TGAR-W1061+ Series

IEEE 802.11 a/b/g/n Celluar Router with Gigabit PoE Port & Waterproof Housing

User Manual

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Getting Started

1.1 About TGAR-W1601+ Series

The TGAR-W1601+ series are reliable outdoor routers with one 802.11 a/b/g/n wireless module alongside one Gigabit LAN port in M12 connector. With EN50155 compliance and M12 connector to ensure tight and robust connections, the device guarantees reliable operation against environmental disturbances, such as vibration and shock, and are ideal for rolling stock applications. The router comes with an IP-67 waterproof housing to protect it from damage in harsh weather when installed outdoors. Featuring two N-Type connectors for wireless connection, the device is ideal for the toughest industrial environments. In addition, the LAN port of the devices is PoE-enabled, allowing the device to be powered over the existing network cable. Consisting of 3G and 4G models, Users can set up WLAN environment to fulfill demands of various applications rapidly by dialing up cellular modem.

1.2 Software Features

- High speed air connectivity with support up to 300Mbps
- Provides HNAT to enhance LAN to WAN routing performance
- Highly secure transmission with WEP/WPA/WPA-PSK(TKIP,AES)/ WPA2/WPA2-PSK(TKIP,AES)/802.1X Authentication supported
- Various kinds of WAN connections supported, including modem dial up and Wireless client WAN
- Configurable IP tables to prevent unauthorized access
- 3.5G HSDPA modem dial up (3G models)
- 4G LTE modem dial up (4G models)
- Supports VPN for secure network connection (Open VPN , PPTP VPN)
- Supports NAT setting (virtual server , port trigger , DMZ , UPnP)
- Wireless connecting status monitoring
- Secured Management by HTTPS
- Event warning via Syslog, e-mail, SNMP traps, and Beeper
- Versatile modes & event alarm by e-mail

1.3 Hardware Features

- 1 x 10/100/1000 Base-T(X) Ethernet port in M12 connector
- 2 x WLAN antenna connectors
- 1 x cellular antenna connector
- EN50155 compliance
- Redundant power inputs: 12~48 VDC
- Casing: IP-67
- Dimensions: 310 (W) x 310 (D) x 87 (H) (12.2 x 12.2 x 3.4 inch)
- Operating temperature: -25 to 70°C
- Storage temperature: -40 to 85°C
- Operating humidity: 5% to 95%, non-condensing
- Wall mounting enabled

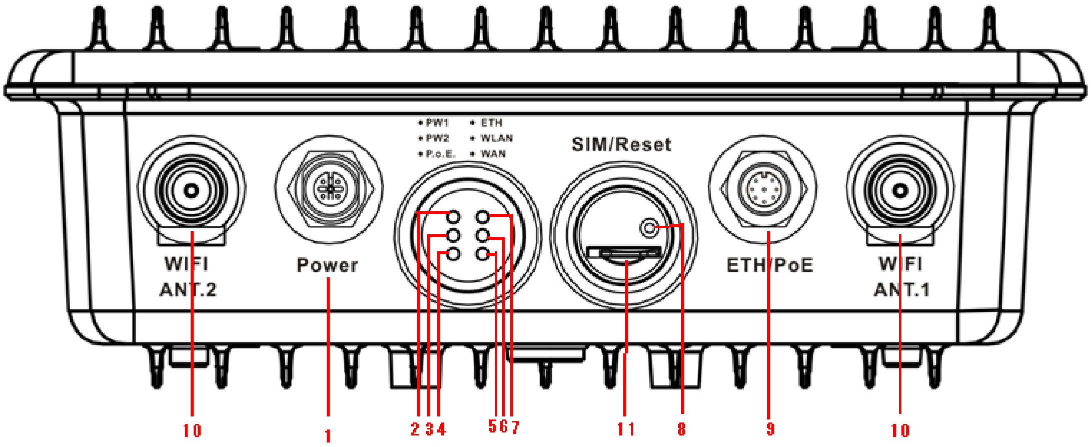
Hardware Overview

2.1 Bottom Panel

2.1.1 Ports and Connectors

The device is equipped with the following ports and features on the bottom panel.

Port	Description
10/100/1000Base-T(X) Ethernet ports with M12 connectors	1 x 10/100/1000 Base-T(X) ports supporting auto-negotiation.
M12 power connector with redundant power inputs	Dual power inputs for 12~48 VDC
SIM card slot	1 x SIM card slot
Reset button	1 x reset button. To restore the device configurations back to the factory defaults, press the button for a few seconds. Once the power indicator starts to flash, release the button. The device will then reboot and return to factory defaults.
Antenna connector	1 x N-type female antenna connector for cellular on top and 2 x N-type female antenna connectors for Wifi on bottom.

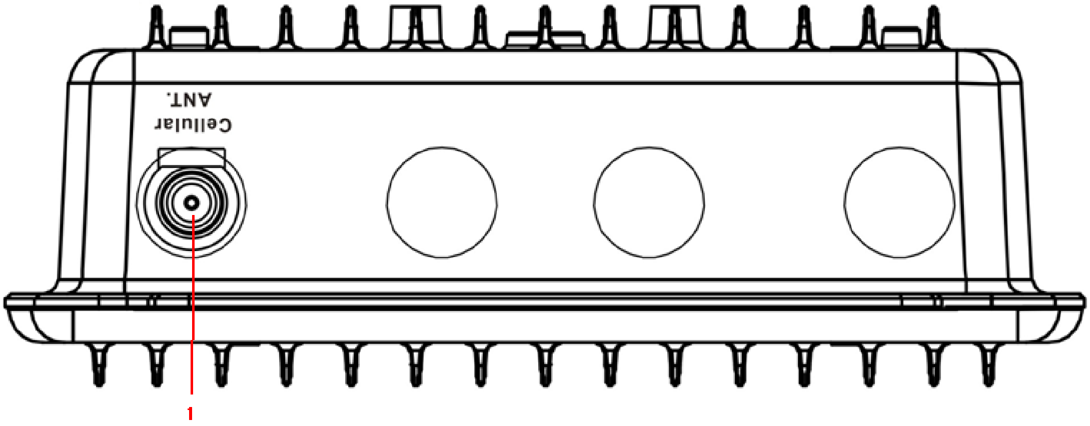


1. Power connector
2. LED for PWR1 status
3. LED for PW2 status
4. LED for PoE status
5. LED for WAN connection
6. LED for WLAN connection
7. LED for LAN connection
8. Reset button
9. LAN port
10. Connector for WiFi antenna
11. SIM card slot

2.1.2 Bottom Panel LEDs

LED	Color	Status	Description
PWR1	Green	On	DC power 1 activated
PWR2	Green	On	DC power 2 activated
PoE	Green	On	Power supplied over Ethernet cable
ETH	Green	On	Port is linked
		Blinking	Transmitting data
WLAN	Green	On	WLAN activated
		Blinking	Transmitting data via WLAN
WAN	Green	On	WAN activated

2.2 Top Panel



1. Antenna connectors

Hardware Installation

Before installing the device, make sure you have all of the package contents available and a PC with Microsoft Internet Explorer 6.0 or later, for using web-based system management tools.

