USER's MANUAL

Access Point
(WRO-100)

OPHIT

Contents

Introduction

Congratulations on your purchase of Galmate(WRO-100) Access Point. This product allows you to converge your computer and other network appliances into a unified network through wired or wireless links. It also enables you to share Internet connection among the different network components simultaneously. Galmate has a browser-based configuration tool called Web Manager. From the Web Manager, you can easily setup, configure, and modify router settings. The Web Manager's right pane is dedicated to display help topics to guide your tasks. Galmate is designed to suit the needs of homes and small offices. There are two ports for wired connection and an access point for wireless connection. Up to 130/54 Mbps transmission rate can be achieved through the access point. Galmate provides easy to setup security options. It has an access control mechanism to establish access and device restrictions. For wireless security, it utilizes WEP, WPA, WPA2, WPA-PSK and WPA2-PSK authentication standards with up to 128-bit encryption. These standards are used to dissuade unauthorized connection into your network. The router also supports VPN pass-through for secure data transmission. NAT and DHCP server functions are built-in. The access point also supports Virtual Server and DMZ host for Port Triggering. Through remote management, you can manage and monitor the network activities in real time.

Benefits of a Home Network

- Share one high-speed Internet connection with all the computers in your home
- Share resources, such as files and hard drives among all the connected computers in your home
- Share a single printer with the entire family
- Share documents, music, video, and digital pictures
- Store, retrieve, and copy files from one computer to another
- Simultaneously play games online, check Internet email, and chat

Advantages of a Wireless Network

- Mobility – you'll no longer need a dedicated "computer room"—now you can work on a networked laptop or desktop computer anywhere within your wireless range

- Easy installation – The OPHIT Setup Assistant software makes setup simple

- Flexibility – set up and access printers, computers, and other networking devices from anywhere in your home

- Easy Expansion – the wide range of OPHIT networking products lets you expand your network to include devices such as printers and gaming consoles

- No cabling required – you can spare the expense and hassle of retrofitting Ethernet cabling throughout the home or office

- Widespread industry acceptance – choose from a wide range of interoperable networking products

FCC RF Interference Statement

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

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one 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 technical for help.

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

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

FCC Caution: Any changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment

FCC RF Radiation Exposure Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This device and its antenna must not be co-located or operated in conjunction with any other antenna or transmitter.

"To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter".

OPHIT

Wireless Communications

Maximum Wireless signal rate derived from IEEE Standard 802.11 specifications. Actual throughput will vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, and network overhead, lower actual data throughput rate.

Safety Warning

For your safety, be sure to read and follow all warning notices and instructions.

- Do not open the device. Opening or removing the device cover can expose you to dangerous high voltage points or other risks. Only qualified service personnel can service the device. Please contact your vendor for further information.

- Do not use your device during a thunderstorm. There may be a risk of electricshock brought about by lightning.

- Do not expose your device to dust or corrosive liquids.

- Do not use this product near water sources.

- Make sure to connect the cables to the correct ports.

- Do not obstruct the ventilation slots on the device.

Requirements

Here are the minimum requirements:

- Broadband Internet Access Account (DSL/Cable/Ethernet)

- One DSL/Cable modem with Ethernet connectors

- Each computer needs an Ethernet Adapter with an Ethernet cable with TCP/IP protocol installed

- Web browser (At least Microsoft Internet Explorer 5.0 or Netscape Navigator 6.0)

Product Overview

Top Panel

Galmate's top panel consists of LED's that indicate connection status.
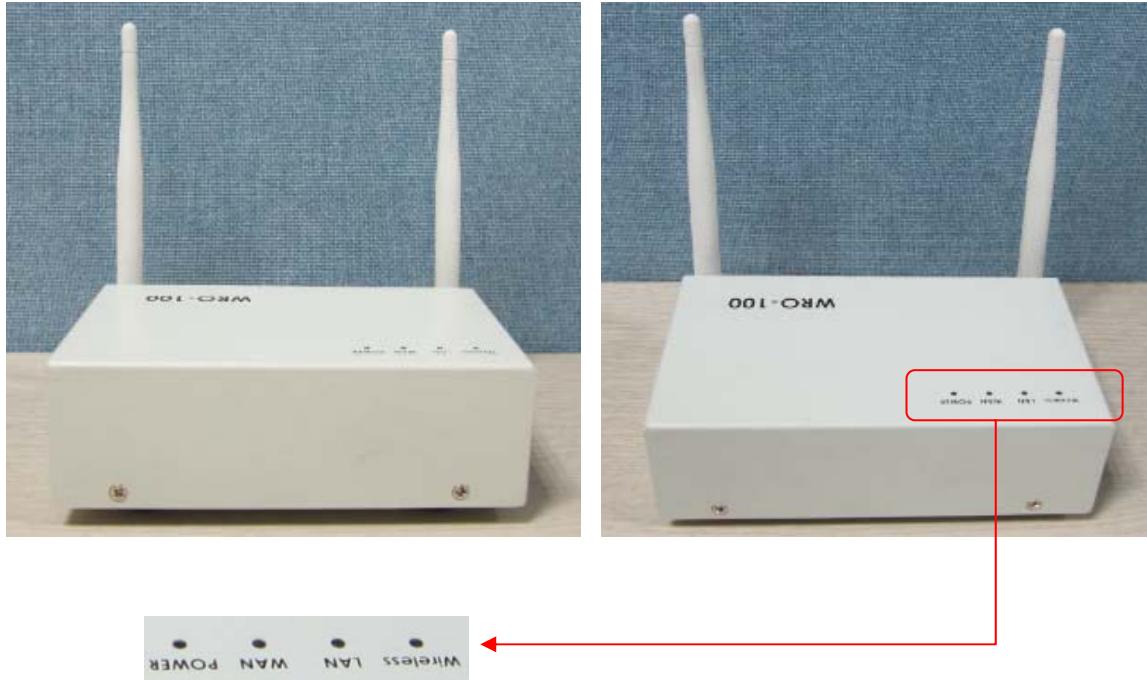
Label	Status	Description
Power	Off	No power connection
	On	Power is on
WAN	Off	No wired device is connected to the corresponding port
	On	An inactive device is connected to the corresponding port
	Flashing	The device connected to the corresponding port is active
LAN	Off	No wired device is connected to the corresponding port
	On	An inactive device is connected to the corresponding port
	Flashing	The device connected to the corresponding port is active
Wireless	Off	No wireless device connected to the access point
	ON	Access point is enabled

