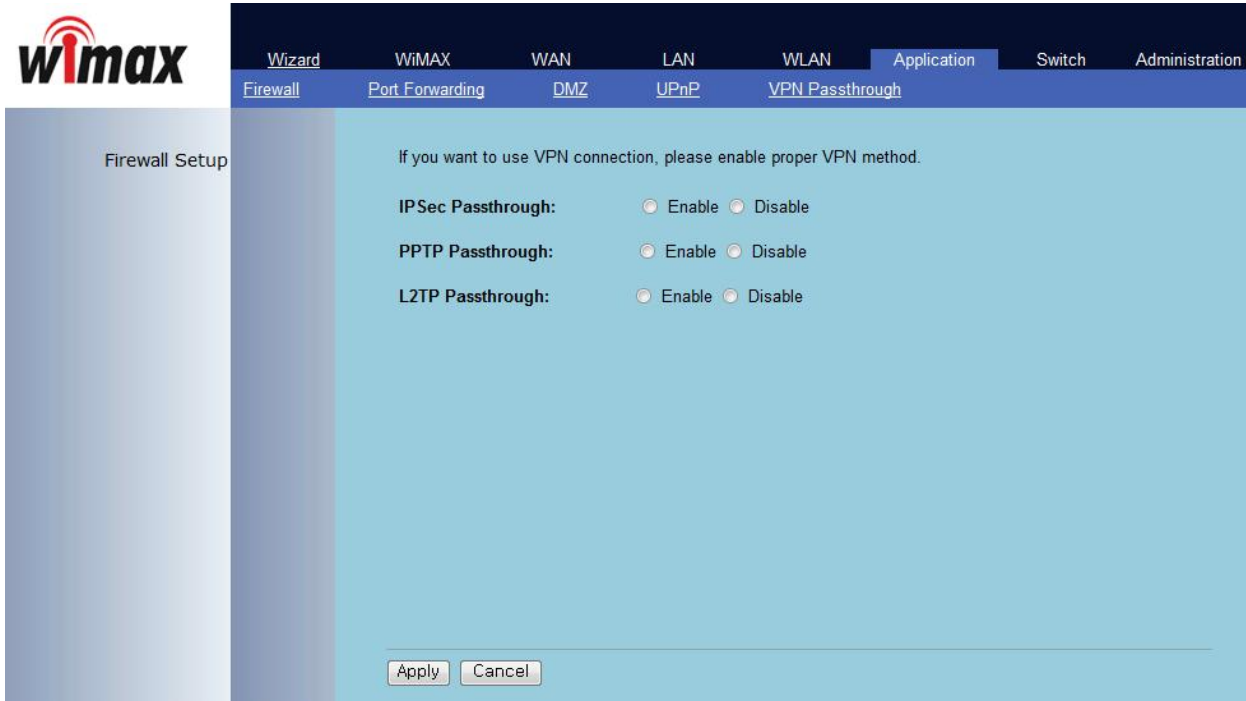
## 8.6 UPnP Setup

The screenshot displays the 'UPnP Setup' configuration page on a WiMAX router. The page features a navigation bar with tabs for 'Wizard', 'WiMAX', 'WAN', 'LAN', 'WLAN', 'Application', 'Switch', and 'Administration'. Under the 'Application' tab, there are sub-tabs for 'Firewall', 'Port Forwarding', 'DMZ', 'UPnP', and 'VPN Passthrough'. The 'UPnP' sub-tab is active, showing a configuration area with the following elements:

- A descriptive text: "This function allows you to enable or disable Universal Plug-n-Play configuration for your router."
- An unchecked checkbox labeled "Enable UPNP".
- An "Advertise Period" field with a text input containing the value "1800".
- A "UPNP Port" field with a text input containing the value "5431".
- "Apply" and "Cancel" buttons at the bottom of the configuration area.

Universal PnP is used to allow setting dynamic network connection and whether or not to use ports in the PC supporting UPnP on internal LAN. When UPnP is activated, MULTI USER CPE is searched through Residential Gateway in the network environment of PC that supports UPnP and you can see the current UPnP related information on your PC. If there is any application or network device that supports automatic configuration by UPnP, communication with the appropriate device and its configuration will be done automatically.

## 8.7 VPN Passthrough Setup



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 MULTI USER CPE, this screen shows to activate security protocol supported by the appropriate VPN Server. Supportable protocols include IPSec, PPTP, and L2TP.



# 8.8 QoS Setup

**wimax**

Wizard WIMAX WAN LAN WLAN Application Switch Administration

Firewall Filter Port Forwarding Port Trigger DMZ UPnP VPN Passthrough QoS DDNS

**QoS Setup**

QoS allows control of the bandwidth allocation to different services, netmasks, ports. QoS is divided into four bandwidth classes called High, Medium, Normal, and Low. Unclassified services will use the Normal bandwidth class.