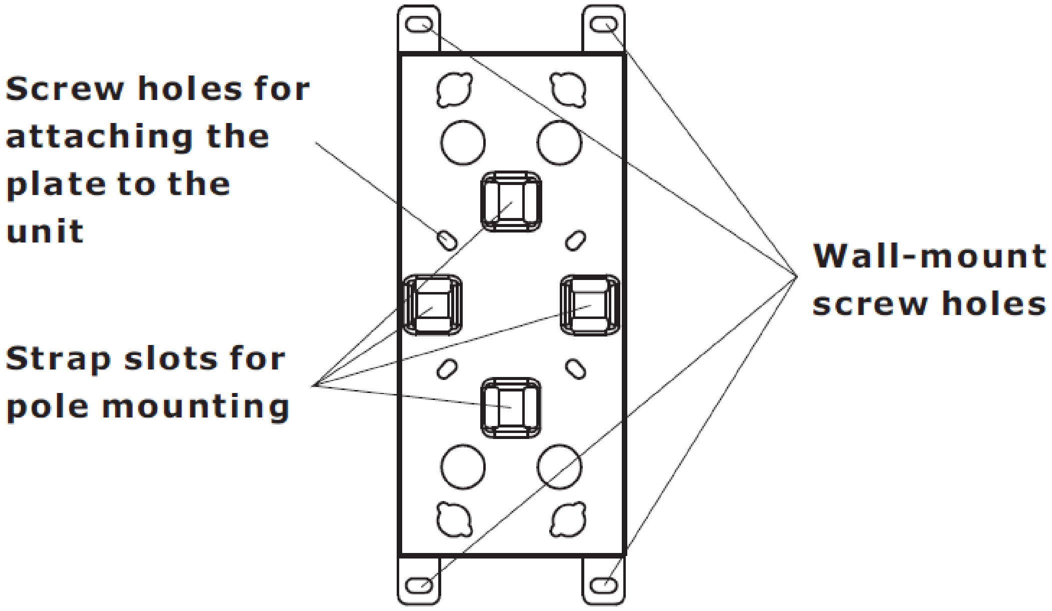
⚠ When installed outdoors, make sure the connectors on the panel are facing down to prevent water intrusion.

⚠ Do not remove the water-proof casing, and avoid touching or moving the device when the antennas are transmitting or receiving.

⚠ When installing the device, make sure to keep the radiating at a minimum distance of 20 cm (7.9 inches) from all persons to minimize the potential for human contact during normal operation.

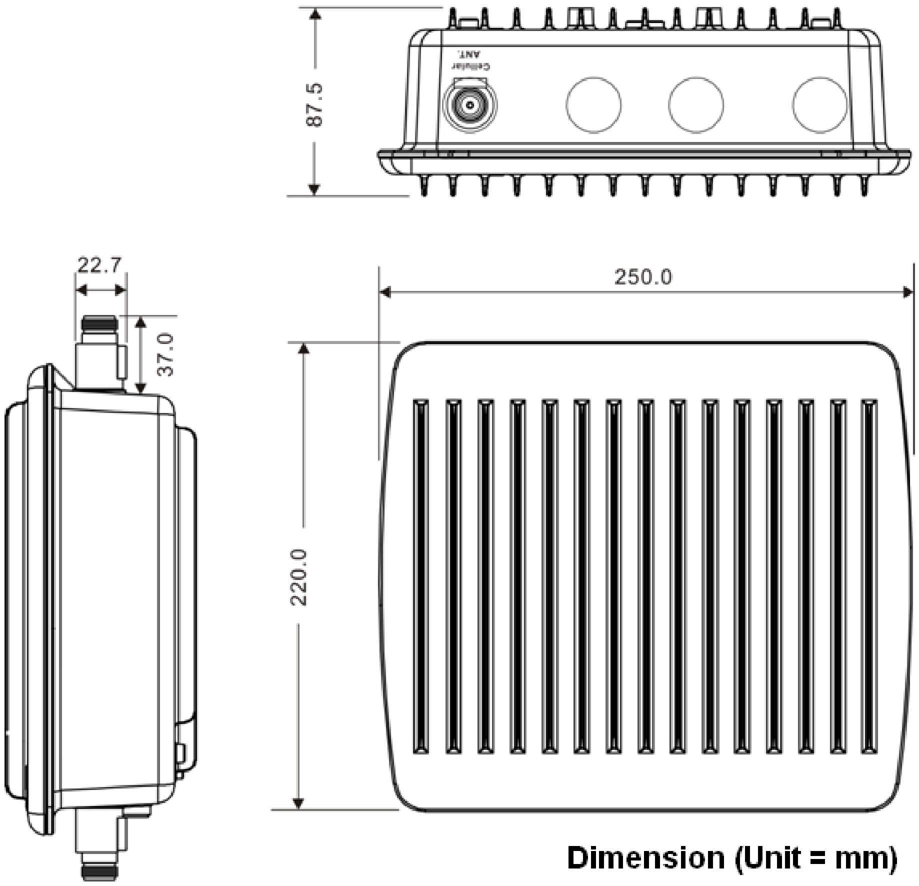
⚠ Do not operate the device near unshielded blasting caps or in an otherwise explosive environment unless the device has been modified for such use by qualified personnel.

The device can be fixed to a pole or the wall using the supplied mounting plate. Make sure the connectors on the bottom panel are facing down when installing to prevent water intrusion.


Screw holes for attaching the plate to the unit
Strap slots for pole mounting
Wall-mount screw holes