Rear Panel
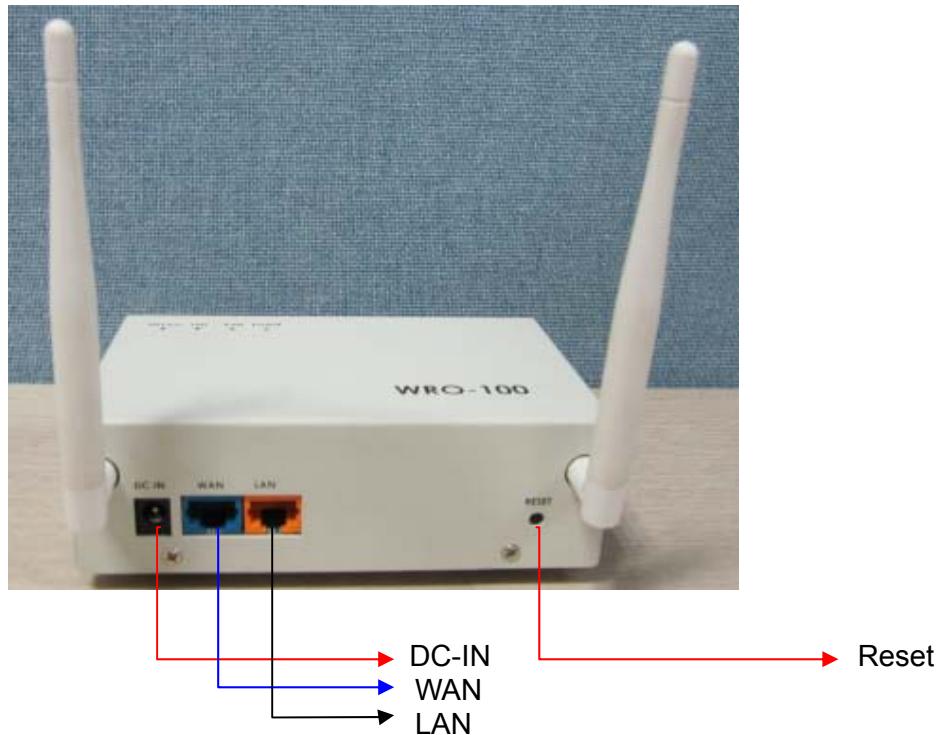
The rear panel of Galmate have the following port connections :

- Reset : Factory default reset button
- LAN : Local Ethernet port for connecting the local computer
- WAN : Internet port for connecting to a cable or ADSL modem
- DC-IN : Power adapter port

Check Package Contents

The following items are included in the package:

- 1 x Access Point (WRO-100)

- 1 x AC Adapter

- 1 x Network cable (CAT5)

- 1 x Utility CD containing the User Manual

OPHIT

Hardware Setup

Before you install the access point, you should connect your PC to the Internet through your broadband service successfully. If there is any problem, please contact your ISP. After that, please install the router according to the following steps. Don't forget to pull out the power plug and keep your hands dry.

To setup the hardware:

1. Use Ethernet cables to connect the computers in your network into the LAN port.
2. Use an Ethernet cable to connect the cable/DSL Modem into the WAN port.
3. Connect the AC power adapter to the AC power socket on the Access point, and the other end into an electrical outlet. The router will start to work automatically.
4. Check the LED's. Power stays on. WLAN, WAN, and LAN should remain flashing. The LED for the LAN port with no connection remains off.

Connecting to the Internet

To connect to the Internet, use Quick Setup from the Web Manager.

To connect to the Internet using Quick Setup:

1. Open a browser (Windows explorer) & Enter 10.10.10.254 and then press Enter.
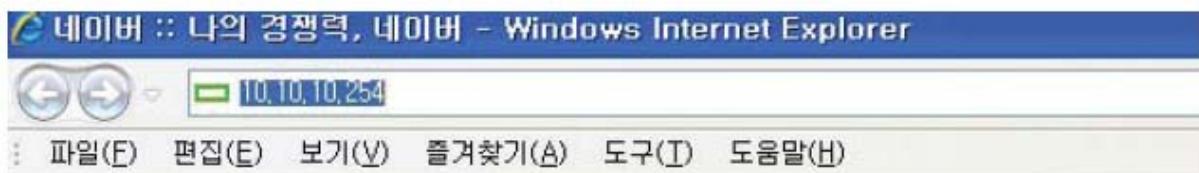
2. This opens the login window.
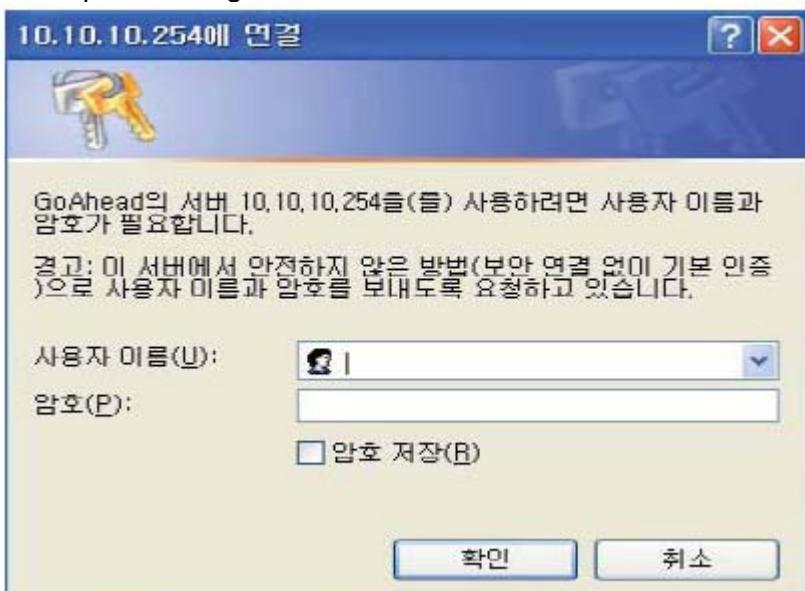
3. Enter the User Name and Password and then press Enter. The default User Name and Password is admin.
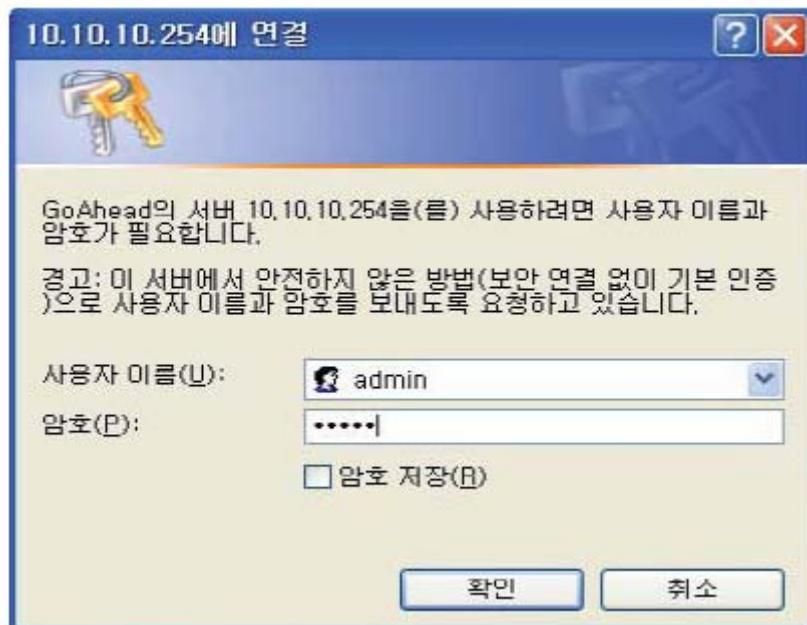
4. This opens the Web Manager (Initial Setup Screen).