**Quality of Service:**  Enable  Disable

Upload Speed:  kbit      Download Speed:  kbit

Source	IP Address	Network Mask	Protocol	Port Number	Priority
	<input type="text"/>	<input type="text"/>	TCP	<input type="text"/>	High
	<input type="text"/>	<input type="text"/>	TCP	<input type="text"/>	High
	<input type="text"/>	<input type="text"/>	TCP	<input type="text"/>	High
	<input type="text"/>	<input type="text"/>	TCP	<input type="text"/>	High
	<input type="text"/>	<input type="text"/>	TCP	<input type="text"/>	High
	<input type="text"/>	<input type="text"/>	TCP	<input type="text"/>	High
	<input type="text"/>	<input type="text"/>	TCP	<input type="text"/>	High
	<input type="text"/>	<input type="text"/>	TCP	<input type="text"/>	High
	<input type="text"/>	<input type="text"/>	TCP	<input type="text"/>	High
	<input type="text"/>	<input type="text"/>	TCP	<input type="text"/>	High

Destination	IP Address	Network Mask	Protocol	Port Number	Priority
	<input type="text"/>	<input type="text"/>	TCP	<input type="text"/>	High
	<input type="text"/>	<input type="text"/>	TCP	<input type="text"/>	High
	<input type="text"/>	<input type="text"/>	TCP	<input type="text"/>	High
	<input type="text"/>	<input type="text"/>	TCP	<input type="text"/>	High
	<input type="text"/>	<input type="text"/>	TCP	<input type="text"/>	High
	<input type="text"/>	<input type="text"/>	TCP	<input type="text"/>	High
	<input type="text"/>	<input type="text"/>	TCP	<input type="text"/>	High
	<input type="text"/>	<input type="text"/>	TCP	<input type="text"/>	High
	<input type="text"/>	<input type="text"/>	TCP	<input type="text"/>	High
	<input type="text"/>	<input type="text"/>	TCP	<input type="text"/>	High

Apply Cancel

PC internet speed connected with R100 can be restricted or guaranteed the bandwidth as much as you want in case of using QoS

## 8.9 DDNS Setup

The Router offers a Dynamic Domain Name System (DDNS) feature. DDNS lets you assign a fixed host and domain name to a dynamic Internet IP address. It is useful when you are hosting your own website, FTP server, or other server behind the Router. Before you can use this feature, you need to sign up for DDNS service at DDNS service providers.

DDNS Service:  Enable  Disable

Provider : DynDNS.com

Username :

Password :

Hostname :

Apply Cancel

It can be used as fixed IP address by assigning domain name on automatically assigned Internet Protocol address.

## 9. Switch Setup

### 9.1 Switch Basic Setup

Switch Setup

Enables switch to support VLAN, priority, broadcast storm and protection etc.

**Port VLAN**

Port	PVID	VLAN Name	Egress Mode
1	0		Untagged ▼
2	0		Untagged ▼
3	0		Untagged ▼
4	0		Untagged ▼

**Port Priority & Broadcast Storm protection**

Port	Ingress high	Ingress DSCP	Ingress 802.1p	Egress Priority	Ingress Tag Removal	Broadcast Storm Protection
1	Disable ▼	Disable ▼	Disable ▼	Normal ▼	Disable ▼	Disable ▼
2	Disable ▼	Disable ▼	Disable ▼	Normal ▼	Disable ▼	Disable ▼
3	Disable ▼	Disable ▼	Disable ▼	Normal ▼	Disable ▼	Disable ▼
4	Disable ▼	Disable ▼	Disable ▼	Normal ▼	Disable ▼	Disable ▼

Apply Cancel

This screen is to set up Switch Hardware that is used for MULTI USER CPE. You can set up VLAN at the top of the screen. VLAN setup is used when operating 4 internal LAN ports of MULTI USER CPE in a group and separately. Values between 1 and 4096 can be assigned for VLAN and each VLAN may get meaningful name. VLAN supports the tagged/untagged mode. Items at the bottom set up the priority of each port management and whether or not to protect against Broadcast Storm hacking.

## 9.2 Switch Advanced Setup



Switch Advance Setup

Advance settings for switch.

**Port Configuration:**

Port	Link Selection	Link Enforcement
1	Auto Negotiation	Auto
2	Auto Negotiation	Auto
3	Auto Negotiation	Auto
4	Auto Negotiation	Auto

Enable fair mode.

**Port Mirroring:**

Sniffer Port	Source Port(Tx)	Source Port(Rx)	Mode(Tx with Rx)
0	1	1	AND'd

Enable maximum length check (1518 - 1522 bytes).  
 Disable automatic fast aging.  
 Disable IGMP snooping.

**Broadcast Storm Protection threshold:** 232 bytes  
 Number of broadcast bytes in power of 3 allowed before broadcast suppression kick in. Count of bytes is measured per 50ms for 100BT and 500ms for 10BT.  
 Disable broadcast storm protection to multicast packets.

**Priority queues high/low ratio:** Always high

**802.1p priority threshold:**  
 Tag with user priority higher than or equal to 4 will be classified to high priority queue.

**DiffServ Code Point (DSCP) priority:**  
 First 6 bits of IPv4 ToS (Type of Service) field is called code point. This make up 64 priorities. The high 32 code points are defaulted to high priority queue.

