

E-TOP

GS293d

300+300Mbps Gigabit Server Router

User Manual



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802.11a (UNII) RF exposure statement

According to FCC 15.407(e), the device is intended to operate in the frequency band of 5.15GHz to 5.25GHz under all conditions of normal operation. Normal operation of this device is restricted to indoor used only to reduce any potential for harmful interference to co-channel MSS operations.

FCC Statement in User's Manual (for class B)

FCC Section 15.105

“Federal Communications Commission (FCC) 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 technician for help.

FCC Part 15.19 Caution:

1. 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 and
 - (2) this device must accept any interference received, including interference that may cause undesired operation
2. This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.
3. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user authority to operate the equipment.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

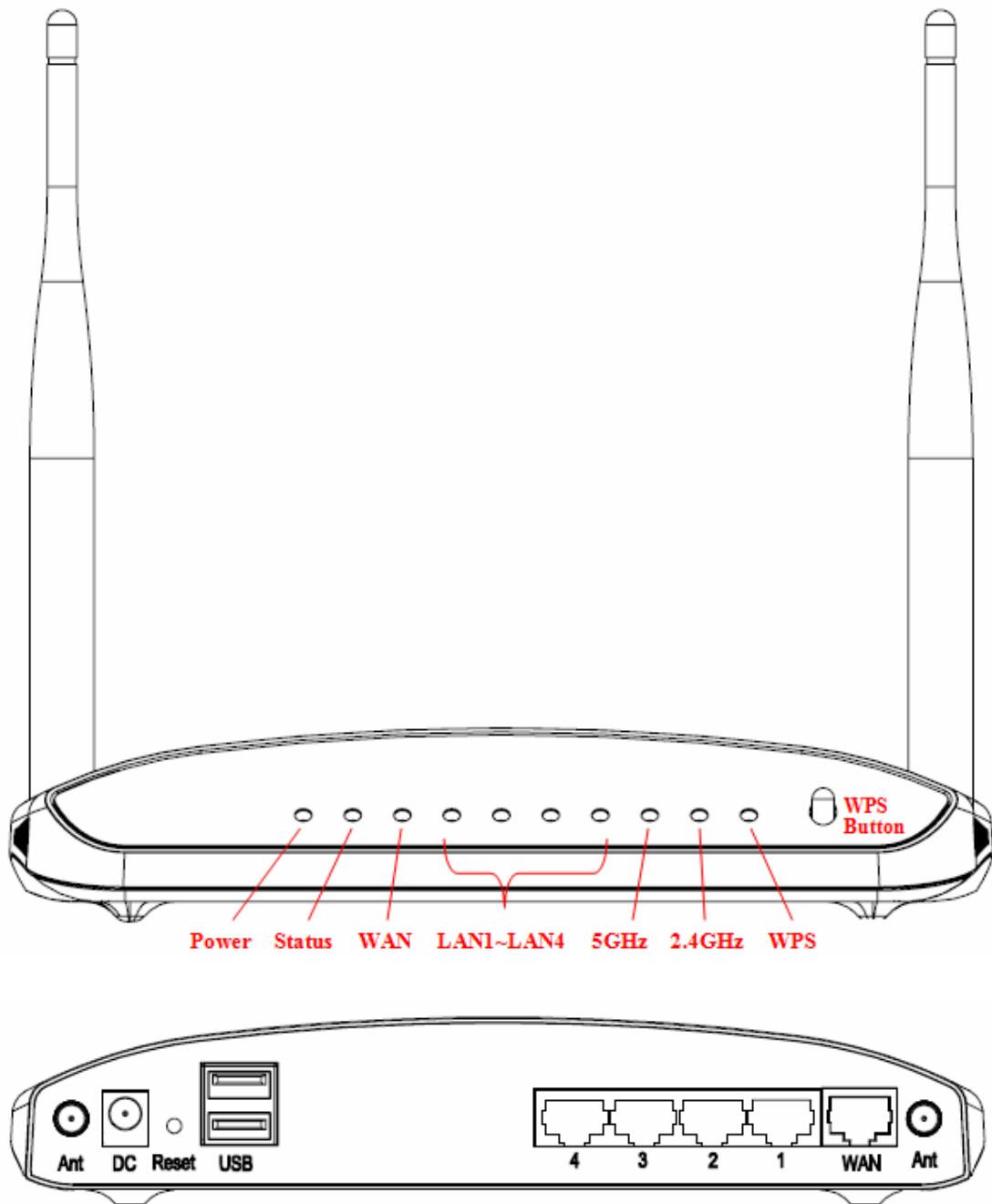
The antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

Chapter 1 Introduction

1.1 Hardware Features

Item	Specification
Key Components	
Main Processor	Realtek RTL8198 (600MHz)
Flash	8Mbytes Serial Flash
RAM	64Mbytes DDR2
Wireless Chip	Realtek RTL8192CE 2.4G 2T2R Realtek RTL8192DR 2.4G/5GHz dual-band 2T2R
Communication Interfaces	
WAN Port	1 x 10/100/1000Mbps RJ45 with auto MDI/MDIX
LAN Port	4 x 10/100/1000Mbps RJ45 with auto MDI/MDIX
USB Port	USB 2.0 host port x2
Wireless	IEEE 802.11a/b/g/n 5G/2.4GHz concurrent 300+300Mbps
Others	
Wireless Antenna	External 5dBi x2
Transmission Power	802.11a: 16±2dBm @ normal temp. range 802.11b: 19±2dBm @ normal temp. range 802.11g: 16±2dBm @ normal temp. range 802.11n (2.4GHz): 14±2dBm @ normal temp. range 802.11n (5GHz): 21±1dBm @ normal temp. range
Receive Sensitivity	802.11a: TYP. -70dBm @ 10% PER. 802.11b : TYP. -83dBm @ 8% PER. 802.11g: TYP. -70dBm @ 10% PER. 802.11n: TYP. -61dBm @ 10% PER.
Button	Reboot button / Reset button – 1sec is for reboot ; 10 secs is for reset to default configuration. WPS button – WPS connection
Operation Requirement	Operating Temp. 0 to 40°C Storage Temp. -20 to 70°C Operating Humidity 10% to 85% Non-Condensing Storage Humidity 5% to 90% Non-Condensing
Power Supply	Power Adapter DC12V/2A

1.2 Product Appearance



LED Indicator Status Description:

LED ^①	Function ^②	Color ^③	Status ^④	Description ^⑤
Power ^⑥	System status ^⑦	Green ^⑧	On ^⑨	System is ready to work.
			Blinking ^⑩ 120ms ^⑪	1. Power is being applied and system boot in progress. 2. Reset or firmware upgrade in progress.
WPS ^⑫	WPS status ^⑬	Green ^⑭	Blinking ^⑮ 120ms ^⑯	WPS function in progress.
2.4GHz ^⑰	Wireless activity ^⑱	Green ^⑲	Blinking ^⑳ 30ms ^㉑	Wireless Tx/Rx activity for 2.4GHz band.
5GHz [㉂]	Wireless activity [㉃]	Green [㉄]	Blinking [㉅] 30ms [㉆]	Wireless Tx/Rx activity for 5GHz band.
WAN x 1 [㉇]	WAN port activity ^㉈	Green ^㉉	On ^㉊	1000Mbps Ethernet is connected.
			Blinking ^㉋ 30ms ^㉌	1000Mbps Ethernet Tx/Rx activity.
		Green ^㉍	On ^㉎	10/100Mbps Ethernet is connected.
			Blinking ^㉏ 120ms [㉐]	10/100Mbps Ethernet Tx/Rx activity.
LAN x 4 ^㉑	LAN port activity ^㉒	Green ^㉓	On ^㉔	1000Mbps Ethernet is connected.
			Blinking ^㉕ 30ms ^㉖	1000Mbps Ethernet Tx/Rx activity.
		Green ^㉗	On ^㉘	10/100Mbps Ethernet is connected.
			Blinking ^㉙ 120ms ^㉚	10/100Mbps Ethernet Tx/Rx activity.

Chapter 2 System and Network Setup

The GS293d is an easy to setup and wireless device for various application and environment, especially for large installs such as hotels, offices space, warehouses, hot-spots and more.

To begin with GS293d, you must have the following minimum system requirements. If your system can't correspond to the following requirements, you might get some unknown troubles on your system.

- λ Internet Account for XDSL/Cable Modem, or 3G.
- λ One Ethernet (10/100/1000 mbps) network interface card.
- λ TCP/IP and at least one web browser software installed (E.g.: Internet Explorer 6.0, Netscape Navigator 7.x, Apple Safari 2.03 or higher version).
- λ At lease one 802.11g (54Mbps) or one 802.11b (11Mbps) wireless adapter for wireless mobile clients.
- λ Recommended OS: WinXP, Visata or Win7 / Linux.