5. From the left panel, select **Operation Mode**.
   Default Value is Gateway Mode and normally changing Mode is not recommended except
   Technicians or Engineers.
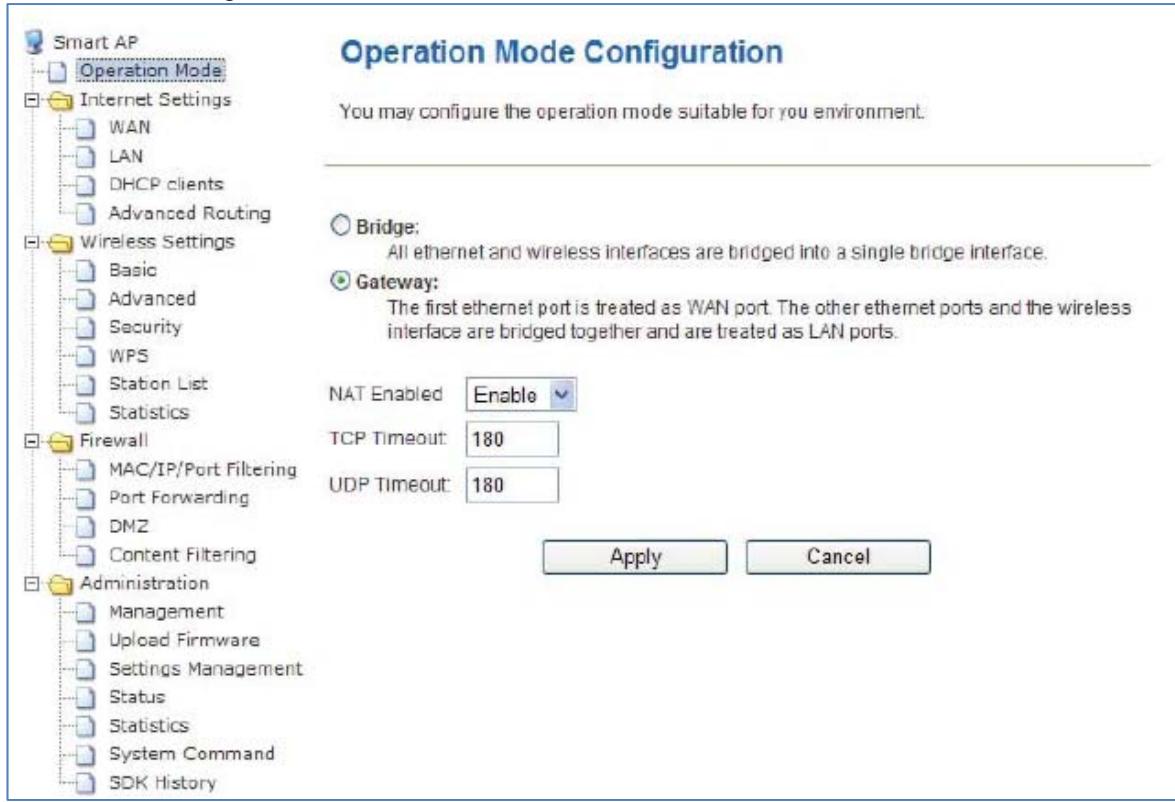
6. From the left panel, select **Internet Settings /WAN.**
   *Configured when using VDSL/ADSL(Dynamic IP) or Cable modem.
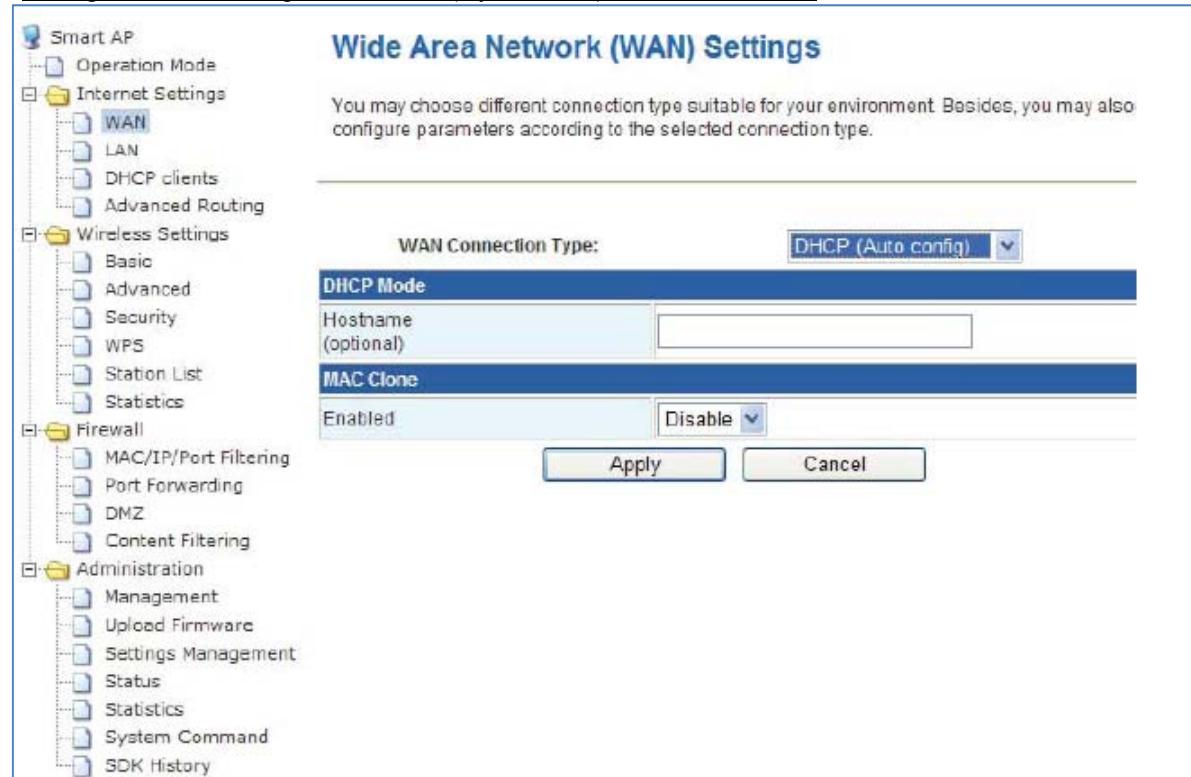
OPHIT

DHCP (Auto config)

Configured when VDSL, LAN, Cable, ADSL Service.
Dynamic IP is automatically configured form Modem , and you can see WAN IP in the Menu Administration/Status

*Configured when ADSL Modem(Dynamic IP) and PPPoE Connection (in other words ID and Password is needed when Internet Connection)

PPPoE Setting
PPPoE needs ID and Password.
ID and Password is delivered form ISP (Internet Service Provider).
ISP may provide IP address to connect. In this case you can input IP Address.

*Static IP

Static IP Address
Input "IP address" provided by ISP -> Click "Apply" to save.
If you do not click "Apply" data would be lost after Power Recycle.

[Galmate Wireless Feature Description]
You can select SSID : Galmate-AP in Windows XP/Vista,Windows7/8 in the Wireless setup driver in your PC.(Mostly you can fine Right bottom side, and double click to activate)

Example

How to connect wireless LAN card to Galmate in Windows XP (Service Pack 2).

There are two ways to connect Galmate in Windows XP

By wireless LAN card driver setting
-Normally provided by LAN card Manufacturer
-By basic function provided by Windows XP's wireless LAN setting

If you want activate by Windows XP's wireless LAN setup refer the picture as below.

For reference there is a mechanical switch in some LAPTOP PC, you can set it on to activate Wireless LAN or in some LAPTOP PC you can set it on by function Key.