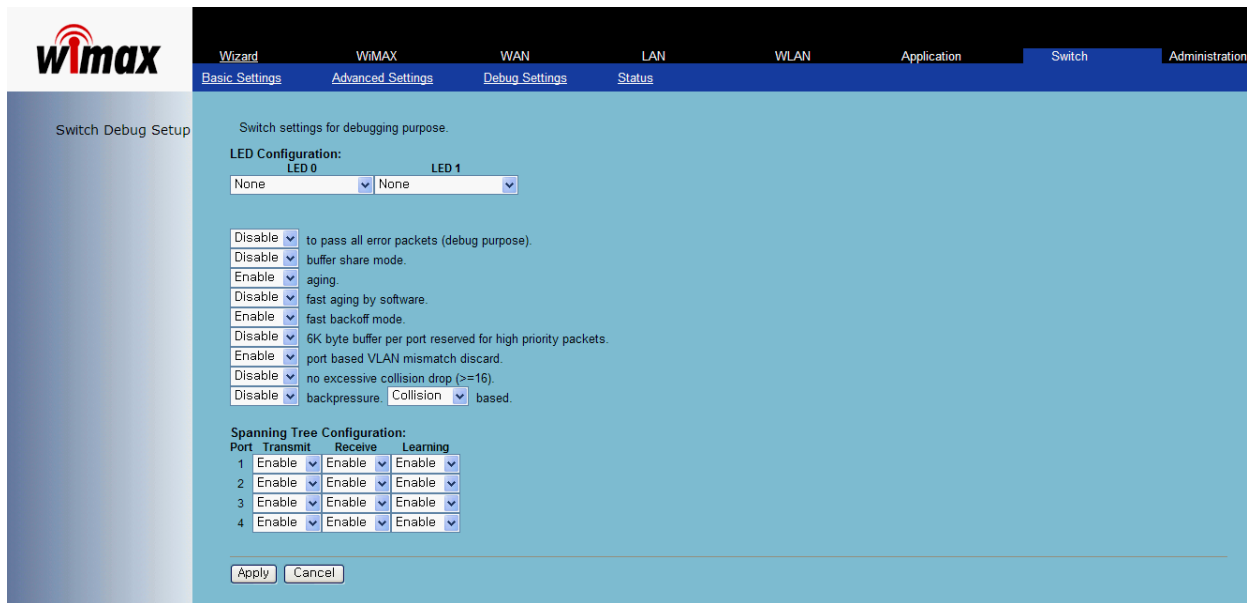
High 32 bits in Hex: 0x 0  
 Low 32 bits in Hex: 0x 0

**Management Counter refresh every:** 10 seconds

Apply Cancel

This screen is used to set up the advanced features of MULTI USER CPE Switch Hardware.

## 9.3 Switch Debug Setup



R100의 디버깅을 위한 설정을 할 수 있습니다.

## 9.4 Switch Status Information



[Wizard](#)   [WIMAX](#)   [WAN](#)   [LAN](#)   [WLAN](#)   [Application](#)   **[Switch](#)**   [Administration](#)

[Basic Settings](#)   [Advanced Settings](#)   **[Status](#)**

MIB Counters

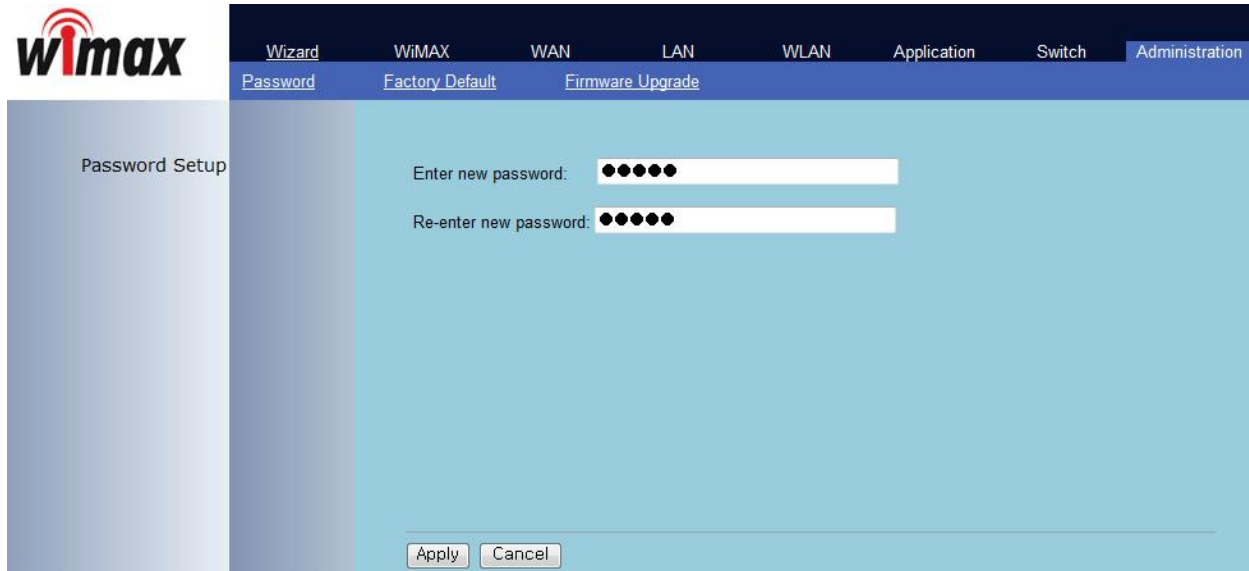
By default, counters are refreshed every 10 seconds.