Mounting plate

3.1 Wall Mounting

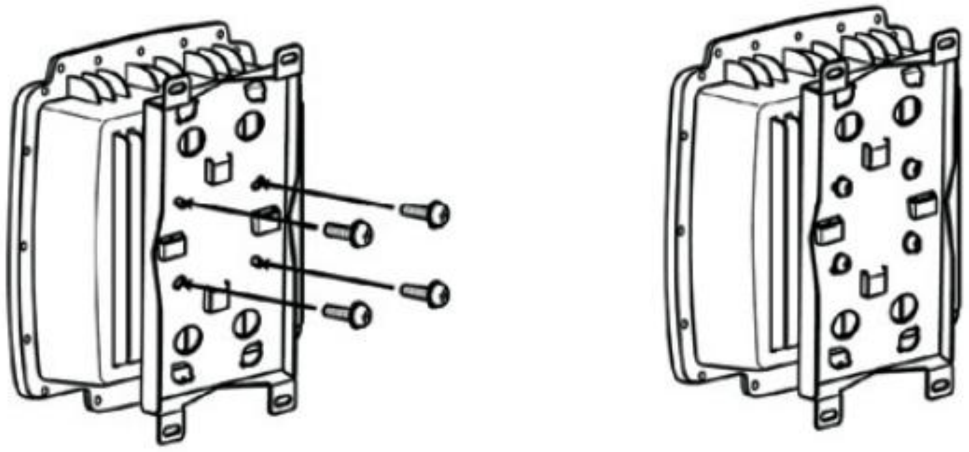


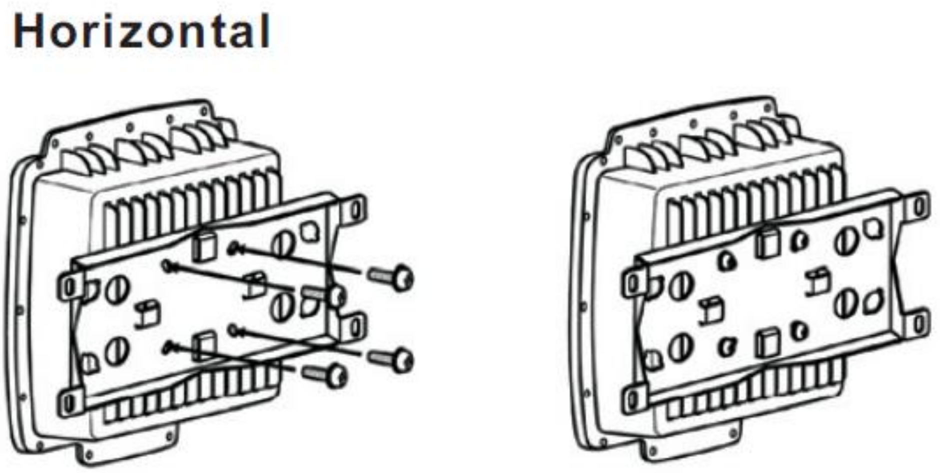
Wall-mount Measurements

Follow the steps below to install the device to the wall.

Step 1: Attach the mounting plate to the back of the device using four screws. The plate can be attached vertically or horizontally to the device based on the space available.

Vertical

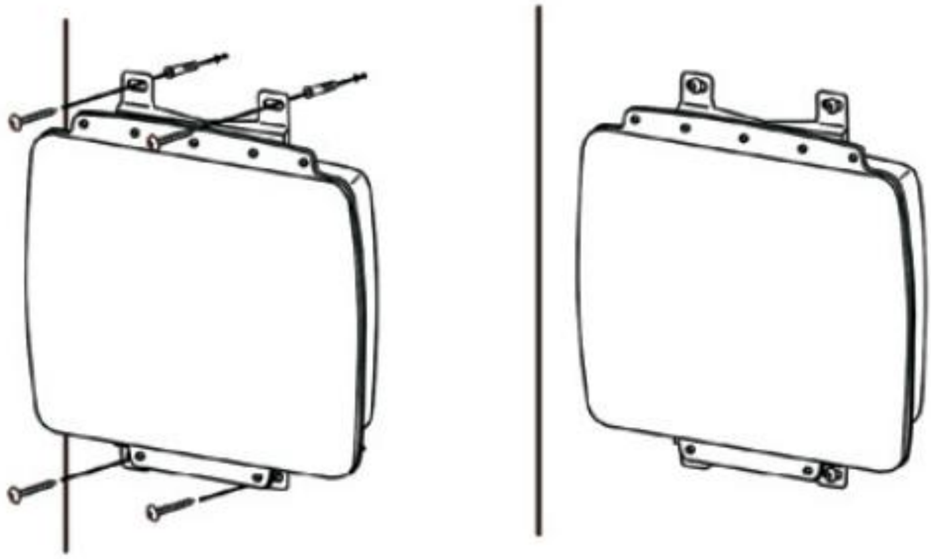




Step 2: Hold the device upright against the wall

Step 3: Insert four screws through the large opening of the keyhole-shaped apertures at the top and bottom of the plate and fasten the screw to the wall with a screwdriver.

Step 3: Slide the device downwards and tighten the four screws for added stability.

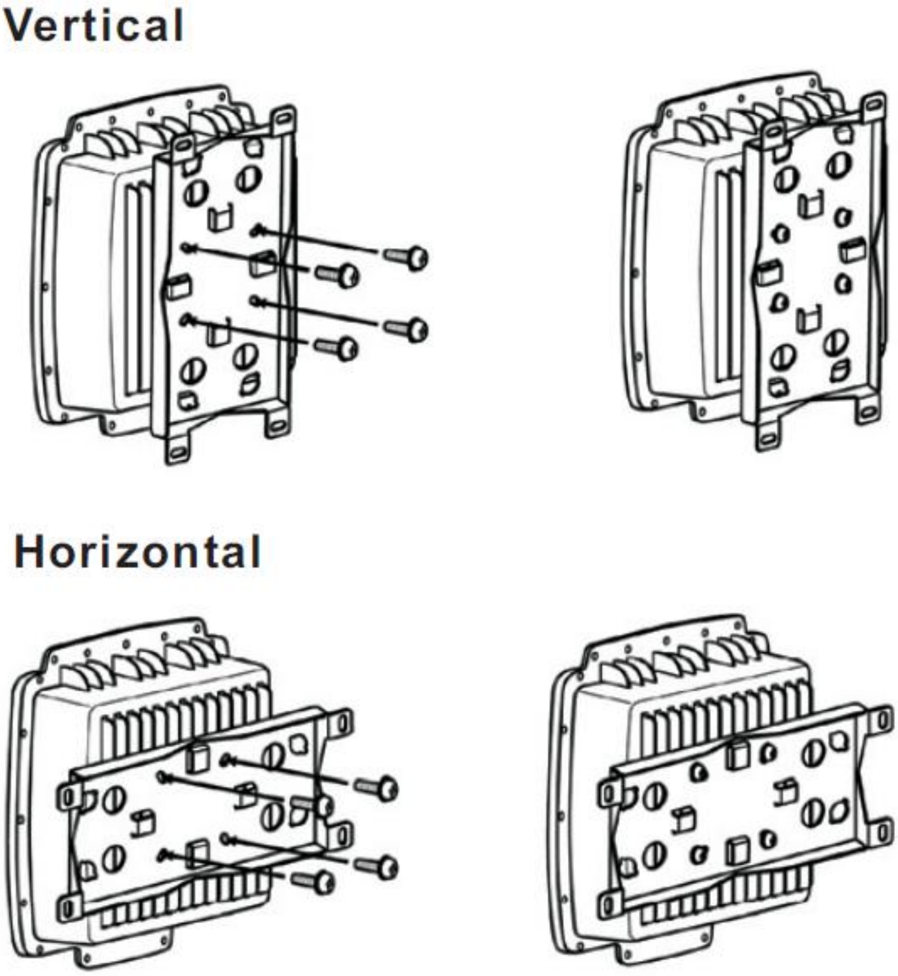


Instead of screwing the screws in all the way, it is advised to leave a space of about 2mm to allow room for sliding the device between the wall and the screws.