Control Panel ->Network Connection -> Wireless Network Connection, Mouse Right button click -> Click Properties

Click Wireless network ->Check Windows Wireless Network / Network Components -> Click ADD Button
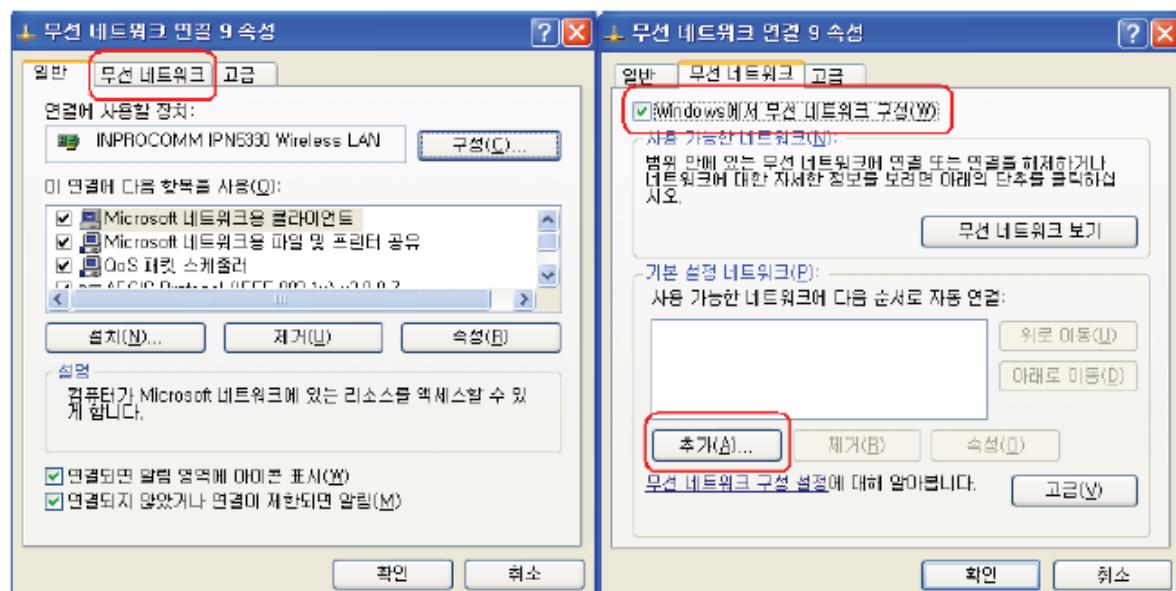
Input Network Name as in default "Galmate "
Click Network Securities Open -> Click Data Encryption No use
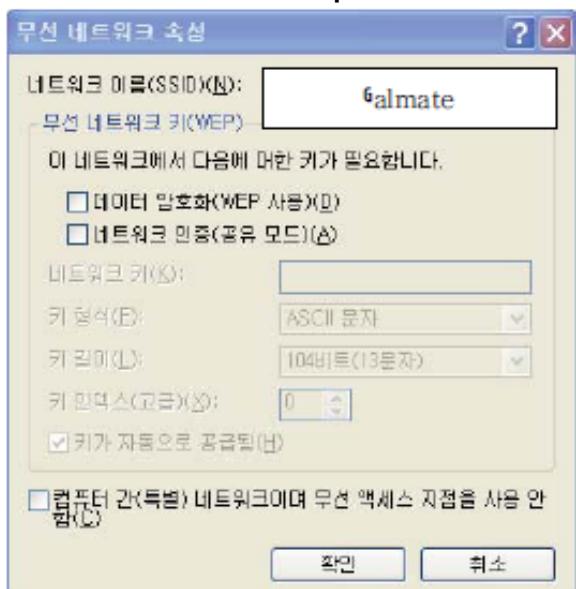
You can connect Galmate without password
.

How to Connect PC to Galmate

Control Panel ->Network Connection ->Double Click wireless Network Connection
Click Network List to refresh in left side -> If you find Galmate in right side ->Click Galmate -> Click Connection
If you can't find out Galmate, you should check Galmate-AP's wireless setup.
You can click Galmate
And if you can find connected -> Success for connection Galmate.
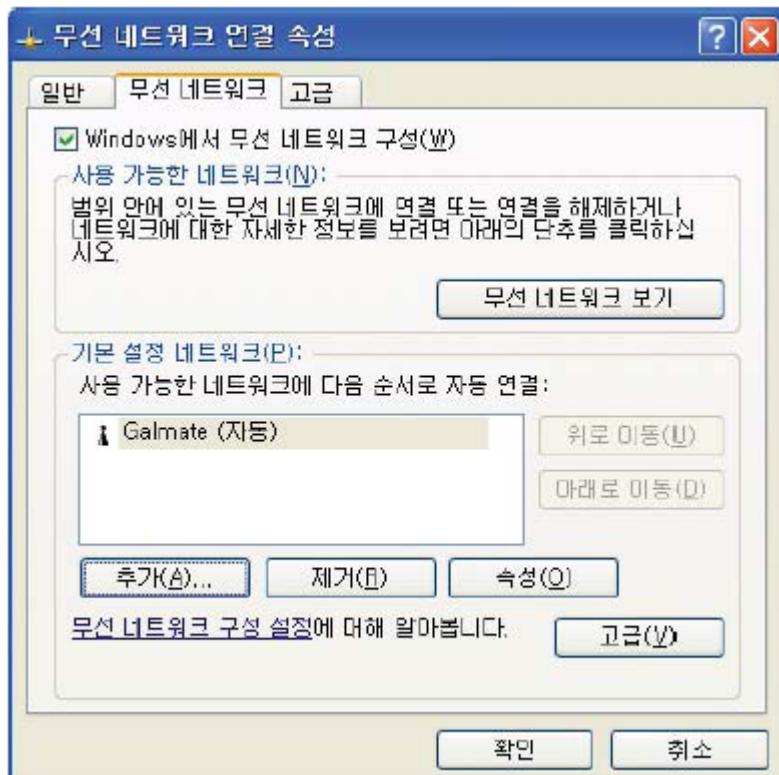
Regarding Securities, you can refer wireless security setup.