	LAN Port 1	LAN Port 2	LAN Port 3	LAN Port 4	WAN Port
rxlpbyte	0	0	203582	0	--
rxhpbyte	0	0	0	0	--
rxudsz	0	0	0	0	--
rxfrgm	0	0	0	0	--
rxovsz	0	0	0	0	--
rxjabr	0	0	0	0	--
rxmxer	0	0	0	0	--
rxcrc	0	0	0	0	--
rxalgn	0	0	0	0	--
rxmacf	0	0	0	0	--
rxmacp	0	0	0	0	--
rxbcast	0	0	146	0	--
rxmcast	0	0	0	0	--
rxucast	0	0	1363	0	--
rx64	0	0	1170	0	--
rx65127	0	0	94	0	--
rx128255	0	0	139	0	--
rx256511	0	0	47	0	--
rx5121023	0	0	19	0	--
rx1024max	0	0	40	0	--
txlpbyte	0	0	4008025	0	--
txhpbyte	0	0	0	0	--
txicol	0	0	0	0	--
txmacp	0	0	0	0	--
txbcast	0	0	0	0	--
txmcast	0	0	25507	0	--
txucast	0	0	1866	0	--
txdfr	0	0	0	0	--
txtcol	0	0	0	0	--
txecol	0	0	0	0	--
txscol	0	0	0	0	--
txmcol	0	0	0	0	--
txdrop	0	26327	26327	0	26327
rxdrop	0	0	0	0	0

In this screen, you can see all sorts of statistics information on network transmission by each port of switch.

## 10. Administrator Function Setup

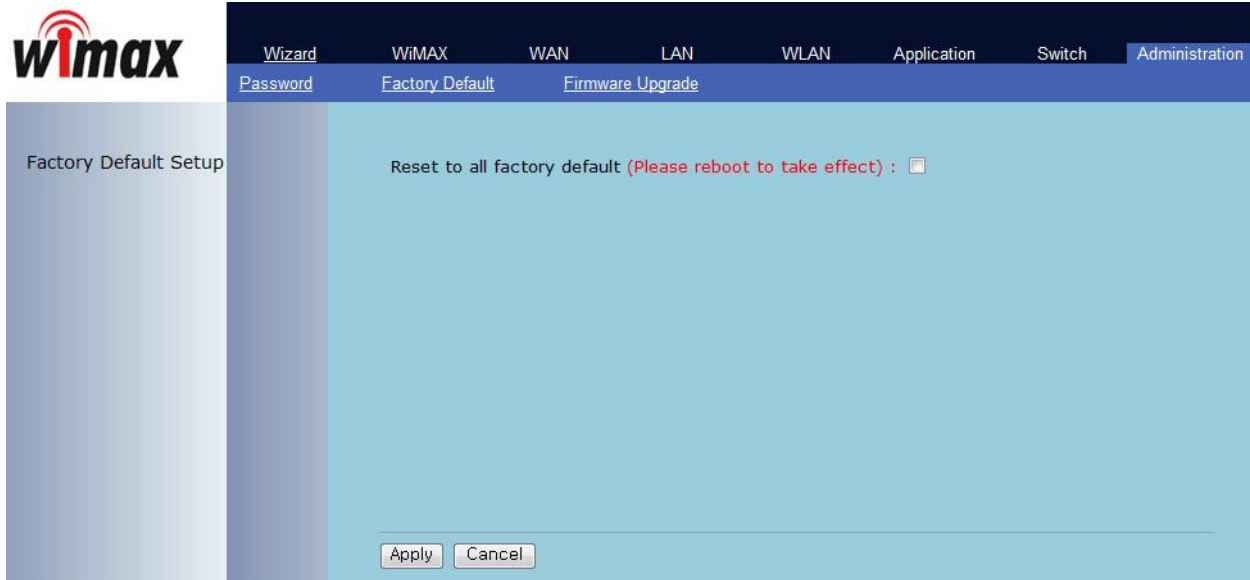
### 10.1 Administrator Password Setup



The screenshot displays the Wimax web interface for Administrator Password Setup. The top navigation bar includes the Wimax logo and a menu with the following items: Wizard, WiMAX, WAN, LAN, WLAN, Application, Switch, and Administration. Below the navigation bar, there are three sub-menus: Password, Factory Default, and Firmware Upgrade. The main content area is titled "Password Setup" and contains two input fields for password entry. The first field is labeled "Enter new password:" and the second is labeled "Re-enter new password:". Both fields contain six black dots to mask the password. At the bottom of the form, there are two buttons: "Apply" and "Cancel".