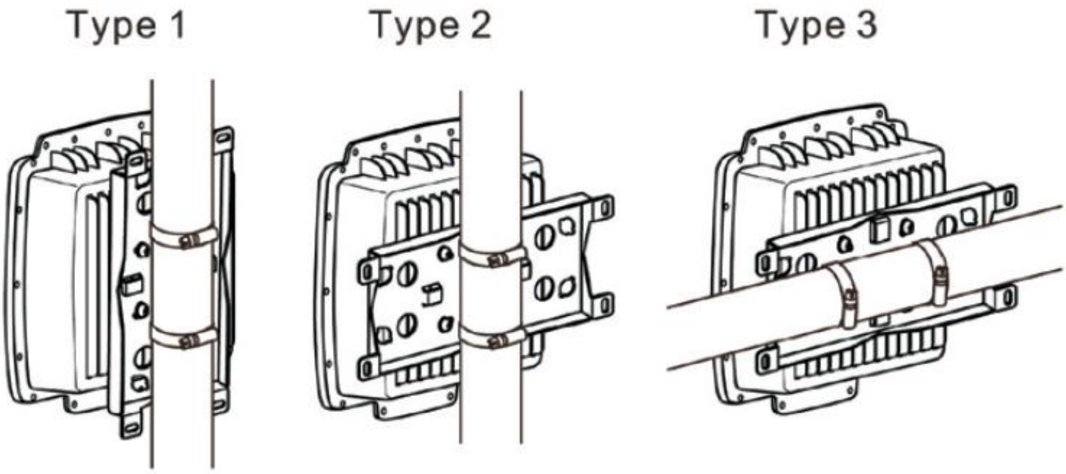
3.2 Pole Mounting

You can mount the device to a pole using adjustable steel band straps included in the kit. When installing the device to a pole:

Step 1: Attach the mounting plate to the back of the device using four screws. The plate can be attached vertically or horizontally to the device based on the space available.



Step 2: Thread the two supplied metal mounting straps through the large slots on the mounting plate and then put the straps around the pole.



3.3 Wiring

For pin assignments of the power connector, please refer to the following tables.

3.3.1 Grounding

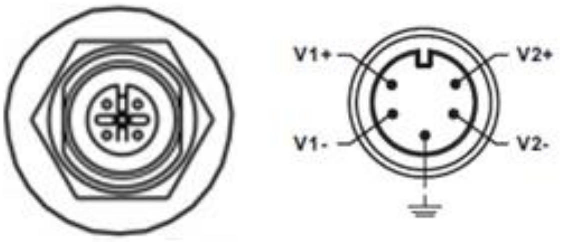
Grounding and wire routing help limit the effects of noise due to electromagnetic interference (EMI). Run the ground connection from the grounding pin on the power connector to the grounding surface prior to connecting devices.

3.3.2 Power Port Pinouts

The device supports two sets of power supplies and uses the M12 5-pin female connector on the front panel for the dual power inputs.

Step 1: insert the negative/positive wires into the V-/V+ terminals, respectively.

Step 2: to keep the DC wires from pulling loose, use a small flat-blade screwdriver to tighten the wire-clamp screws on the front of the terminal block connector.

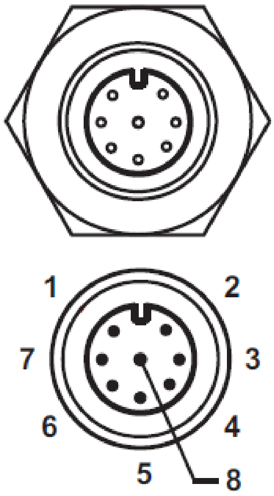


Cables and Antenna

4.1 Ethernet Pin Definition

The device has two 10/100/1000 Base-T(X) Ethernet ports. According to the link type, the AP uses CAT 3, 4, 5, 5e, UTP cables to connect to any other network device (PCs, servers, switches, routers, or hubs). Please refer to the following table for cable specifications.

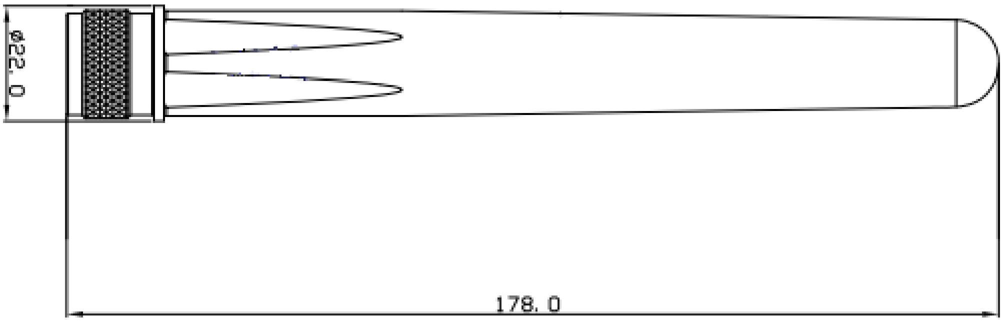
Cable	Type	Max. Length	Connector
10Base-T	Cat. 3, 4, 5 100-ohm	UTP 100 m (328 ft)	M12
100Base-T(X)	Cat. 5 100-ohm UTP	UTP 100 m (328 ft)	M12
1000BASE-T	Cat. 5/Cat. 5e 100-ohm UTP	UTP 100 m (328ft)	M12



PIN	Definition
1	BI_DC+
2	BI_DD+
3	BI_DD-
4	BI_DA-
5	BI_DB+
6	BI_DA+
7	BI_DC-
8	BI_DB-

4.2 Wireless Antenna

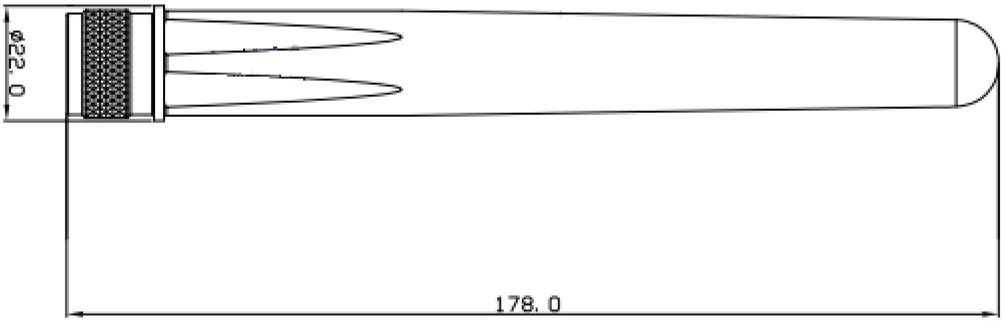
The device comes with two WiFi antennas with N-type female connectors. You can also use external RF cables and antennas with the connectors.