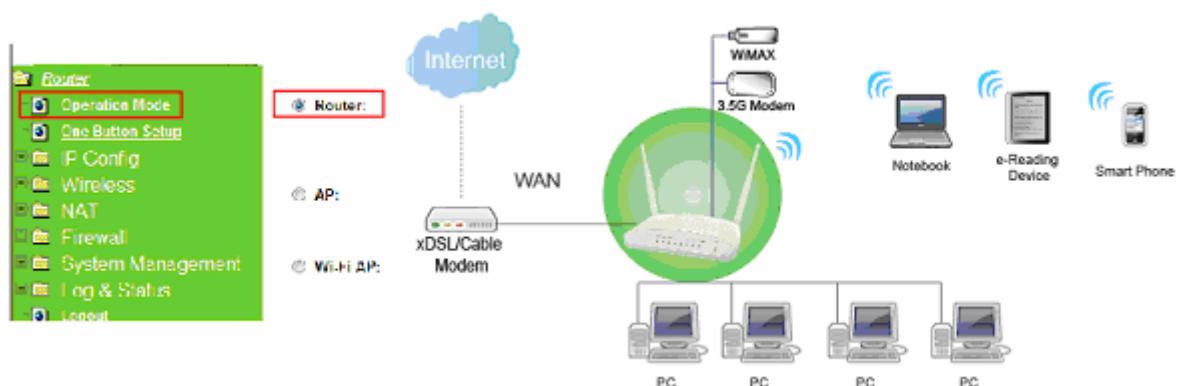
2.1 Build Network Connection

Administrator can manage the settings for WAN, LAN, Wireless Network, NTP, password, User Accounts, Firewall, etc.

Please confirm the network environment or the purpose before setting this product.

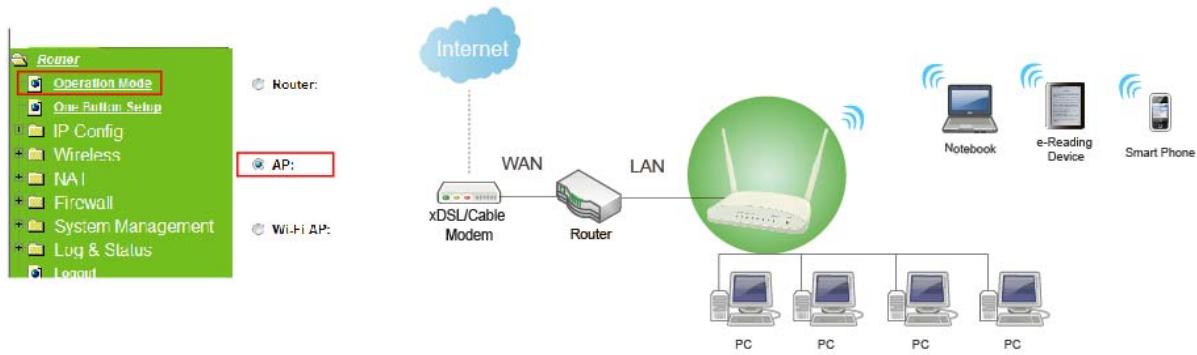
2.1.1 Router Mode

Switch to router mode through web GUI when the first setup.



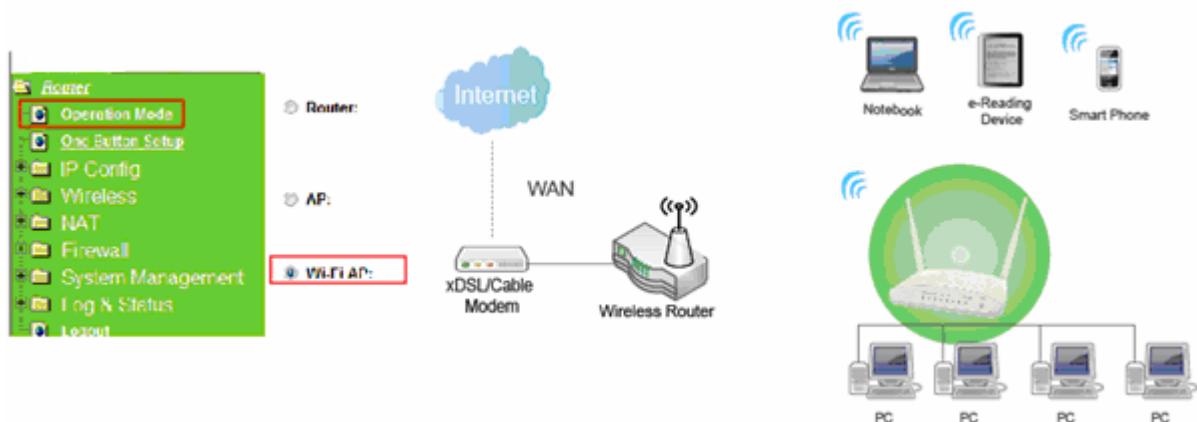
2.1.2 AP Mode

Switch to AP mode, if a router is already set at the house, and you want to make the wireless LAN communication.



2.1.3 Wi-Fi AP Mode

Switch to WiFi AP Mode when you connect to the internet wirelessly through PC and wireless device without wireless LAN function equipped.



2.2 Connecting GS293d

Prepare the followings before the connection:

- λ PC or Notebook for setup
- λ Ethernet cable or 3G modem



1. Make sure you are under "Router Mode".
2. Connect GS293d to xDSL/ Cable modem with the Ethernet cable, WAN to LAN.
3. Turn on your Computer.



2.3 Network setup

After the network connection is built, the next step is setup the router with proper network parameters, so it can work properly in your network environment. Before you connect to the wireless router and start configuration procedures, your computer must be able to get an IP address from the wireless router automatically (use dynamic IP address). If it's set to use static IP address, or you're unsure, please follow the below instructions to configure your computer with dynamic IP address:

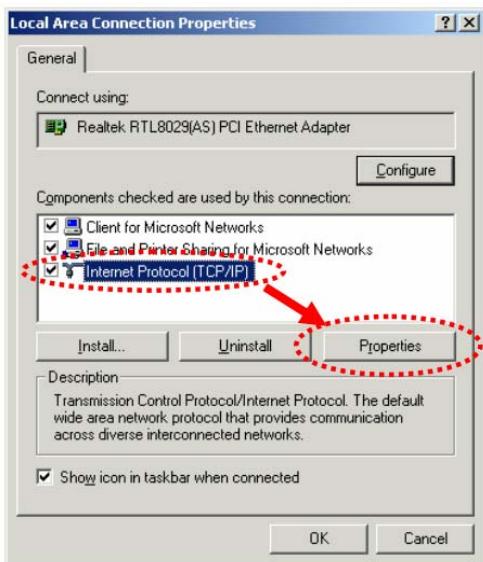
If the operating system of your computer is....

Windows 2000	- please go to section 2.3.1
Windows XP	- please go to section 2.3.2

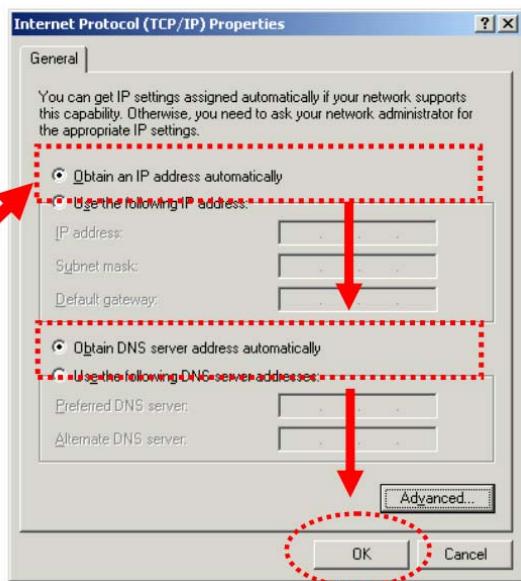
Windows Vista/Win7 - please go to section 2.3.3

2.3.1 Windows 2000

Click “Start” button (it should be located at lower-left corner of your computer), then click control panel. Double-click Network and Dial-up Connections icon, double click Local Area Connection, and Local Area Connection Properties window will appear. Select “Internet Protocol (TCP/IP)”, then click “Properties”.