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

## 10.2 Factory Default Setup



This screen is to reset all setups to Factory Default values. Please reboot for normal operation.



## 10.3 Firmware 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 MULTI USER 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.

## 10.4 System Log

The Router can keep logs of all traffic for your Internet connection.

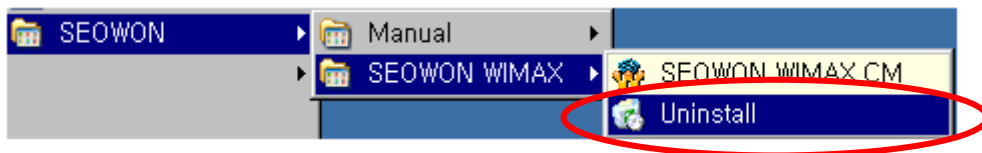
```
Apr 18 12:00:00 (none) syslog.info syslogd started: BusyBox v1.00 (2008.03.29-00:20:0000)
Apr 18 12:00:05 (none) daemon.info dnsmasq[274]: started, version 2.41
cachesize 150
Apr 18 12:00:05 (none) daemon.info dnsmasq[274]: compile time options: no-IPv6
GNU-getopt no-ISC-leasefile no-DBus no-118N TFTP
Apr 18 12:00:05 (none) daemon.info dnsmasq[274]: reading /etc/resolv.conf
Apr 18 12:00:05 (none) daemon.info dnsmasq[274]: using nameserver
192.168.1.1#53
Apr 18 12:00:05 (none) daemon.err dnsmasq[274]: failed to load names
from /etc/hosts: No such file or directory
Apr 18 12:00:06 (none) user.info udhcpd: udhcp server (v0.9.8) started
Apr 18 12:00:07 (none) daemon.crit mhttpd[322]: socket :: - Address family not
supported by protocol
Apr 18 12:00:07 (none) daemon.notice mhttpd[323]: mini_httpd/1.19 19dec2003
starting on GATEWAY, port 80
Apr 18 12:00:11 (none) user.info udhcpd: udhcp server (v0.9.8) started
Apr 18 12:00:12 (none) user.info pcscd: pcscdaemon.c:507:main() pcsc-lite
1.4.4 daemon ready.
Apr 18 12:00:12 (none) daemon.notice wcd[439]: wibro_fsm wb_state change
[WB_STATE_NULL]->[WB_STATE_NULL]
Apr 18 12:00:12 (none) daemon.info init: >Starting pid 444,
console /dev/ttyAMD: /etc/goupnpx:
Apr 18 12:00:13 (none) daemon.info init: >Starting pid 450,
console /dev/ttyAMD: /bin/sh:
Apr 18 12:00:17 (none) user.info pcscd: hotplus_libusb.c:478:HPAddHotPluggable
() Adding USB device: 001:002
Apr 18 12:00:17 (none) user.info pcscd: readerfactory.c:1113:PFInitializeReader
() Attempting startup of GCT GDM7201 WiMax Modem (72040001) 00 00
using /lib/pcsc/drivers/lid-ccid.bundle/Contents/Linux/libccid.so.1.3.1
Apr 18 12:00:17 (none) user.info pcscd: readerfactory.c:960:RFBindFunctions()
Loading IFD Handler: 3 0
Apr 18 12:00:20 (none) daemon.notice wcd[439]: wibro_fsm wb_state change
[WB_STATE_NULL]->[WB_STATE_OUTOFZONE]
Apr 18 12:00:42 (none) user.info udhcpd: sending OFFER of 192.168.1.11
Apr 18 12:00:42 (none) user.info udhcpd: sending ACK to 192.168.1.11
Apr 18 12:01:15 (none) local0.err dhcpcd[475]: timed out waiting for a valid
DHCP server response
Apr 18 12:01:15 (none) local0.err dhcpcd.exe: wrong interface name ""
Apr 18 12:02:00 (none) user.info udhcpd: sending OFFER of 192.168.1.10
```

R100의 인터넷 연결 중의 모든 트래픽 정보를 저장합니다.

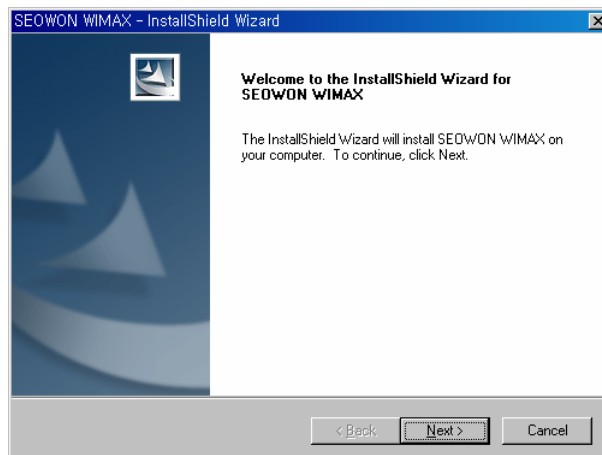
# 11. WCM

## 11.1 Software Installation

- Caution before Installation.
  - Connect the USB modem to your PC before installing the software. When the modem is connected, “New Hardware Detect” window appears. Then User may ignore this window or click “Cancel” button.
  - If you have previous WCM Version, uninstall it first (See figure below)