⚠ Remember to use the 2.4GHz antennas when the device operates in IEEE 802.11b/g and the 5GHz antennas when operating in IEEE802.11a. The antennas must be installed within a safety area, which is covered by a lightning protection or surge arrest system.

4.3 Cellular Antenna

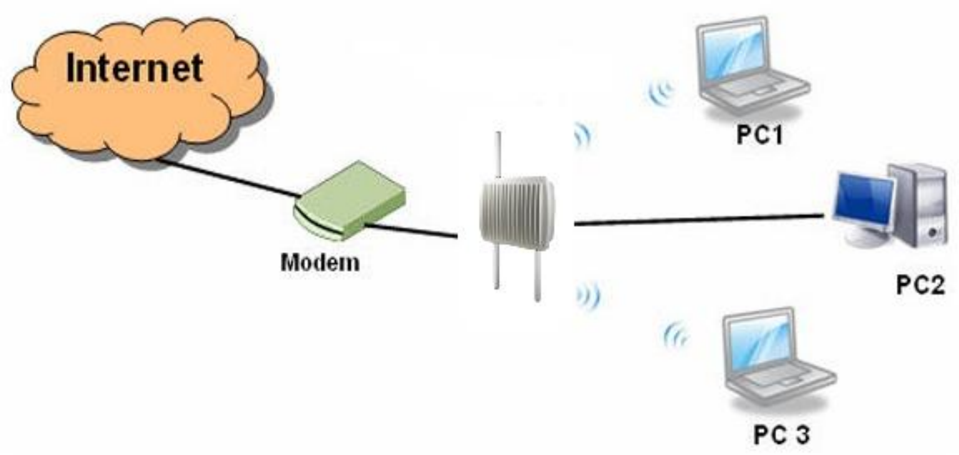
The device is packed with one or one 3G or 4G antenna. External RF cables and antennas can also be used with the connector.



Management

5.1 Network Connection

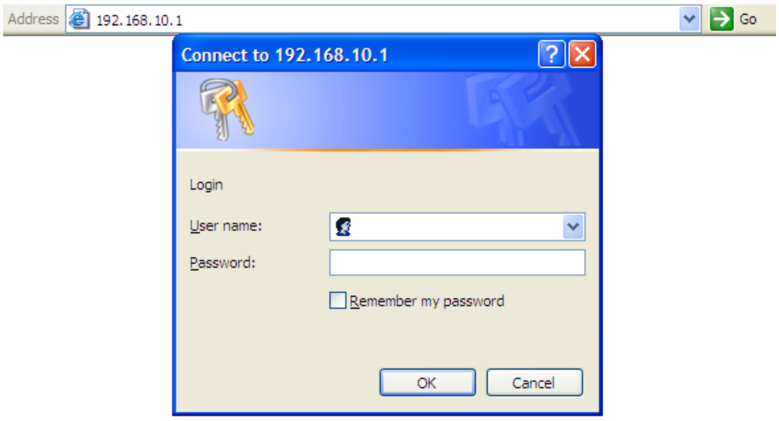
Before installing the router, you need to be able to access the router via a computer equipped with an Ethernet card or wireless LAN interface. To simplify the connection, it is recommended to use an Ethernet card to connect to a LAN.



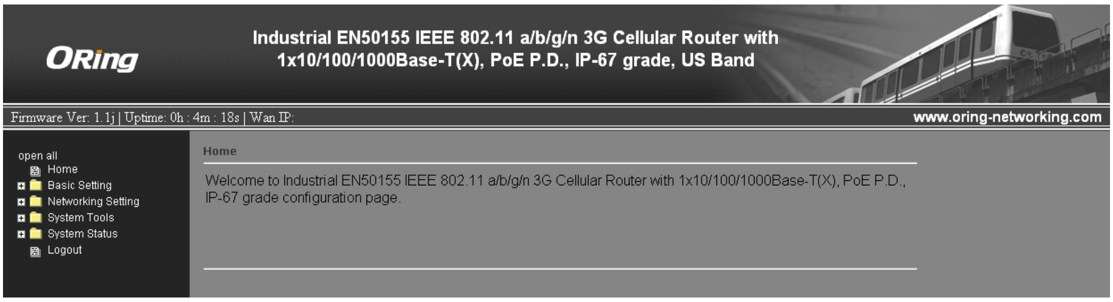
Network Connection of the Router

Before installing the router, you need a computer equipped with an Ethernet card or wireless LAN interface. To simplify the connection, it is recommended to use an Ethernet card to connect to a LAN. Follow the steps below to install and connect the router to PCs:

Step 1: Select a power source. The router can be powered by +12~48V DC power input, or via a PoE (Power over Ethernet) PSE Ethernet switch.
Step 2: Connect a computer to the router. Use either a straight-through Ethernet cable or cross-over cable to connect the ETH1 port of the router to a computer. Once the LED of the LAN port lights up, which indicates the connection is established, the computer will initiate a DHCP request to retrieve an IP address from the AP router.
Step 3: Configure the router on a web-based management utility. Open a web browser on your computer and type http://192.168.10.1 (default gateway IP of the router) in the address box to access the webpage. A login window will pop up where you can enter the default login name **admin** and password **admin**. For security reasons, we strongly recommend you to change the password. Click on **System Tools** > **Login Setting** after logging in to change the password.



After you log in successfully, a Web interface will appear, as shown below. On the left hand side of the interface is a list of functions where you can configure the settings. The details of the configurations will be shown on the right screen.

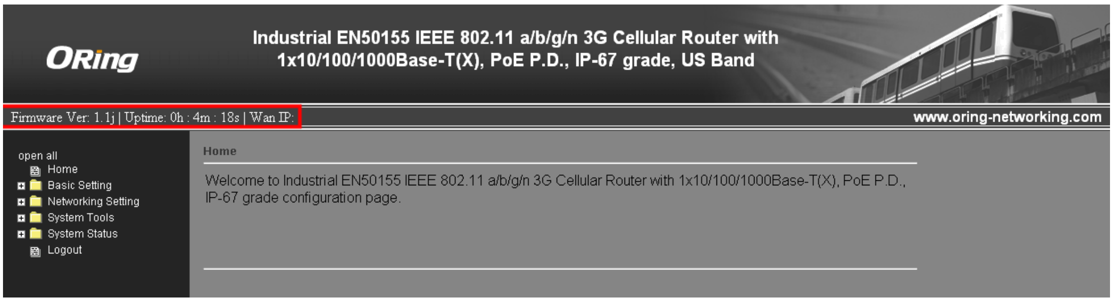

ORing
Industrial EN50155 IEEE 802.11 a/b/g/n 3G Cellular Router with
1x10/100/1000Base-T(X), PoE P.D., IP-67 grade, US Band
www.oring-networking.com
open all
Home
Basic Setting
Networking Setting
System Tools
System Status
Logout
Home

Firmware Ver: 1.1j | Uptime: 0h : 4m : 18s | Wan IP:

Welcome to Industrial EN50155 IEEE 802.11 a/b/g/n 3G Cellular Router with 1x10/100/1000Base-T(X), PoE P.D., IP-67 grade configuration page.