7. From the left panel, select **Internet Settings /LAN.**

IP Address : Setting for Changing Basic Gateway. Default Gateway is 10.10.10.254.
DHCP Type : Automatic setting for IP address for PC. Select Default value.
Range of IP Address : Automatic IP address setting by server and configures the range of IP address.

8. From the left panel, select **Internet Settings/Advanced Routing.**

Routing Table
Configure for Internal LAN of AP to other Network.

Add HOST
If you want adding HOST, you can select typeof HOST.
Add Host IP to destination.
Adding Routing table to designated Host's LAN's Gateway address.
Click "Apply" button and you can input the Routing table of HOST.

Adding Network
You can set type of NET when you want add Network.
Input Network address and Net mask to destination.
Input Gateway address of LAN to Routing table of Dedicated NET.
Click "Apply" and then Routing table for NET.

Table Initialization
If you click "Initialization" button, all the values go back to default value.

9. From the left panel, select **Wireless Settings**/**Basic.**

You can setup Basic setup, SSID etc here.

10. From the left panel, select **Wireless Settings/Security.**

Menu of Securities : Open system, Sharing Key, Automatic, WPA, WPA2, WPA-PSK, WPA2-PSK

Open System	No Use for Securities
Shared	Setup with pre-defined Key value, Technology of WEP
WEPAUTO	Using both Open System and Sharing key
WPA2-PSK	Most Powerful Security in WI-FI standard
Apply button	If there are changes you must click "Apply" button to update and save button

Remarks

If you do not use Wireless Security function, other users may connect Galmate and use internet, and control your PC.

Most powerful wireless security is WPA2-PSK mode. But you must remember password. You can write down password with Memo.

Windows XP : Version should be above Service Pack 2

With Windows 98, ME, 2000 , Driver installed in PC should support WPA2-PSK password.

If there are other APs near Galmate , 2.4GHz frequency channel may be interrupted and with other APs, and normally Galmate use channel 6, if you find out channel 3~9, you'd better change channel as below. Channel Search program is installed in the Wireless LAN card driver.

Other channel + 3 examples) If other AP's channel is 4 ,you'd better change channel as 7.(4+3 = 7)

Other channel – 3   example) If other AP's channel is 8 ,you'd better change channel as 5 .(8– 3 = 5)

WEP Mode setup security

Change security mode as "WEPAUTO" -> Input WEP KEY1~4 as 10digit letter or 26digit numeric.
You must remember this Key1~4 value.

If you want string, you can change Hex to ASCII in the right side of WEP Key.
You can input 5 digit letter or 13 digit numeric.

In PC

Control Panel ->Network Connection ->Connect Wireless Connection and double click Connect.

Click Network refresh -> Click Galmate -> Click Connect Button
You can input network Key password -> Click Connect
If there is 'Connected" you are succeeded in connection(Do not forget network key)

OPHIT

WPA-PSK Security

Security Mode Setting ->   Select WPA /TKIP -> Input Netwo rk Ke y ->"Click Ap ply "Net work Key is determined by User.(Write down Network Key on Paper not to forget.)

In Windows XP

Control Panel -> Connect Network -> Double Click "Connect Wireless Network"

Refresh Network List → Click "Galmate"   → Click "Connect"
Input Network Key → Click "Connect"

If you can not internet with setting WPA-PSK

Control Panel -> Network Connection -> Click right button in Network connection -> Click "Properties"

무선 네트워크 연결 10
연결되어 있지 않음, 방화벽 사용
INPROCOMM IPN5330 Wireless LAN...