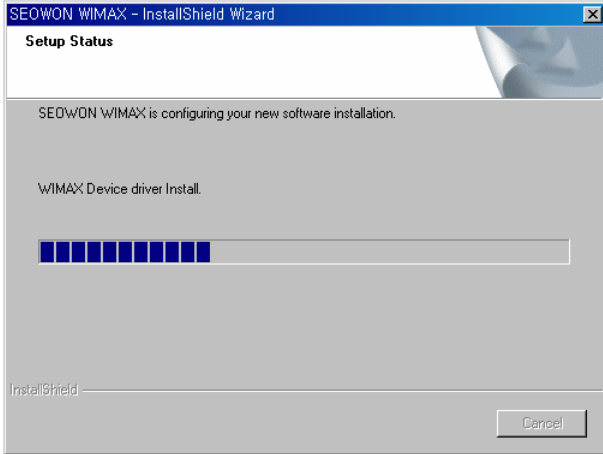
- Connect the USB Modem to your PC before installing the software.
  - 1) Please insert WiMAX modem CD into CDROM Drive. When the Setup Menu Screen appears. Click SEOWON WCM Execution to install Driver and WCM
  - 2) Click [SEOWON WCM] to continue.



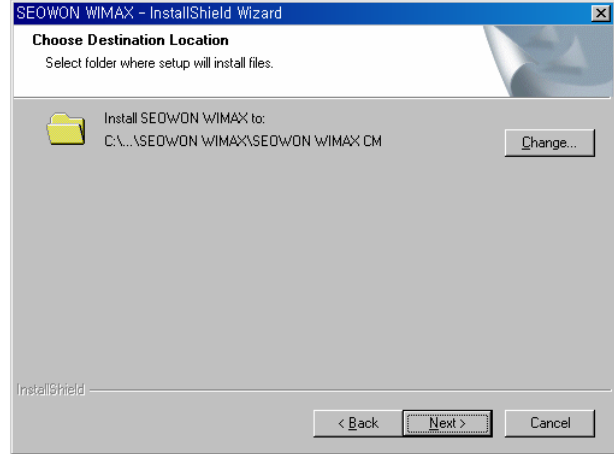
Click [Next] button

# 11. WCM

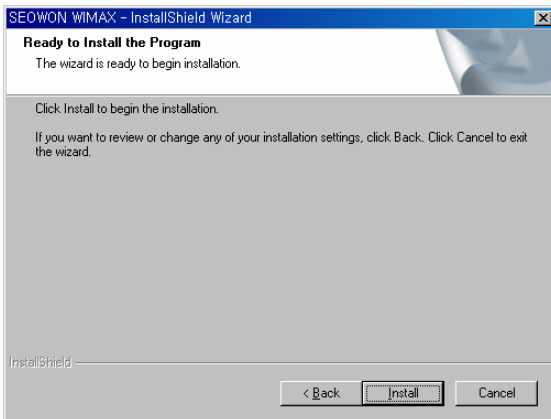
## 11.1 Software Installation



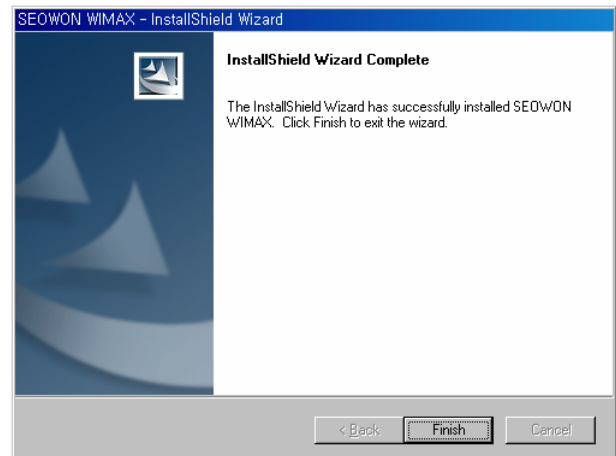
Install Driver. Wait for 1~2 minute.



Click [Next] button.



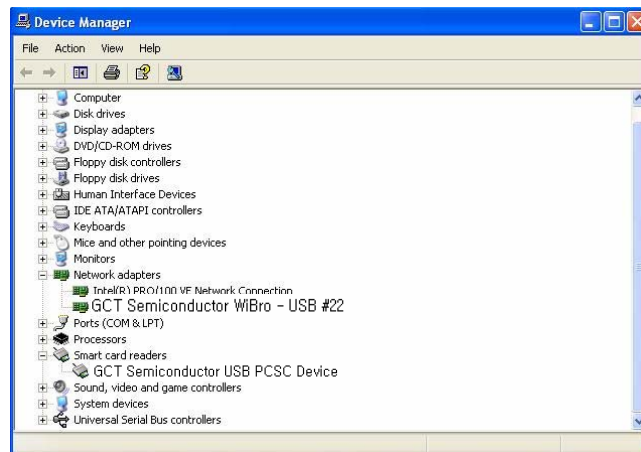
Click [Install] button.