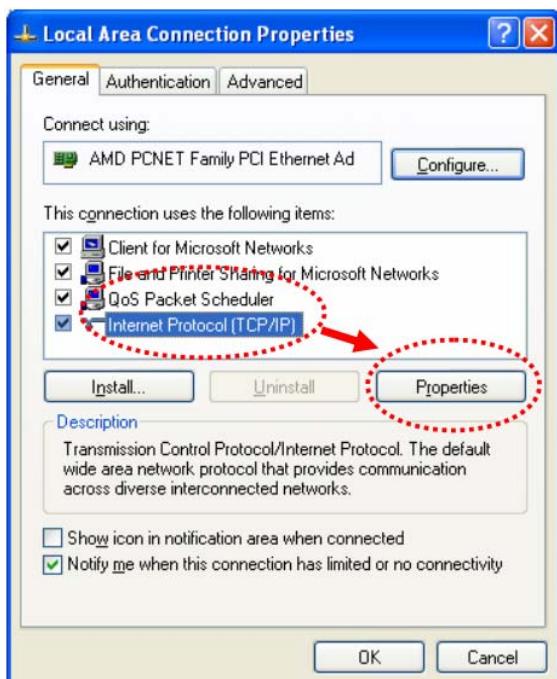


1. Select “Obtain an IP address automatically” and “Obtain DNS server address automatically”, then click “OK”.

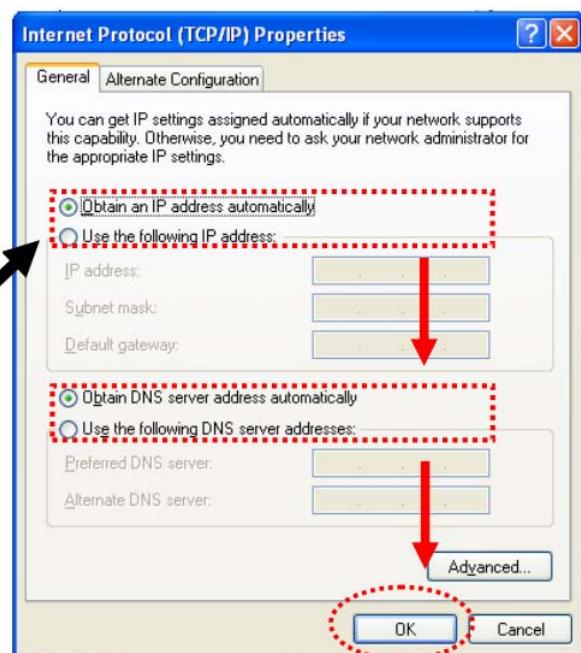


2.3.2 Windows XP

1. Click “Start” button (it should be located at lower-left corner of your computer), then click control panel. Double-click Network and Internet Connections icon, click Network Connections, then double-click Local Area Connection, Local Area Connection Status window will appear, and then click “Properties”.

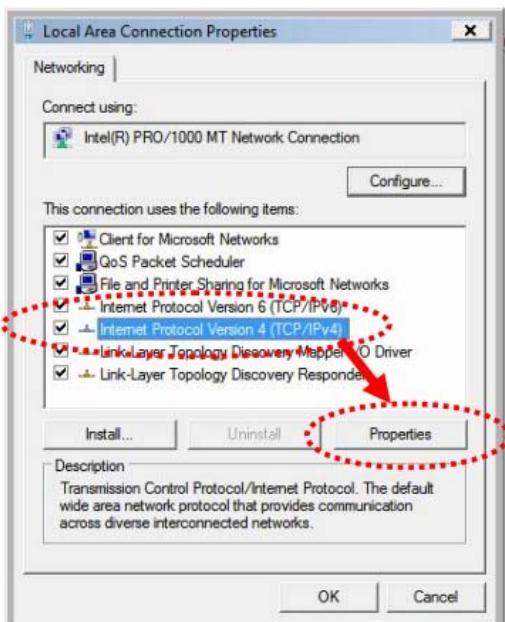


2. Select “Obtain an IP address automatically” and “Obtain DNS server address automatically”, then click “OK”.

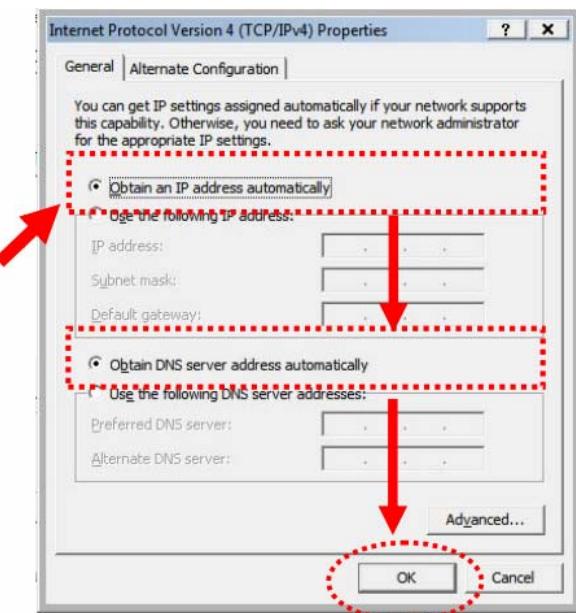


2.3.3 Windows Vista / Windows 7

1. Click “Start” button (it should be located at lower-left corner of your computer), then click control panel. Click View Network Status and Tasks, and then click Manage Network Connections. Right-click Local Area Network, then select “Properties”. Local Area Connection Properties window will appear, select “Internet Protocol Version 4 (TCP / IPv4)”, and then click “Properties”.



2. Select “Obtain an IP address automatically” and “Obtain DNS server address automatically”, then click “OK”.

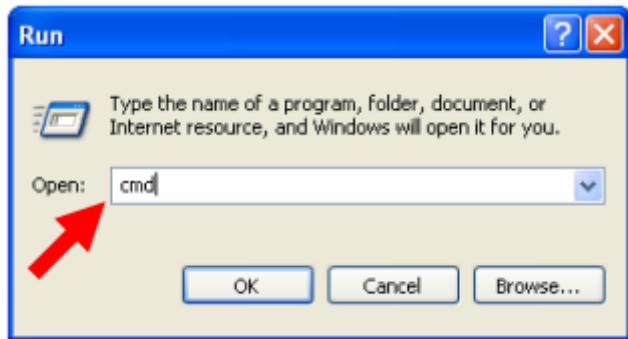


2.4 Router IP Address Lookup

After the IP address setup was completed, please clicks “start” → “run” at the bottom-lower corner of your desktop:



Input “cmd”, and then click “OK”.



Input "ipconfig", then press "Enter" key. Please check the IP address followed by "Default Gateway" (In this example, the gateway IP address of router is 192.168.1.1)

A screenshot of a command prompt window. The text shows the output of the 'ipconfig' command. It lists the 'Windows IP Configuration' for the 'Ethernet adapter Local Area Connection'. It shows the connection-specific DNS suffix as '.', the IP address as 192.168.1.100, the subnet mask as 255.255.255.0, and the default gateway as 192.168.1.1. An arrow points to the 'Default Gateway' line.

NOTE: If the IP address of Gateway is not displayed, or the address followed by 'IP Address' begins with "169.x.x.x", please recheck network connection between your computer and router, and / or go to the beginning of this chapter, to recheck every step of network setup procedure.

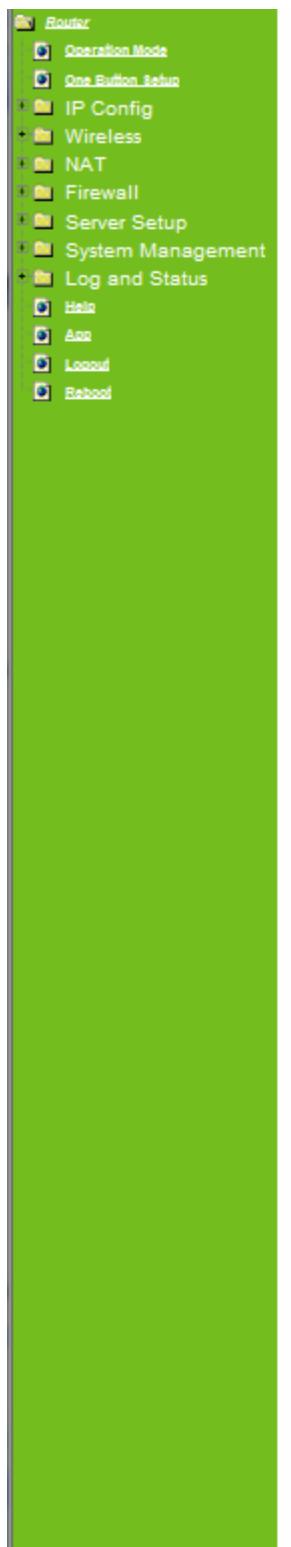
2.4.1 Log into Web GUI

After your computer obtained an IP address from wireless router, please start your web browser, and input the IP address of the wireless router in address bar, and the following message should be shown. Please click "admin" to login the GS293d.



Enter the User name and Password in to the blank and then Click **Login**. The default values for User Name and Password are **admin** (all in lowercase letters).





Network Config

This page shows the current status and some basic settings of the device.