5.2 Configuration

On top of the Home screen shows information about the firmware version, uptime, and WAN IP address.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Home
Basic Setting
Networking Setting
System Tools
System Status
Logout
Home

Firmware Ver: 1.1j | Uptime: 0h : 4m : 18s | Wan IP:

Welcome to Industrial EN50155 IEEE 802.11 a/b/g/n 3G Cellular Router with 1x10/100/1000Base-T(X), PoE P.D., IP-67 grade configuration page.

Label	Description
Firmware	Shows the current firmware version
Uptime	Shows the elapsed time since the AP router is started
Wan IP	Shows WAN IP address

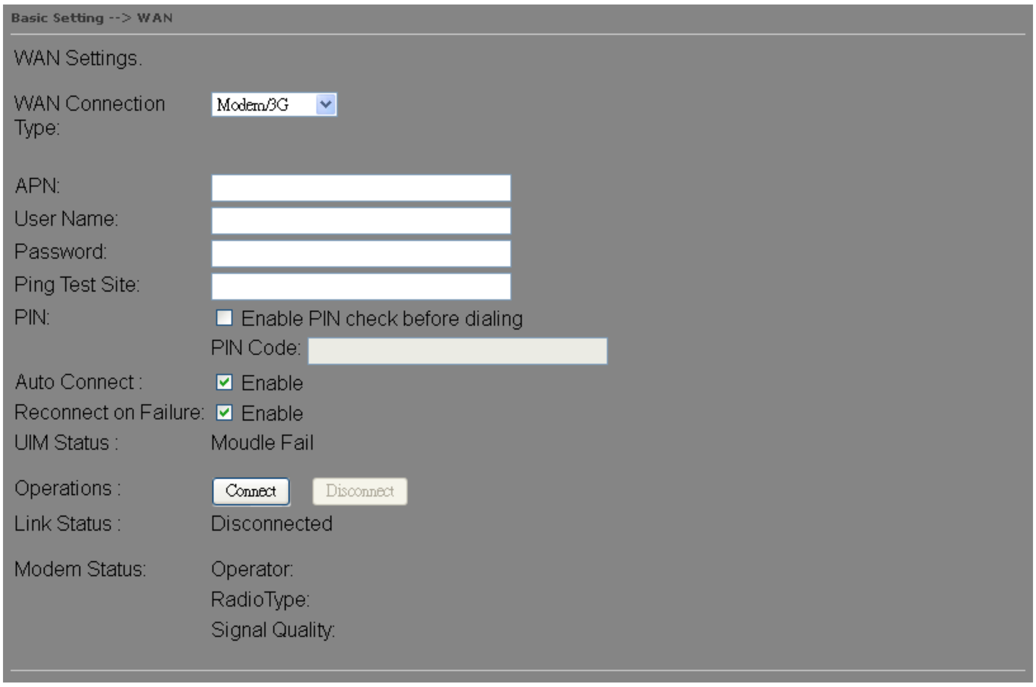
5.2.1 Basic Setting

This section will guide you through the general settings for the router.

WAN

This page allows you to configure WAN settings. Different WAN connection types will have different settings.

WAN Connection Type as Modem/3G(4G)



Basic Setting --> WAN

WAN Settings.

WAN Connection Type: Modem/3G

APN:

User Name:

Password:

Ping Test Site:

PIN: □ Enable PIN check before dialing

PIN Code:

Auto Connect : ☑ Enable

Reconnect on Failure: ☑ Enable

UIM Status : Moudle Fail

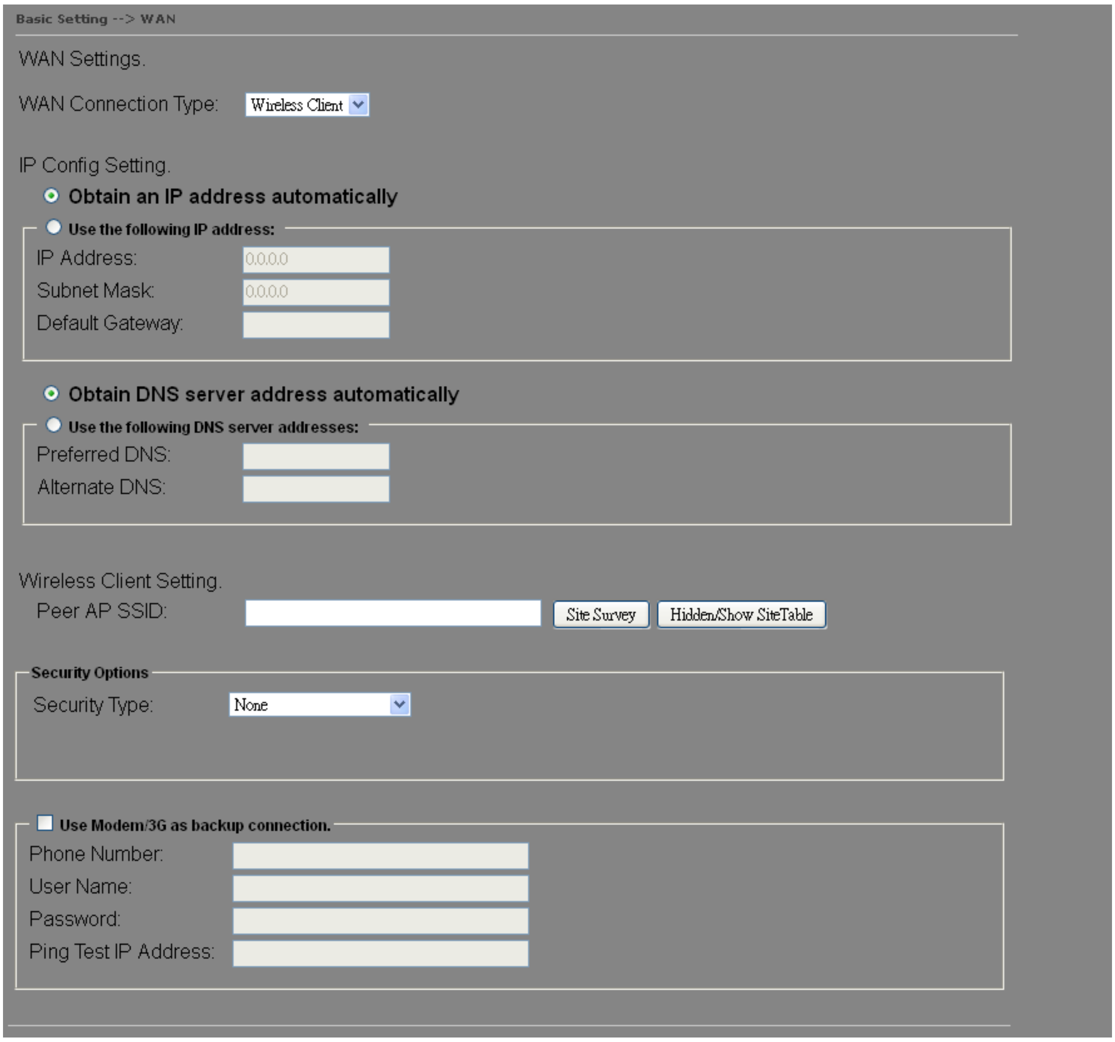
Operations : Connect Disconnect

Link Status : Disconnected

Modem Status: Operator:
RadioType:
Signal Quality:

Label	**Description**
APN	Enter the APN value (optional)
User Name	Enter the user name provided by your ISP
Password	Enter the password provided by your ISP
PIN	Enter a PIN code if you want to perform PIN check
Auto Connect	Check to start connections when the router boots up
Reconnect on Failure	Check to allow for reconnection when links fail
UIM Status	Shows the status of SIM card
Operations	Click **Connect** to start modem/3G connections or **Disconnect** to shut down connections
Link Status	Shows the status of connections
Modem Status	Shows information about the modem

WAN Connection Type as Wireless Client



Basic Setting --> WAN

WAN Settings.

WAN Connection Type: Wireless Client

IP Config Setting.

● Obtain an IP address automatically

○ Use the following IP address:

IP Address: 0.0.0.0

Subnet Mask: 0.0.0.0

Default Gateway:

● Obtain DNS server address automatically

○ Use the following DNS server addresses:

Preferred DNS:

Alternate DNS:

Wireless Client Setting.

Peer AP SSID:

Security Options

Security Type: None

□ Use Modem/3G as backup connection.

Phone Number:

User Name:

Password:

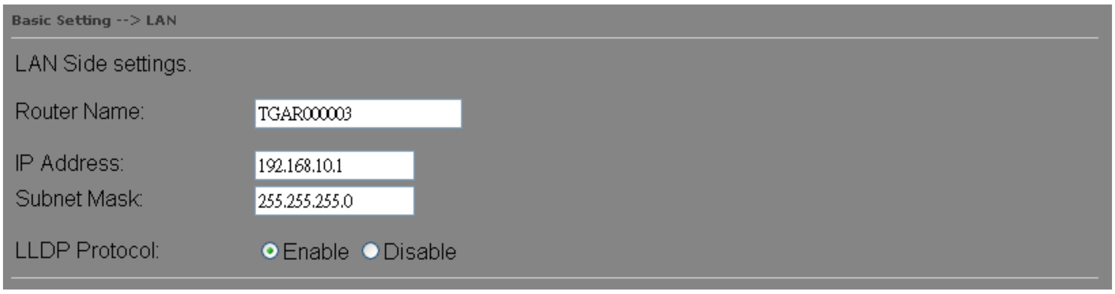
Ping Test IP Address:

Label	Description
Obtain an IP address automatically	Select this option if you want the IP address of the WAN port to be assigned automatically by the DHCP server in your network.
Use the following IP address	Select this option if you want to assign an IP address to the WAN port manually. You should set IP Address, Subnet Mask, and Default Gateway according to IP rules.
Obtain DNS server address automatically	Obtains a DNS server address from a DHCP server. If you have chosen to obtain an IP address automatically, this option will be selected accordingly.
Use the following DNS server addresses	Specifies a DNS server address manually. You can enter two addresses as the primary and secondary options.

Peer AP SSID	Enter the SSID of the AP you want to connect as a client
Site Survey	Click the button to browse available sites if you do not know the SSID. A list of available sites will be displayed.
Security Type	Select the security type used by the client you want to connect
Use Modem/3G(4G) as backup connection	Enable this option if you want to use modem/3G (4G) as a backup connection when main connection is lost. Enter your account username and password in the corresponding fields. Type a website address such as www.google.com in Ping Test Site to use it to check if the connection is alive or lost.

LAN

This page allows you to configure the IP settings of the LAN for the router. The LAN IP address is private to your internal network and is not visible to Internet.



Basic Setting --> LAN

LAN Side settings.