Click "Properties" → Click "Wireless Network → Click "Properties" → Click "Network Security" and change to "WPA2-PSK"→
Change "Data Security" to "TKIP" → Input Network Key (same key as Galmate)→
Connection TAB→Click 'Automatic Connection when in this network"→Click "OK"→ Click" Close"
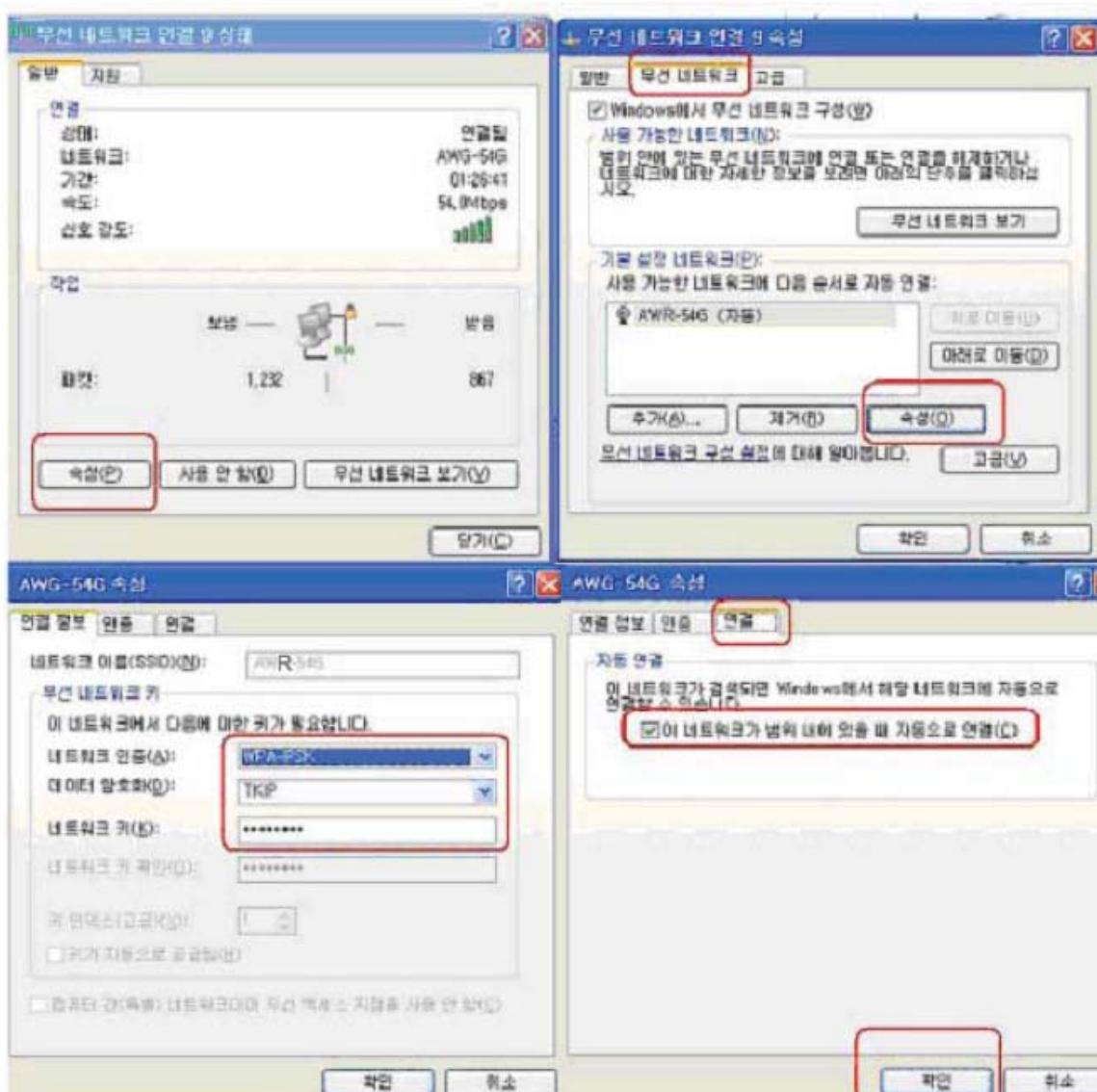
Then retry Control Panel→ Network Connection→ Double Click 'Wireless Network Connection" → Click "Connect"

OPHIT

11. From the left panel, select **Firewall/MAC/IP/Port Filtering Settings.**

This feature is to setting firewall connected between AP and PC.

Setting Firewall

You can protect Certain IP or MAC address for the LAN with firewall setting.

You can input MAC address of PC to protect communication.

You can input IP address to protect communication.

You can input TCP/UPT port Number to protect protocol.

12. From the left panel, select **Firewall/Port Forwarding.**

13. From the left panel, select **Firewall/DMZ.**

To set DMZ make the DMZ enable and click "Apply".
The meaning of DMZ Setting is all the packets received by TCP/UDP port is transferred to dedicated IP.
The PC or Server dedicated as DMZ can be operated as FTP server, HTTP server, Mail Sever without any other manipulation.

DMZ Settings

You may setup a De-militarized Zone(DMZ) to separate internal network and Internet.

DMZ Settings	
DMZ Settings	Disable
DMZ Address	

☐ Except TCP port 80

[Apply] [Reset]

14. From the left panel, select **Firewall/Filtering.**

Webs URL Filter Settings

Current Webs URL Filters:	
No	URL

[Delete] [Reset]

Add a URL filter:	
URL:	

[Add] [Reset]

URL Filtering
This is the features to protect certain IP or PC's string web connection.
If you want to protect certain PC or IP , you can input IP or MAC address of PC.
You can input the string of Web site address to protect.

OPHIT

15. From the left panel, select **Administration/Management.**

The default password id "admin" and the manager of this AP can re-configure the password.

Setting Language

You can select Korean and English.

Management Setting

You can protect the users by setting log-in Password.

You can change Password by input new Password and click "Apply" to apply.

The default account name is "admin".

NTP Setting

  You can set different time by different country.(The default value is Korean.)

16. From the left panel, select **Administration/Upload Firmware.**

You can change firmware by Upgrade firmware feature.
Save the new firmware to change in PC's folder.
You can click the "Search" to find new firmware in PC's folder and click "apply".
Once you click "Upgrade" , firmware is changed.
Do not power off the AP until upgrade is finished.
If you apply wrong firmware, Web browser may have some problems.
In this case you have to do it again for the process of Update firmware.

Caution: Once Upgrade, all settings are back to default value.
You can click "Search…" and find the firmware and click " Apply".

Once the upgrade begins, you can see the screen as below.
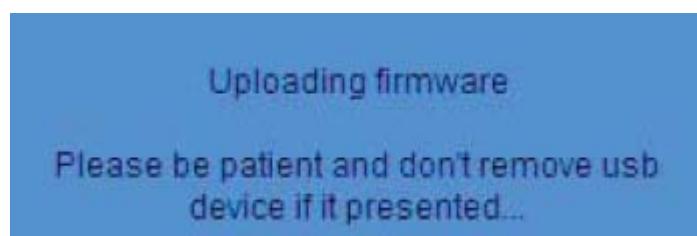
※"Caution" Never Power off during Upgrade process.