System	
Uptime	0day:0h33m:7s
Firmware Version	2007/04/25 Ver1.0.7 B05
Wireless Configuration	
Mode	AP
Band	2.4 GHz (B+G)
SSID	3.5G_Server_Router_0d21ff
Channel Number	11
Encryption	Disabled
MAC Address	00:e0:4c:81:86:21
Associated Clients	0
LAN Configuration	
Attain IP Protocol	Fixed IP
IP Address	192.168.1.1
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
DHCP Server	Enabled
MAC Address	00:e0:4c:81:86:21
WAN Configuration	
Attain IP Protocol	Getting IP from DHCP server...
IP Address	0.0.0.0
Subnet Mask	0.0.0.0
Default Gateway	0.0.0.0
DNS 1	
DNS 2	
DNS 3	
3.5G Configuration	
Connect Speed	Auto Switch
Signal Strength	100%
Network Name	CHT
3.5G BACKUP	NO DETECT HSDPA/UMTS DEVICE!
USB A Configuration	
USB Type	Storage
Name	PQI
Model	3100
FTP	
USB B Configuration	
USB Type	Print
Name	EPSON
Model	2100
USB C Configuration	
USB Type	WebCam
Name	Microsoft
Port	8080
Preview	
USB D Configuration	
USB Type	WebCam
Name	Logitech
Port	8081
Preview	

Chapter 3 Internet Connection

This Chapter describes how to setup GS293d to the internet. The GS293d is delivered with the following factory default parameters.

Default IP address: 192.168.1.1 (Router Mode)

192.168.1.254 (AP Mode)

192.168.1.254 (WiFi AP Mode)

Default IP subnet mask: 255.255.255.0

Web login user name: admin

Web login password: admin

3.1 Plug and Play

The GS293d supports four types of Internet connection method: 3G modem card, wire or wireless connection via xDSL/Cable modem. Just connect the 3G modem card or Ethernet cable to GS293d, the router will recognize it automatically.

3.1.1 Smart Phone /iPhone Internet sharing plug and play

With GS293d, you can build an instant 802.11n wireless broadband sharing environment with your iPhone, Windows Mobile or Google smart phone. During the time you can still answer calls, send SMS and charge your phone.

Step 1. Connect iPhone/Smart phone with GS293d via USB cable.



Step 2. Select “USB Tethering” as connection type.



Step 3. Click on “Done”.



Step 4. Wait few seconds for pairing. When WAN LED on, the Internet is ready to access.



Note: 1. iPhone:

- (1) Due to difference in 3G service bundled in various carriers, please check your 3G service supports Internet tethering.
- (2) Enable Internet Tethering on iPhone 3GS / iPhone 4, and set up the screen lock to never to prevent the sharing is interrupted unexpected by the iPhone screen lock feature.

2. Google Android Phone: please turn on "USB modem mode" when connecting router.

3. Window Mobile Phone: please enable "USB to PC" function.

3.2 Router Mode- Using as a broadband router

1. Open a Web browser, and enter <http://192.168.1.1> (Default Gateway) into the blank.



2. Enter the User name and Password into the blank and then click **Login**. The default values for User Name and Password are **admin** (all in lowercase letters).



3.2.1 WAN Interface- Ethernet Port

The WAN access type is depended on the service that you contract with the provider. The GS293d provides five selections for the WAN access type, **Static IP, DHCP Client, PPPoE, PPTP and L2TP**. Check with your ISP if you don't know the WAN type.

3.2.1.1 Static IP

Select **WAN** under the **IP Config** menu, and choose Ethernet Port for the WAN Interface. Its associated setting will show up.

WAN Setup

This page is used to configure the interface for Internet network. Here you may change the interface to Ethernet port, 3.5G USB dongle or Wireless by click the item value of WAN interface.

WAN Interface: Ethernet Port

WAN Access Type: Static IP

IP Address: 172.1.1.1

Subnet Mask: 255.255.255.0

Default Gateway: 172.1.1.254

MTU Size: 1500 (1400-1500 bytes)

DNS 1:

DNS 2:

DNS 3:

Backup select: 3.5G Backup

Backup of connection, check connection in every 3 minutes.

Service: UMTS/HSPA/HSDPA/HSUPA

Auto Switch 2.5G/2.75G only 3G/3.5G only

SIM PIN: None

Retype SIM PIN:

APN: internet

Username:

Password:

PHONE Number: *99#

Clone MAC Address: 000000000000

Enable IGMP Proxy
 Enable Ping Access on WAN
 Enable Web Server Access on WAN

Item	Description
WAN Access Type	Select “Static IP”
IP Address	Enter the IP address which is provided by your ISP.
Subnet Mask	Please enter the Subnet Mask address
Default Gateway	Input ISP Default Gateway Address, .

DNS	Input DNS information which is provided by your ISP
Backup select	Select 3G as a back up solution or none.
Clone Mac Address	Some ISPs require MAC address registration. In this case, enter the MAC address registered to the provider to "Clone MAC Address"
Apply Change & Reset	Click on Apply Change to save the setting date, or you may click on Reset to clear all the input data.

3.2.1.2 DHCP Client

WAN Setup

This page is used to configure the interface for Internet network. Here you may change the interface to Ethernet port, 3.5G USB dongle or Wireless by click the item value of WAN interface.

WAN Interface:	<input type="button" value="Ethernet Port"/>
WAN Access Type:	<input type="button" value="DHCP Client"/>
Host Name:	<input type="text" value="default"/>
MTU Size:	<input type="text" value="1492"/> (1400-1492 bytes)
<input checked="" type="radio"/> Attain DNS Automatically <input type="radio"/> Set DNS Manually	
DNS 1:	<input type="text"/>
DNS 2:	<input type="text"/>
DNS 3:	<input type="text"/>
Backup select:	<input type="button" value="3.5G Backup"/>
Backup of connection, check connection in every <input type="text" value="3"/> minutes.	
Service:	<input type="button" value="UMTS/HSPA/HSDPA/HSUPA"/>
Connect Speed:	<input checked="" type="radio"/> Auto Switch <input type="radio"/> 2.5G/2.75G only <input type="radio"/> 3G/3.5G only
SIM PIN:	<input type="text"/> <input checked="" type="checkbox"/> None
Retype SIM PIN:	<input type="text"/>
APN:	<input type="text" value="internet"/>
Username:	<input type="text"/>
Password:	<input type="text"/>
PHONE Number:	<input type="text" value="*99#"/>
Clone MAC Address:	<input type="text" value="000000000000"/>
<input checked="" type="checkbox"/> Enable IGMP Proxy <input type="checkbox"/> Enable Ping Access on WAN <input checked="" type="checkbox"/> Enable Web Server Access on WAN	
<input type="button" value="Apply Change"/> <input type="button" value="Reset"/>	

Item	Description
------	-------------

WAN Access Type	Select "DHCP Client"
Host Name	You can keep the default as the host name, or input a specific name if required by your ISP.
DNS	Select Attain DNS Automatically . Or select Set DNS Manually , if you want to specify the DNS, and enter the DNS provided by your ISP in DNS 1 2 3.
Backup select	Select 3G as a back up solution or none.
Clone Mac Address	Some ISPs require MAC address registration. In this case, enter the MAC address registered to the provider to "Clone MAC Address"
Apply Change & Reset	Click on Apply Change to save the setting date, or you may click on Reset to clear all the input data.

3.2.1.3 PPPoE

WAN Setup

This page is used to configure the interface for Internet network. Here you may change the interface to Ethernet port, 3.5G USB dongle or Wireless by click the item value of WAN interface.

WAN Interface:

WAN Access Type:

User Name:

Password:

Service Name:

Connection Type:

Idle Time: (1-1000 minutes)

MTU Size: (1360-1492 bytes)

Attain DNS Automatically
 Set DNS Manually

DNS 1:

DNS 2:

DNS 3:

Backup select: Backup of connection, check connection in every minutes.

Service: Auto Switch 2.5G/2.75G only 3G/3.5G only

Connect Speed: None

SIM PIN: None

Retype SIM PIN:

APN:

Username:

Password:

PHONE Number:

Clone MAC Address:

Enable IGMP Proxy
 Enable Ping Access on WAN
 Enable Web Server Access on WAN

Item	Description
WAN Access Type	Select "PPPoE"
User Name	Input your user name provided by your ISP. If you don't know, please check with your ISP.
Password	Input the password provided by your ISP.
Service Name	Input the service name provided by your ISP.
Connection Type	Three types for select: Continues , Connect on Demand , and Manual .
DNS	Select Attain DNS Automatically . Or select Set DNS Manually , if you want to specify the DNS, and enter the DNS provided by your ISP in DNS 1 2 3.
Backup select	Select 3G as a back up solution or none.
Clone Mac Address	Some ISPs require MAC address registration. In this case, enter the MAC address registered to the provider to "Clone MAC Address"
Apply Change & Reset	Click on Apply Change to save the setting date, or you may click on Reset to clear all the input data.

3.2.1.4 PPTP

WAN Setup

This page is used to configure the interface for Internet network. Here you may change the interface to Ethernet port, 3.5G USB dongle or Wireless by click the item value of WAN interface.