Click [Finish] button.

### 2) Verification


: Select [Start] – [Control] – [System] – [Hardware] – [Window device Manager].  
You may verify the driver in device manager.(See figure below)



# 11. WCM

## 11.2 How to use WCM

### 1) Running WCM.

- To start WIMAX Connection manager. Select [Start] > [Program] > [SEOWON] > [SEOWON WIMAX] > [SEOWON WIMAX CM]
- Click  icon.



### 2) Display Window.

- Main Screen  
User can see the antenna icon about Antenna sensitivity, button about Connection / Disconnection / Menu / Help Icon.



## 11. WCM

### 11.2 How to use WCM

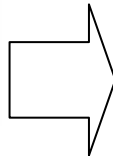
- Help Menu
  - Click [Help Menu] then popup menu appears.
  - 1) Contact Us
  - 2) SeowonIntech Info : User can see to the seowonintech Homepage
  - 3) Engineer Mode : Appear Engineer mode.



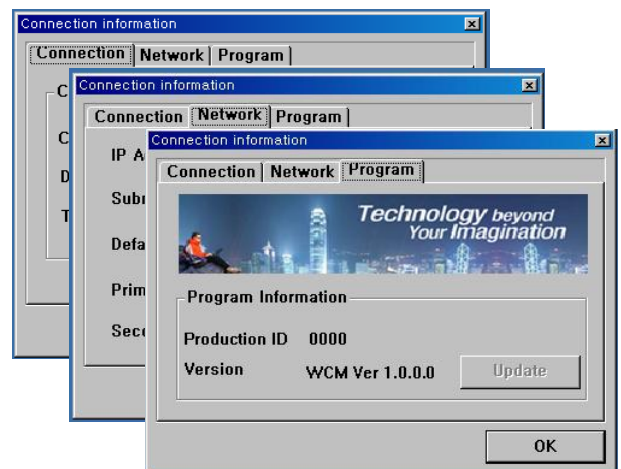
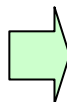
# 11. WCM

## 11.2 How to use WCM

- Main Screen  
Click [MENU] then popup menu appears.
  - 1) Connection : When user clicks this button, user can connect to internet by Auto and Windows start
    - \* Auto Connection : When WCM is launched, internet is connected Automatically
    - \* Window Start Connection : When Windows OS is launched, WCM is executed Automatically.



- 2) Connection Info : Click [Connection Info] in MENU. User can see Connection / Network / Program Information.



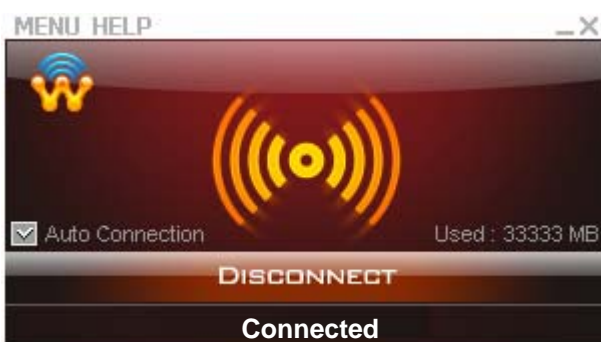
# 11. WCM

## 11.2 How to use WCM

- Switch from Main Display into Tray Icon  
Click [ \_ ] Icon in Main Display, WCM will be running in Tray mode.



- Switch from Tray Icon into Main Display  
Click [ x ] Icon in Main, WCM will be moving to Tray mode.  
and In Tray, Click WCM Icon, Main Display will be appeared





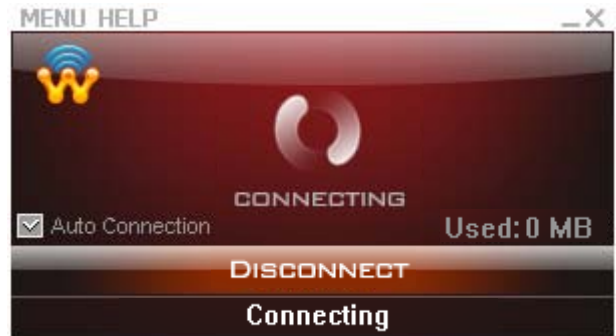
# 11. WCM

## 11.2 How to use WCM

### 3) WiMAX Connection

- Click [Connected] in Main Screen and then "Connecting" Message will appear

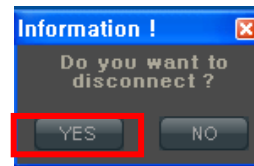
When WiMAX is connected successfully following figure will appear



# 11. WCM

## 11.2 How to use WCM

- 4) WiMAX Disconnection
  - If Click [Disconnected] button in Main Screen, the state of WCM is Stand-by mode



# 11. WCM

## 11.2 How to use WCM

### 5) WiMAX Exit

- If Click [Disconnected] button in Main Screen, the state of WCM is Stand-by mode