Troubleshooting

Your computer cannot connect to the Internet.

Follow these instructions until your computer can connect to the Internet:
- Make sure that the access point is powered on. The Power LED should be green and not
  flashing.
- If the Power LED is flashing, then power off all of your network devices, including the
  modem, Router, and computers. Then power on each device in the following order:
    1) Cable or DSL modem
    2) Router
    3) Computer
- Check the cable connections. The computer should be connected to LAN port on the
  Access Point, and the modem must be connected to the Internet port on the Access Point.

The modem does not have an Ethernet port.

The modem is a dial-up modem for traditional dial-up service. To use the Access Point, you
need a cable/DSL modem and high-speed Internet connection.

You cannot use the DSL service to connect manually to the Internet.
After you have installed the Access Point, it will automatically connect to your Internet
Service Provider (ISP), so you no longer need to connect manually.

The DSL telephone line does not fit into the Router's Internet port.
The Access Point does not replace your modem. You still need your DSL modem in order to
use the Access point. Connect the telephone line to the DSL modem, insert the setup CD
into your computer, and then follow the on‑screen instructions.

***When you double-click the web browser, you are prompted for a username and
password. If you want to get rid of the prompt, follow these instructions.***

Launch the web browser and perform the following steps(these steps are specific to Internet
Explorer but are similar for other browsers):
  1) Select **Tools** > **Internet Options**.
  2) Click   the **Connections** tab.
  3) Select   **Never dial a connection**.
  4) Click   **OK**.

The Access Point does not have a coaxial port for the cable connection.

The Access Point does not replace your modem. You still need your cable modem in order
to use the Access Point. Connect your cable connection to the cable modem, insert the
setup CD into your computer, and then follow the on‑screen instructions.

The computer cannot connect wirelessly to the network.

Make sure the wireless network name or SSID is the same on both the computer and the
Access point. If you have enabled wireless security, then make sure the same security
method and key are used by both the computer and the Access Point.

OPHIT

You need to modify the settings on the Router.

Open the web browser (for example, Internet Explorer or Firefox), and enter the Access Point IP address in the address field (the default IP address is **10.10.10.254**).
When prompted, leave the *User name* field blank and enter the password to the Access Point (the default is **admin**). Click the appropriate tab to change the settings.

Product Specification

Item		Description
H/W	CPU	320MHz MIPS 32bit
	DRAM 32MB	
	Flash 4MB	
	Wired	IEEE 802.3, IEEEE 802.3u
	Ports	1 x 10/100Mbps WAN(RJ45) - Cable automatic detect
		1 x 10/100Mbps LAN(RJ45) - Cable automatic detect
	Wireless Interface	802.11 b/g/n
	Status LED	Power, WAN, LAN, Wireless
	Power	AC Adapter (input: 120 V, 60 Hz, output: DC 5V @ 2A) or PoE IEEE802.3af
S/W	NAT	SNAT, DNAT, IP Masquerade
	Protocol	HTTP, DHCP, PPPOE
Wireless	Wireless	IEEE 802.11b, IEEEE 802.11g, IEEEE 802.11g
	Frequency 2.4GHz	
	Sensitivity	64dBm - 130Mbps, 74dBm - 54Mbps, 84dBm - 11Mbps
	TX Power	10dBm$\pm$2dB
	Modulation	QFDM, CCK, BPSK, QPSK
	No. of Antenna	Two External Antenna
	Security Settings	64/128bit WEP, WPA, WPA2, WPA-PSK, WPA2-PSK
Dimension		140 x 85 x 55 mm (W x D x H)

OPHIT

TCP/IP Port List

Service Name	TCP	UDP	Notes
AOL	5190-5193	5190-5193	American OnLine
AOL ICQ	5190, dyn >=1024		Message
AOL Instant Messenger	5190	5190	American OnLine
Citrix ICA	1494, dyn >=1023	1604, dyn >=1023	Remote application access
DirectX Gaming	47624, 2300-2400	47624, 2300-2400	many network games
Distributed.Net RC5/DES	2064		Distributed computation
DNS		53	Domain name Service
Doom	666	666	Network game
FTP	21		File Transfer Protocol
Glimpseserver	2001		Search engine
Gopher	70		
H.323 Host Call	1720	1720	H.323 host call
HTTPs	443		Secure HTTP (SSL)
ichat client, server	4020	4020	Chat rooms
ICU II	2000-2003		Videoconferencing
ISpQ	2000-2003		Videoconference
LDAP	389	389	Lightweight Directory Access Protocol
Mirabilis ICQ	dyn >=1024	4000	Locator, chat
MS ICCP	1731	1731	Audio call control (Microsoft)
MS Netmeeting	dyn >=1024,	dyn >=1024	Video conference
MS NetShow	1755	1755	Streaming video
MSN Gaming Zone	28800-29000	28800-29000	Network Game
MSN Messenger	1863		Instant messenging
Netscape Conference	6498, 6502	2327	Audio conference
NNTPs	563		Secure NNTP news (SSL)
Palm Computing Network Hotsync	14237	14238	Data synchronization
pcAnywhere	5631	5632	Remote control
POP3	110		Post Office Protocol Version 3
QuickTime 4	RTSP	RTP	Streaming audio, video
Real Audio & Video	RTSP, 7070	6970-7170	Streaming audio and video

Technical Support

OPHIT CO., LTD.
#302, Suntechnovil, 5-27 Mangpo-dong, Yeongtong-gu, Suwon-city, Gyeonggi-do, Korea

Tel: +82-31-205-4191
Fax : +82-31-205-4197
URL : www.ophit.com