WAN Interface:

WAN Access Type:

Address Mode: Dynamic Static

Server IP Address:

User Name:

Password:

MTU Size: (1400-1460 bytes)

Enable MPPE Encryption

Enable MPPC Compression

Attain DNS Automatically

Set DNS Manually

DNS 1:

DNS 2:

DNS 3:

Backup select:

Backup of connection, check connection in every minutes.

Service:

Connect Speed: Auto Switch 2.5G/2.75G only 3G/3.5G only

SIM PIN: None

Retype SIM PIN:

APN:

Username:

Password:

PHONE Number:

Clone MAC Address:

Enable IGMP Proxy

Enable Ping Access on WAN

Enable Web Server Access on WAN

Item	Description
WAN Access Type	Select "PPTP"
Server IP Address	Input your server IP address provided by your ISP. If you don't know, please check with your ISP.

User Name	Input PPTP account provided by your ISP.
Password	Input the password provided by your ISP.
DNS	Select Attain DNS Automatically . Or select Set DNS Manually , if you want to specify the DNS, and enter the DNS provided by your ISP in DNS 1 2 3.
Backup select	Select 3G as a back up solution or none.
Clone Mac Address	Some ISPs require MAC address registration. In this case, enter the MAC address registered to the provider to "Clone MAC Address"
Apply Change & Reset	Click on Apply Change to save the setting date, or you may click on Reset to clear all the input data.

3.2.1.5 L2TP

WAN Setup

This page is used to configure the interface for Internet network. Here you may change the interface to Ethernet port, 3.5G USB dongle or Wireless by click the item value of WAN interface.

WAN Interface:

WAN Access Type:

Address Mode: Dynamic Static

Server IP
Address/Host
Name:

User Name:

Password:

MTU Size: (1400-1460 bytes)

Attain DNS Automatically
 Set DNS Manually

DNS 1:

DNS 2:

DNS 3:

Backup select:

Backup of connection, check connection in every minutes.

Service:

Connect Speed: Auto Switch 2.5G/2.75G only 3G/3.5G only

SIM PIN: None

Retype SIM PIN:

APN:

Username:

Password:

PHONE Number:

Clone MAC Address:

Enable IGMP Proxy
 Enable Ping Access on WAN
 Enable Web Server Access on WAN

Item	Description
WAN Access Type	Select "PPTP"
Server IP Address / Host Name	Input your server IP address or Host Name provided by your ISP. If you don't know, please check with your ISP.
User Name	Input PPTP account provided by your ISP.
Password	Input the password provided by your ISP.
DNS	Select Attain DNS Automatically . Or select Set DNS Manually , if you want to specify the DNS, and enter the DNS provided by your ISP in DNS 1 2 3.

Backup select	Select 3G as a back up solution or none.
Clone Mac Address	Some ISPs require MAC address registration. In this case, enter the MAC address registered to the provider to "Clone MAC Address"
Apply Change & Reset	Click on Apply Change to save the setting date, or you may click on Reset to clear all the input data.

3.2.1.6 Advance function

Item	Description
MTU	Maximum Transmission Unit. Usually provide by computer operation systems (OS). Advanced users can set it manually.
Request MPPE Encryption	Microsoft Point-to-Point Encryption (MPPE) provides data security for the PPTP connection that is between the VPN client and VPN server.
Enable IGMP Proxy	Enable IGMP Proxy to provide the service for IP hosts and adjacent multicast routers to establish multicast group memberships.
Enable Ping Access on WAN	Enable Ping Access on WAN will make WAN IP address response to any ping request from Internet users. However, it is also a comma way for hacker to ping public WAN IP address, to see is there any WAN IP address available.
Enable Web Server Access on WAN	This option is to enable Web Server Access function on WAN.

3.2.2 WAN Interface- 3G USB dongle

Select **WAN** under the **IP Config** menu, and choose 3G usb dongle for the WAN Interface. Its associated setting will show as below.

WAN Setup

This page is used to configure the interface for Internet network. Here you may change the interface to Ethernet port, 3.5G USB dongle or Wireless by click the item value of WAN interface.

WAN Interface:

Service:

Connect Speed: Auto Switch 2.5G/2.75G only 3G/3.5G only

SIM PIN: None

Retype SIM PIN:

APN:

Username:

Password:

PHONE Number:

Attain DNS Automatically
 Set DNS Manually

DNS 1:

DNS 2:

DNS 3:

Clone MAC Address:

Always
 Dial on demand

Idle (0~60 Minutes, if input 0 or no input, it will set to Always mode)

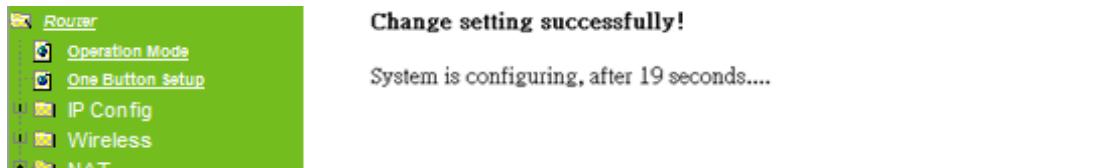
Manual

Enable IGMP Proxy
 Enable Ping Access on WAN
 Enable Web Server Access on WAN

Item	Description
APN (Access Point Name)	Enter the access point name. If you do not know the setting information for APN, check with your 3G service provider.
User Name	Enter the User Name supplied by the provider.
Password	Enter the password supplied by the provider.
Phone Number	Enter the subscribing access point's phone number.
DNS	Select Attain DNS Automatically . Or select Set DNS Manually , if you want to specify the DNS, and enter the DNS provided by your ISP in DNS 1 2 3.
Clone Mac Address	Some ISPs require MAC address registration. In this case, enter the MAC address registered to the provider to "Clone MAC Address"
Always / Dial on demand	If your 3G USB adapter is a pay-as-you-go plan base, select "Dial on demand" and disconnect the connection when you don't use the

	internet.
Enable IGMP Proxy	Enable IGMP Proxy to provide the service for IP hosts and adjacent multicast routers to establish multicast group memberships.
Enable Ping Access on WAN	Enable Ping Access on WAN will make WAN IP address response to any ping request from Internet users. However, it is also a comma way for hacker to ping public WAN IP address, to see if there any WAN IP address available.
Enable Web Server Access on WAN	This option is to enable Web Server Access function on WAN.
Apply Change	Click “ Finish ” to complete the setting

Rebooting this product is started. Please wait for a while.



3.2.3 WAN Interface- Wireless

Select WAN under the IP Config menu, and choose wireless for the WAN Interface. Its associated setting will show as below.

WAN Setup

This page is used to configure the interface for Internet network. Here you may change the interface to Ethernet port, 3.5G USB dongle or Wireless by click the item value of WAN interface.

WAN Interface:	wireless					
SSID	BSSID	Channel	Type	Encrypt	Signal	Select
3+4G_GR	00:1f:1fd5:a9:78	3 (B+G+N)	AP	no	64	<input type="radio"/>
GR-1733	80:1f:02:13:d8:14	3 (B+G+N)	AP	no	28	<input type="radio"/>

Encryption:

WAN Access Type:

Host Name:

MTU Size: (1400-1492 bytes)

Attain DNS Automatically
 Set DNS Manually

DNS 1:

DNS 2:

DNS 3:

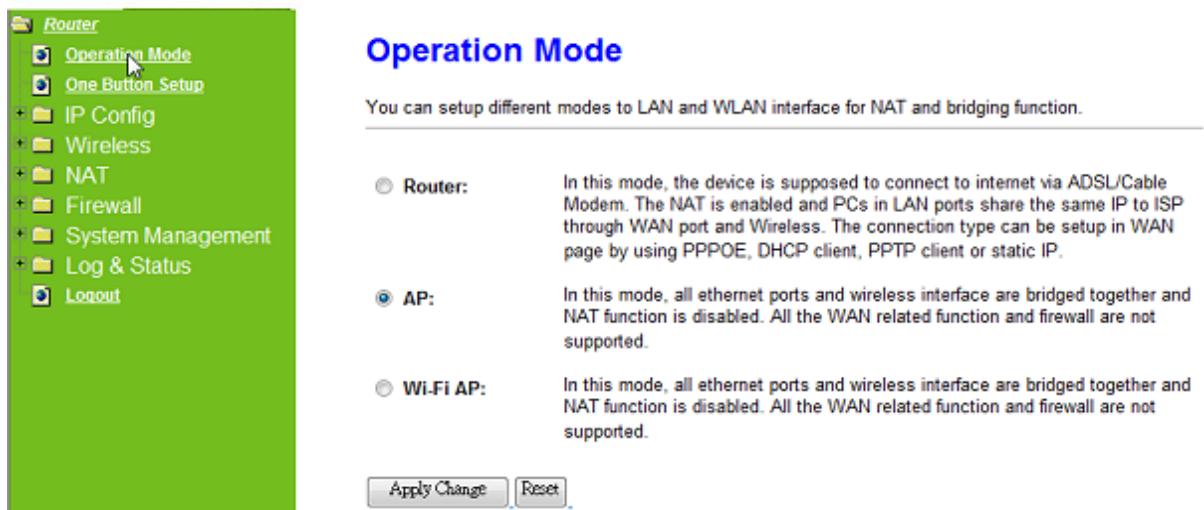
Clone MAC Address:

Enable IGMP Proxy
 Enable Ping Access on WAN
 Enable Web Server Access on WAN

Item	Description
Refresh	You can see a list of available Wireless networks. Select the preferred one.
Encryption type	Select the Encryption type form the drop-down list.
WAN Access Type	Select Static IP, DHCP, PPPoE, PPTP or L2TP.
DNS	Select Attain DNS Automatically . Or select Set DNS Manually , if you want to specify the DNS, and enter the DNS provided by your ISP in DNS 1 2 3.
Clone Mac Address	Some ISPs require MAC address registration. In this case, enter the MAC address registered to the provider to "Clone MAC Address"
Apply Change & Reset	Click on Apply Change to save the setting date, or you may click on Reset to clear all the input data.