**Program exit in Main Screen.**  
Click [Exit] in [MENU]



### Program Exit in Tray Menu

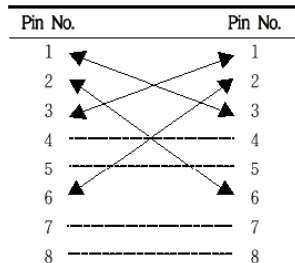
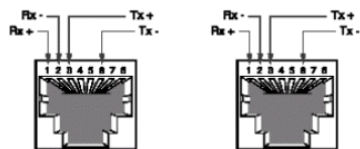
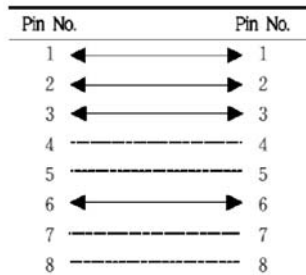
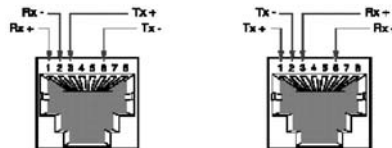
Click the right button of mouse in Tray icon, Popup menu appears. Then Select [Exit].



## 12. References

### 12.1 LAN CABLE Standards

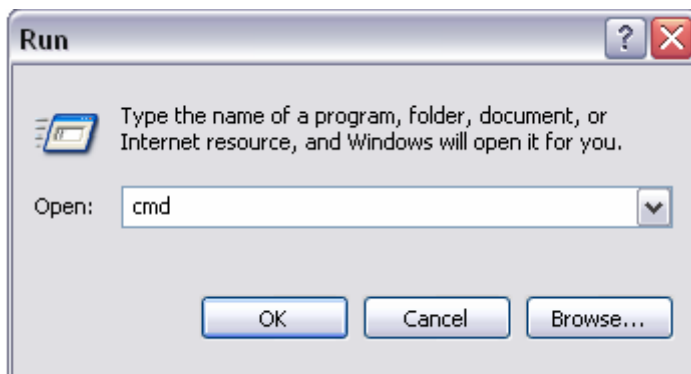
LAN Cable includes straight cable (direct cable) and cross cable. MULTI USER CPE has Cable Auto Sense feature, so either of the two can be used. However, it is not possible of normal communication if you use the cable that does not maintain the #1-2 and 3-6 twisted pairs according to the regulations.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



<Structure of Direct Cable > <Structure of Cross Cable>

## 12.2 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.

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

C:\Documents and Settings\User>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time=2ms TTL=64
Reply from 192.168.1.1: bytes=32 time<1ms TTL=64
Reply from 192.168.1.1: bytes=32 time<1ms TTL=64
Reply from 192.168.1.1: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 2ms, Average = 0ms

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

<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. 69

## 12.3 Product Specification

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

## 12.4 Actions to be taken when internet is disconnected

1. Check the status of external type modem.  
: Check if Link lamps of cable, VDSL, ADSL modem is turned ON.
2. Check the LED status of MULTI USER CPE.
  - 1) Check if POWER LED is turned ON.
  - 2) Check if WAN lamp is turned ON.
  - 3) Check if LEDs of WiMAX are turned ON.
  - 4) Among No. 1, 2, 3, 4 LAN ports, 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.

## 12.4 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 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 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.



## 12.5 Product Warranty and Customer Support

### Product Warranty

Product Name: Gateway Modem Model Name: SWC-1104

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: MULTI USER 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 lightning
  - 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

## Regulatory Notices

The **SWC-1104 WiMAX** complies with U.S. Federal Communications Commission (FCC) guidelines respecting safety levels of radio frequency (RF) exposure for portable devices, which in turn are consistent with the following safety standards previously set by U.S and international standards bodies:

- **ANSI / IEEE C95.1-1999**,  
IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3KHz to 300GHz
- **National Council on Radiation Protection and Measurements (NCRP) Report 86, 1986**,  
Biological Effects and Exposure Criteria for Radio Frequency Electromagnetic fields
- **International Commission on Non-Ionising Radiation Protection (ICNIRP) 1998**,  
Guidelines for limiting exposure to time-varying electric, magnetic, and electromagnetic fields (up to 300 GHz)

**Caution:** The **SWC-1104 WiMAX** has been tested for compliance with FCC RF exposure limits. The **SWC-1104 WiMAX** 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.

This device has been tested and found comply with the FCC limits for a Class B computing device peripheral, in accordance with the FCC's 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 communication. 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 or television technician for help

This device complies with Part 15 of the FCC's Rules. Operation is subject to the following two Conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesirable operation.

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.

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

**Caution:** This device is approved for indoor use only.

 <p><b>SEOWON INTECH CO., LTD.</b> WWW.SEOWONINTECH.CO.KR</p>	<p>SEOWONINTECH.CO.,LTD. R&amp;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 : <a href="mailto:wimax@seowonintech.co.kr">wimax@seowonintech.co.kr</a> <a href="http://www.seowonintech.co.kr">http://www.seowonintech.co.kr</a></p>
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