3.3 AP Mode-Using as a Access Point

Make sure to shift the mode into AP Mode.



Operation Mode

You can setup different modes to LAN and WLAN interface for NAT and bridging function.

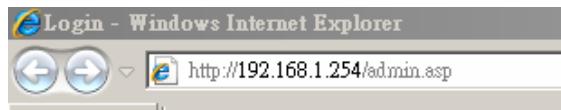
Router: In this mode, the device is supposed to connect to internet via ADSL/Cable Modem. The NAT is enabled and PCs in LAN ports share the same IP to ISP through WAN port and Wireless. The connection type can be setup in WAN page by using PPPOE, DHCP client, PPTP client or static IP.

AP: In this mode, all ethernet ports and wireless interface are bridged together and NAT function is disabled. All the WAN related function and firewall are not supported.

Wi-Fi AP: In this mode, all ethernet ports and wireless interface are bridged together and NAT function is disabled. All the WAN related function and firewall are not supported.

When this product is used as an access point, the IP address has to be changed. The default IP under AP mode is 192.168.1.254.

1. Open a Web browser, and enter <http://192.168.1.254> (Default Gateway) into the blank.



2. Enter the User name and Password in to the blank and then Click **Login**. The default values for User Name and Password are **admin** (all in lowercase letters).



Select **LAN** under the **IP Config** menu

LAN Interface Setup

This page is used to configure the parameters for local area network which connects to the LAN port of your Access Point. Here you may change the setting for IP address, subnet mask, DHCP, etc..

IP Address:

Subnet Mask:

Default Gateway:

DHCP:

DHCP Client Range: -

DHCP Lease Time: (1 ~ 10080 minutes)

Static DHCP:

Device Name:

802.1d Spanning Tree:

Clone MAC Address:

Item	Description
Device Name	Input a name for this router.
IP Address	The default IP address is 192.168.1.254
Subnet Mask	Enter the Subnet Mask address
Default Gateway	Enter the Default Gateway address for LAN interfaces
DHCP	Select DHCP type: Client , Disable , or Server under different environment.
DHCP Client Range	When enable DHCP server, you can fill in the start and end IP address; client will be assigned an IP address from the range.
802.1d Spanning Tree	Disable or Enable the 802.1d Spanning Tree Protocol (STP)
Clone Mac Address	Some ISPs require MAC address registration. In this case, enter the MAC address registered to the provider to "Clone MAC Address"
Apply Change & Reset	Click on Apply Change to save the setting date, or you may click on Reset to clear all the input data.

3.4 WiFi AP Mode- Using as a Network Converter

Make sure to shift the mode into WiFi AP Mode.

AP

- Operation Mode
- One Button Setup

- IP Config
- LAN
- Wireless
- System Management
- Log & Status
- Logout

Operation Mode

You can setup different modes to LAN and WLAN interface for NAT and bridging function.

Router: In this mode, the device is supposed to connect to internet via ADSL/Cable Modem. The NAT is enabled and PCs in LAN ports share the same IP to ISP through WAN port or Wireless. The connection type can be setup in WAN page by using PPPoE, DHCP client, PPTP client or static IP.

AP: In this mode, all ethernet ports and wireless interface are bridged together and NAT function is disabled. All the WAN related function and firewall are not supported.

Wi-Fi AP: In this mode, all ethernet ports and wireless interface are bridged together and NAT function is disabled. All the WAN related function and firewall are not supported.

The default gateway is <http://192.168.1.254> and for User Name and Password are **admin** (all in lowercase letters). Click **Login** to enter.



LAN Interface Setup

This page is used to configure the parameters for local area network which connects to the LAN port of your Access Point. Here you may change the setting for IP address, subnet mask, DHCP, etc..

IP Address:

Subnet Mask:

Default Gateway:

DHCP:

DHCP Client Range: -

DHCP Lease Time: (1 ~ 10080 minutes)

Static DHCP:

Device Name:

802.1d Spanning Tree:

Clone MAC Address:

Item	Description
Device Name	Input a name for this router.
IP Address	The default IP address is 192.168.1.254
Subnet Mask	Enter the Subnet Mask address
Default Gateway	Enter the Default Gateway address for LAN interfaces
DHCP	Select DHCP type: Client , Disable , or Server under different environment.
DHCP Client Range	When enable DHCP server, you can fill in the start and end IP address; client will be assigned an IP address from the range.
802.1d Spanning Tree	Disable or Enable the 802.1d Spanning Tree Protocol (STP)
Clone Mac Address	Some ISPs require MAC address registration. In this case, enter the MAC address registered to the provider to "Clone MAC Address"
Apply Change & Reset	Click on Apply Change to save the setting date, or you may click on Reset to clear all the input data.

Chapter 4 Wireless Setup

4.1 Wireless Setup

There are two ways to setup wireless LAN with GS293d. You can use either way to setup Wireless LAN.

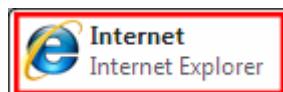
4.1.1 Setup Wireless LAN by WPS button

You can setup wireless LAN easily by using the WPS button if both WLAN router and the WLAN adapter (client) are WPS supported. Before starting the setup, please check the things below:

- λ Get ready for Internet connection with GS293d
- λ The WLAN adapter is finished installation and plug in your computer/ laptop.

There are two ways to setup a wireless LAN between GS293d and your wireless adapter:

1. Setup with WPS button, if your wireless adapter has a physical WPS button.
 - (1) Press the WPS button from GS293d and wait for Wireless/WPS LED light changed into orange.
 - (2) Press the WPS button from the adapter until the setup window shows up.
 - (3) Open a web browser to check the internet connection.

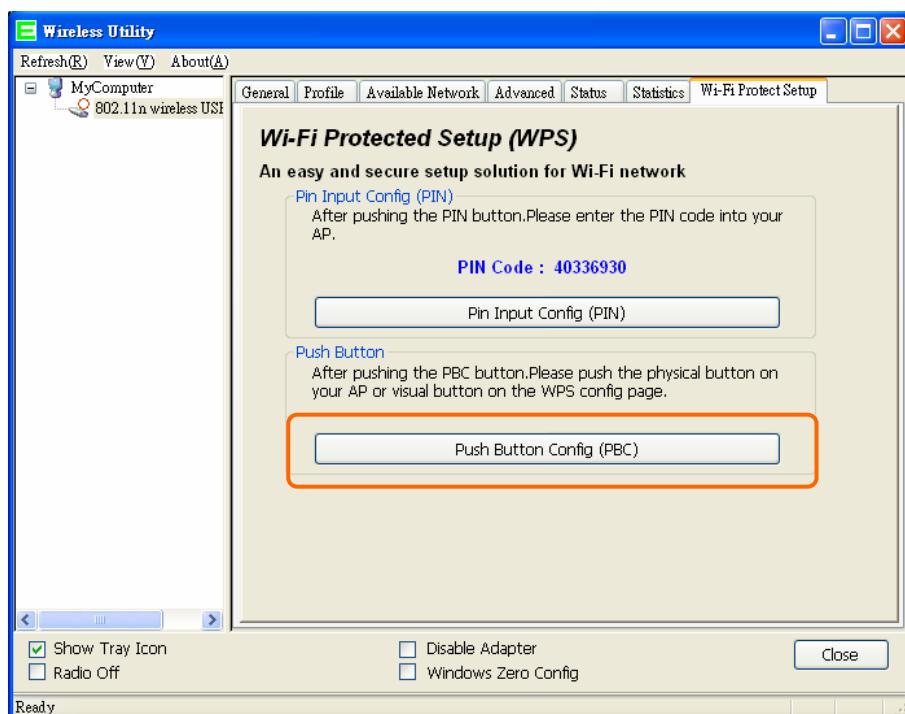


- (4) Setup without WPS button if you wireless adapter has only virtual WPS function.
- (5) Open Wireless adapter utility.



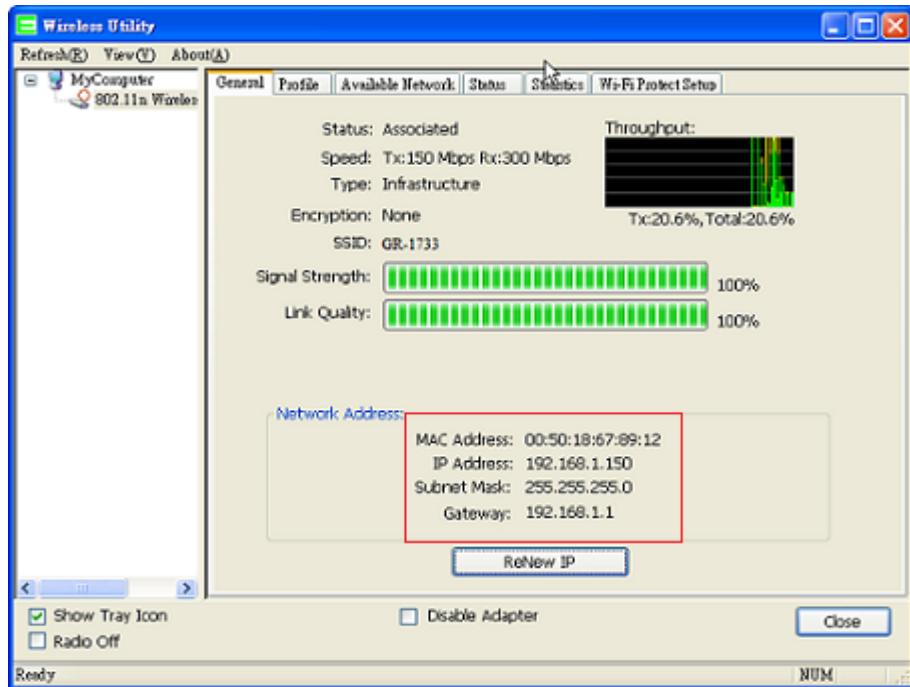
- (6) Press the WPS button (A) from GS293d and wait for Wireless/WPS LED light (B) changed into orange.

(7) Back to the WLAN adapter utility and click its "PBC" (C) button.



The utility will start searching the destination connection.

(8) Confirm the information from the Utility

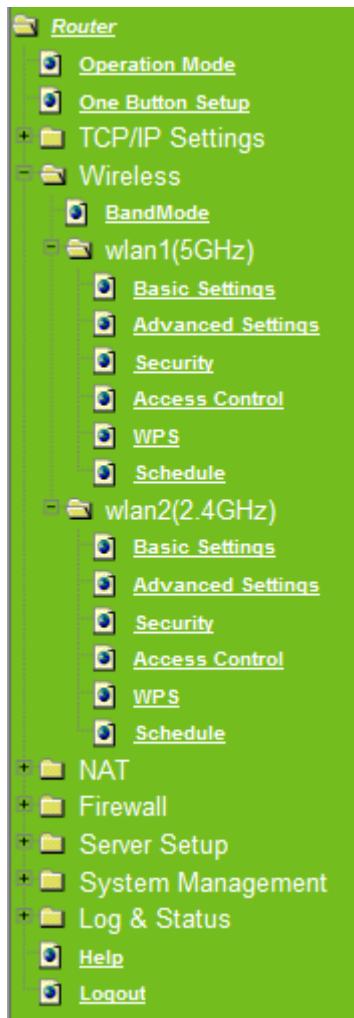


(9) After completes the WPS setup. Please confirm that it can be connected to the Internet.

Note: The setup image might be some differences when using other branded Adapter.

4.1.2 Wireless Basic Setup from Web GUI

The Wireless Basic Settings include Band, Mode, SSID, Channel Number and other wireless settings.



Disable Wireless LAN Interface

Band:

Mode:

Network Type:

SSID:

Channel Width:

Control Sideband:

Channel Number:

Broadcast SSID:

WMM:

Data Rate:

Associated Clients:

Enable Mac Clone (Single Ethernet Client)

Enable Universal Repeater Mode (Acting as AP and client simultaneously)

SSID of Extended Interface:

Item	Description
Disable Wireless LAN Interface	Turn off the wireless service.
2.4G Band	Select the frequency. It has 6 options: 2.4 GHz (B/G/N/B+G/G+N/B+G+N).
5G Band	Select the frequency. It has 3 options: 5 GHz (A / N / A+N).
Mode	Select the mode. It has 3 modes to select: (AP, Client,). Multiple AP * In Wi-Fi AP mode only support Client mode.
SSID	Service Set identifier, users can define to any or keep as default.
Channel Width	Please select the channel width, it has 3 options: Auto 、20MHz, and 40MHz.
Control Sideband	Enable this function will control your router use lower or upper channel.
2.4G Channel Number	Please select the channel; it has Auto, 1, 2~11 or 13 options.
5G Channel Number	Please select the channel; it has Auto, 36,40,44,48,52,56,60,64,100,104,108,112,116,120,124,128,132,136,140,149,153,157,161,165.
Broadband SSID	User may choose to enable Broadcast SSID or not.
Data Rate	Please select the data transmission rate.
Associate Clients	Check the AP connectors and the Wireless connecting status.

Enable MAC Clone (Single Ethernet Client)	Clone the MAC address for ISP to identify.
Enable Universal Repeater Mode (Acting as AP and Client simultaneously)	Allow to equip with the wireless way conjunction upper level, provide the bottom layer user link in wireless and wired way in the meantime. (The IP that bottom layer obtains is from upper level.) Please also check Section 4.1.2.2
SSID of Extended Interface	While linking the upper level device in wireless way, you can set SSID to give the bottom layer user search.
Apply Change & Reset	Click on Apply Change to save the setting date, or you may click on Reset to clear all the input data.

* Under WiFi AP Mode, there are 2 options of Network type: Infrastructure or Ad hoc. Select Infrastructure if connecting to a wireless router or access point. Select Ad hoc if connecting directly to another wireless adapter.

4.1.2.1 Multiple APs

The GS293d can support several SSIDs (wireless LAN group). It can be used as if there are multiple wireless LAN access points with one product. Each SSID could be set with different data rate, WMM and access type.

Multiple APs

This page shows and updates the wireless setting for multiple APs.

No.	Enable	Band	SSID	Data Rate	Broadcast SSID	WMM	Access	Active Client List
AP1	<input checked="" type="checkbox"/>	2.4 GHz (B+G+N)	Multiple_AP1	Auto	Enabled	Enabled	LAN+WAN	<input type="button" value="Show"/>
AP2	<input checked="" type="checkbox"/>	2.4 GHz (B+G+N)	Multiple_AP2	Auto	Enabled	Enabled	LAN+WAN	<input type="button" value="Show"/>
AP3	<input checked="" type="checkbox"/>	2.4 GHz (B+G+N)	Multiple_AP3	Auto	Enabled	Enabled	LAN+WAN	<input type="button" value="Show"/>
AP4	<input checked="" type="checkbox"/>	2.4 GHz (B+G+N)	Multiple_AP4	Auto	Enabled	Enabled	LAN+WAN	<input type="button" value="Show"/>

Item	Description
Enable	Enable or disable the service.
Band	Select the frequency.
SSID	Enter the SSID
Data Rate	Select the data transmission rate.
Access	Enable this function can let clients use two access types: a. LAN+WAN: the client can access to the Internet and access in the router's GUI. b. WAN: the client can only access to the Internet.

Active Client List	Display the properties of the client which is connecting successfully.
Apply Change & Reset	Click on Apply Change to save the setting date, or you may click on Reset to clear all the input data.

4.1.2.2 Enable Universal Repeater Mode

The router can act as Station and AP at the same time. It can use Station function to connect to a Root AP and use AP function to service all wireless stations within its coverage.



Example: When users enable the Universal Repeater to connect to the upper level device, please fill in the upper level device's channel and SSID. Click on Apply Changes to save the settings.

(Please disable the DHCP service first)

Channel Number:	6
Broadcast SSID:	Enabled
WMM:	Enabled
Data Rate:	Auto
Associated Clients:	Show Active Clients
<input type="checkbox"/> Enable Mac Clone (Single Ethernet Client) <input checked="" type="checkbox"/> Enable Universal Repeater Mode (Acting as AP and client simultaneously)	
SSID of Extended Interface:	E_GR-1733
<input type="button" value="Apply Change"/> <input type="button" value="Reset"/>	

Users can use the Network Configuration page to check the information about "Wireless Repeater Interface Configuration".

4.2 Wireless Security Setup

Wireless 1 Configuration	
Mode	AP
Band	5 GHz (A+N)
SSID	11N_Broadband_Router_0d21ff
Channel Number	11
Encryption	Disabled
MAC Address	00:e0:4c:81:86:21
Associated Clients	0
Wireless 2 Configuration	
Mode	AP
Band	2.4 GHz (N)
SSID	11N_Broadband_Router_0d21ff
Channel Number	11
Encryption	Disabled
MAC Address	00:e0:4c:81:86:21
Associated Clients	0

Here users define the security type and level of the wireless network. Selecting different methods provides different levels of security. **Please note that using any encryption may cause a significant degradation of data throughput on the wireless link.** There are five Encryption types supported: "None", "WEP", "WPA (TKIP)", "WPA2(AES)", and "WPA2 Mixed". Enabling WEP can protect your data from eavesdroppers. If you do not need this feature, select "None" to skip the following setting.

Router

- Operation Mode
- One Button Setup
- IP Config
- Wireless
 - Basic Settings
 - Advanced Setting
 - Security (selected)
 - Access Control
 - WDS settings
 - WPS
- NAT
- Firewall
- System Management
- Log and Status

Wireless Security Setup

This page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Key any unauthorized access to your wireless network.

Select SSID: Root AP - GR-1733

Encryption:	<input type="button" value="Disable"/>
	<input type="button" value="WEP"/>
	<input type="button" value="WPA"/>
	<input type="button" value="WPA2"/>
	<input type="button" value="WPA-Mixed"/>

802.1x

Authentication:

1. Encryption- WEP Key

- (1) Set WEP Key: This section provides 64bit and 128bit WEP encryptions and two

different shared key formats (ASCII and Hex) for wireless network.

Wireless Security Setup

This page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network.

Select SSID: Root AP - GR-1733

Encryption: WEP

802.1x

Authentication: Open System Shared Key Auto

Key Length: 64-bit

Key Format: Hex (10 characters)

Encryption Key: *****

(2) 802.1x Authentication

It is a safety system by using authentication to protect your wireless network.

2. Encryption- WPA (WPA, WPA2, and WPA2 Mixed), WPA Authentication Mode

(1) Enterprise (RADIUS): Please fill in the RADIUS server Port, IP Address, and Password

Wireless Security Setup

This page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network.

Select SSID: Root AP - GR-1733

Encryption: WPA

Authentication Mode: Enterprise (RADIUS) Personal (Pre-Shared Key)

WPA Cipher Suite: TKIP AES

RADIUS Server IP Address:

RADIUS Server Port: 1812

RADIUS Server Password:

(2) Personal (Pre-Shared Key): Pre-Shared Key type is ASCII Code; the length is between 8 to 63 characters. If the key type is Hex, the key length is 64 characters.

Wireless Security Setup

This page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network.

Select SSID:

Encryption:

Authentication Mode: Enterprise (RADIUS) Personal (Pre-Shared Key)

WPA Cipher Suite: TKIP AES

Pre-Shared Key Format:

Pre-Shared Key:

(3) Apply Change & Reset: Click on 'Apply Changes' to save setting data. Or click 'Reset' to reset all the input data.

4.3 Wireless Access Control

Access Control allows user to block or allow wireless clients to access this router. Users can select the access control mode, then add a new MAC address with a simple comment and click on "Apply Change" to save the new addition. To delete a MAC address, select its corresponding checkbox under the Select column and click on "Delete Selected" button.

Wireless Access Control

If you choose 'Allowed Listed', only those clients whose wireless MAC addresses are in the access control list will be able to connect to your Access Point. When 'Deny Listed' is selected, these wireless clients on the list will not be able to connect the Access Point.

Wireless Access Control Mode:

MAC Address: Comment:

Current Access Control List:

MAC Address	Comment	Select
-------------	---------	--------

Take the wireless card as the example.

(1) Please select Deny Listed in Wireless Access Control Mode first, and then fill in the MAC address what you plan to block in the MAC Address field. Click Apply Changes to save the setting.

Wireless Access Control

If you choose 'Allowed Listed', only those clients whose wireless MAC addresses are in the access control list will be able to connect to your Access Point. When 'Deny Listed' is selected, these wireless clients on the list will not be able to connect the Access Point.

Wireless Access Control Mode: Deny Listed

MAC Address: 0018F8638A54 Comment:

Current Access Control List:

MAC Address	Comment	Select
0018F8638A54		<input type="checkbox"/>

(2) The MAC address what you set will be displayed on the Current Access Control List.

Wireless Access Control

If you choose 'Allowed Listed', only those clients whose wireless MAC addresses are in the access control list will be able to connect to your Access Point. When 'Deny Listed' is selected, these wireless clients on the list will not be able to connect the Access Point.

Wireless Access Control Mode: Deny Listed

MAC Address: Comment:

Current Access Control List:

MAC Address	Comment	Select
0018f8:63:8a:54		<input type="checkbox"/>

(3) The wireless client will be denied by the wireless router.

Chapter 5 Router Mode Security Setup

This section contains configurations for the GS293d's advanced functions such as: virtual server, DMZ, and Firewall to provide your network under a security environment.

5.1 NAT

5.1.1 Virtual Server

The Virtual Server feature allows users to create Virtual Servers by re-directing a particular range of service port numbers (from the WAN port) to a particular LAN IP address.

Enable Port Forwarding: Enabled Disabled

IP Address:

Protocol:

Public Port Range: -

Private Port Range: -

Comment:

Current Filter Table:

IP Address	Protocol	Public Port Range	Private Port Range	Comment	Select
<input type="button" value="Delete Selected"/>	<input type="button" value="Delete All"/>	<input type="button" value="Reset"/>			

Item	Description
Enable Port Forwarding	Select to enable Port Forwarding service or not.
IP Address	Specify the IP address which receives the incoming packets.
Protocol	Select the protocol type.
Public Port Range	Enter the port number, for example 80-80.
Private Port Range	Enter the port number, for example 20-22.
Comment	Add comments for this port forwarding rule.
Add	Click on Add to enable the settings.
Current Port Forwarding Table	It will display all port forwarding regulation you made.
Delete Selected & Delete All	Click Delete Selected will delete the selected item. Click Delete All will delete all items in this table.
Reset	Click Reset to cancel.

Please find the following figure to know that what the virtual server is. The web server is located on 192.168.1.100, forwarding port is 80, and type is TCP+UDP.

5.1.2 Virtual DMZ

The DMZ feature allows one local user to be exposed to the Internet for special-purpose applications like Internet gaming or videoconferencing. When enabled, this feature opens all ports to a single station and hence renders that system exposed to intrusion from outside. The port forwarding feature is more secure because it only opens the ports required by that application.

Virtual DMZ

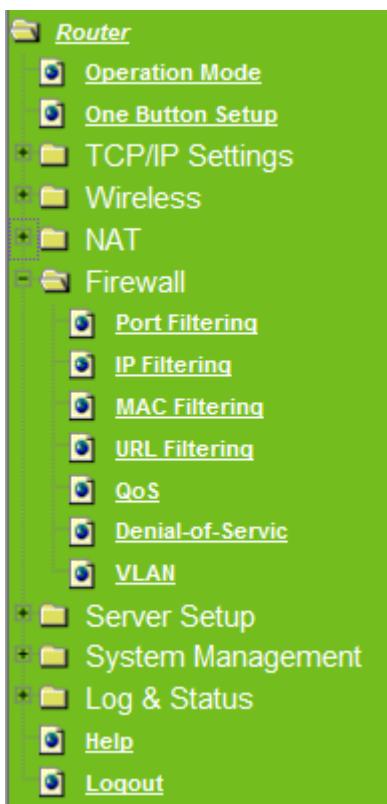
A Demilitarized Zone is used to provide Internet services without sacrificing unauthorized access to its local private network. Typically, the DMZ host contains devices accessible to Internet traffic, such as Web (HTTP) servers, FTP servers, SMTP (e-mail) servers and DNS servers.

Enable DMZ

DMZ Host IP Address:

Item	Description
Enable DMZ	It will enable the DMZ service if you select it.
DMZ Host IP Address	Please enter the specific IP address for DMZ host.
Apply Changes & Reset	Click on Apply Changes to save the setting data. Or you may click on Reset to clear all the input data.

5.2 Firewall



5.2.1 Port Filtering

When enabled packets are denied access to Internet/filtered based on their port address.

Port Filtering

Entries in this table are used to restrict certain types of data packets from your local network to Internet through the Gateway. Use of such filters can be helpful in securing or restricting your local network.

Enable Port Filtering

Port Range: - Protocol: Comment:

Current Filter Table:

Port Range	Protocol	Comment	Select
<input type="button" value="Delete Selected"/>	<input type="button" value="Delete All"/>	<input type="button" value="Reset"/>	

Item	Description
Enable Port Filtering	Select Enable Port Filtering to filter ports.
Port Range	Enter the port number that needs to be filtered.
Protocol	Please select the protocol type of the port.