Router Name: TGAR000003

IP Address: 192.168.10.1

Subnet Mask: 255.255.255.0

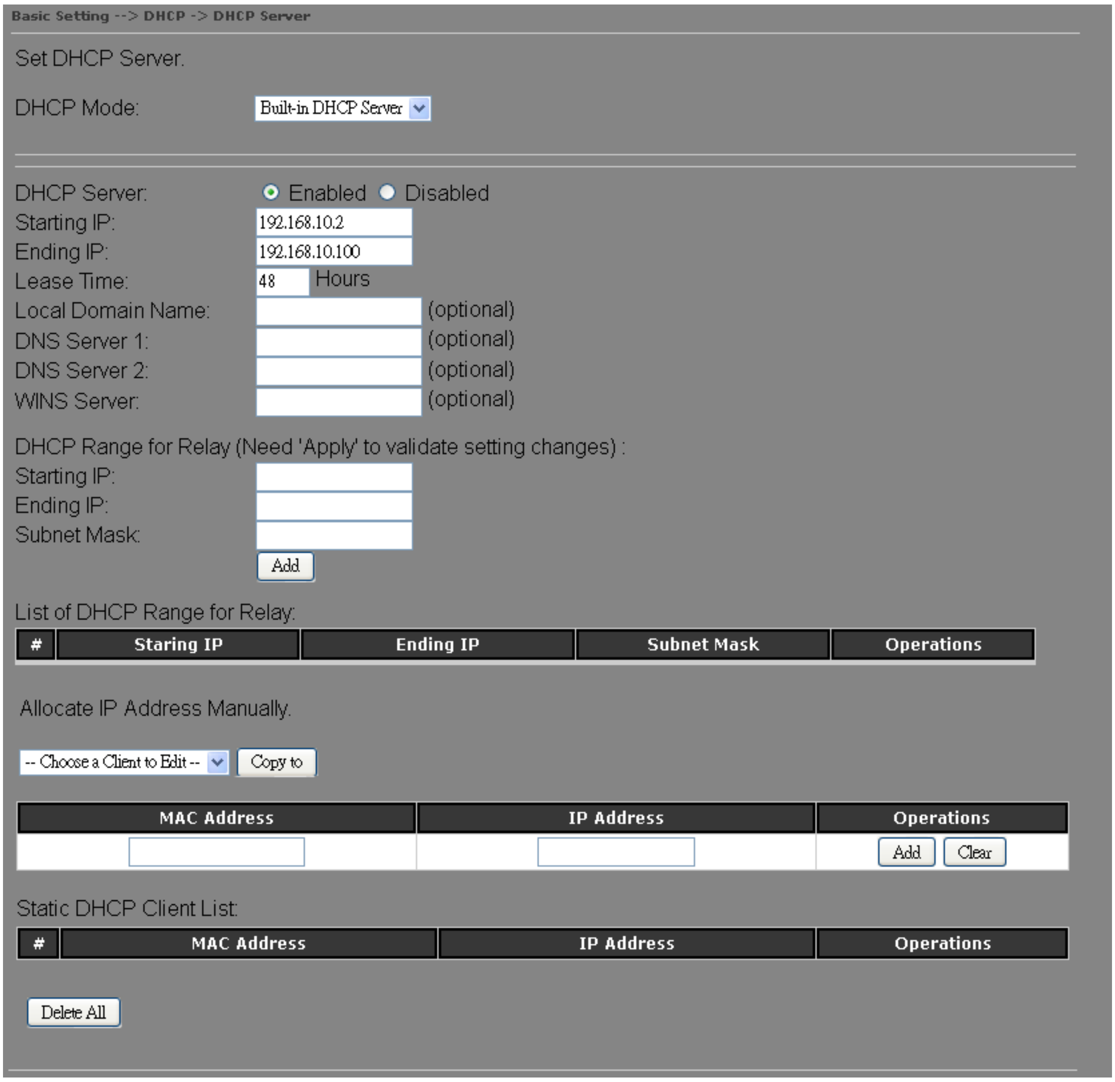
LLDP Protocol: ● Enable ○ Disable

Label	Description
Router Name	Enter the name of your router
IP Address	The IP address of the LAN. The default value is **192.168.10.1**
Subnet Mask	The subnet mask of the LAN. The default value is **255.255.255.0**
LLDP Protocol	LLDP is a vendor-neutral protocol used by network devices for advertising their identity, capabilities, and neighbors on a LAN. You can enable or disable LLDP protocol.

DHCP

DHCP is a network protocol designed to allow devices connected to a network to communicate with each other using an IP address. The connection works in a client-server model, in which DHCP clients request an IP address from a DHCP server. The router comes with a built-in DHCP (Dynamic Host Control Protocol) server which assigns an IP address to a computer (DHCP client) on the LAN automatically. The router can also serve as a relay agent which will forward DHCP requests from DHCP clients to a DHCP server on the Internet.

The IP allocation provides one-to-one mapping of MAC address to IP address. When a computer with a MAC address requests an IP address from the router, it will be assigned with the IP address according to the mapping. You can choose one from the client list and add it to the mapping list.



Basic Setting --> DHCP -> DHCP Server

Set DHCP Server.

DHCP Mode: Built-in DHCP Server

DHCP Server: ● Enabled ○ Disabled
Starting IP: 192.168.10.2
Ending IP: 192.168.10.100
Lease Time: 48 Hours
Local Domain Name: (optional)
DNS Server 1: (optional)
DNS Server 2: (optional)
WINS Server: (optional)

DHCP Range for Relay (Need 'Apply' to validate setting changes) :
Starting IP:
Ending IP:
Subnet Mask:
Add

List of DHCP Range for Relay:

#	Staring IP	Ending IP	Subnet Mask	Operations

Allocate IP Address Manually.

-- Choose a Client to Edit -- Copy to

MAC Address	IP Address	Operations
		Add Clear

Static DHCP Client List

#	MAC Address	IP Address	Operations

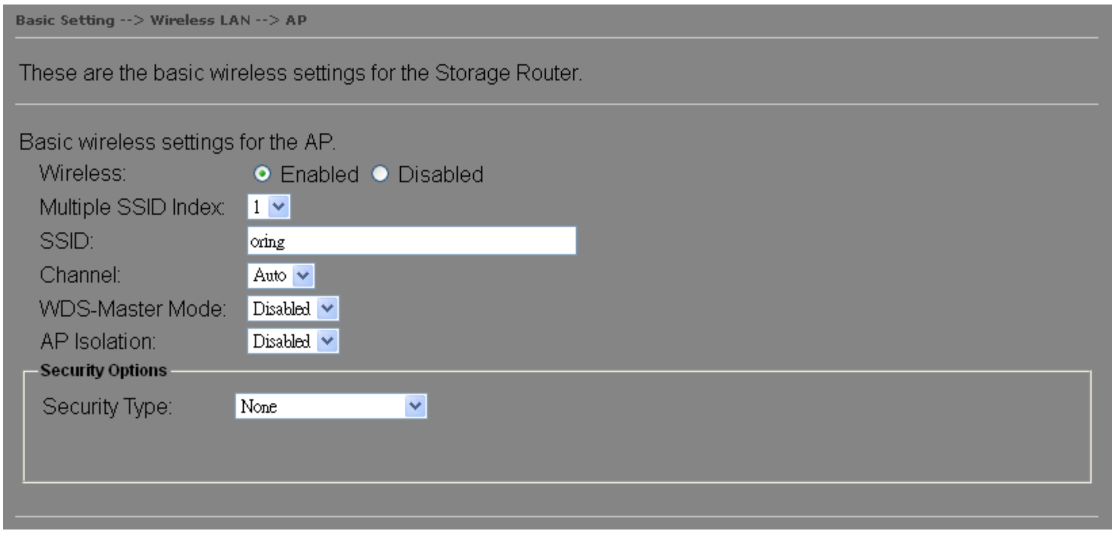
Delete All

Label	Description
DHCP Mode	Available options include **Built-in DHCP Server** and **DHCP Forwarder**. **Built-in DHCP Server** will enable the router to automatically assign an IP address to a computer on the LAN. **DHCP Forwarder** will forward DHCP messages to a server on the Internet to handle DHCP requests. If you choose **DHCP Forwarder**, enter a DHCP server IP address.
DHCP Server	Enables or disables the DHCP server function. The default

	setting is **Enabled**.
Starting IP	The starting IP address of the IP range assigned by the DHCP server
Ending IP	The ending IP address of the IP range assigned by the DHCP server
Lease Time	The period of time for the IP address to be leased. During the lease time, the DHCP server cannot assign that IP address to any other clients. Enter a number in the field. The default setting is 48 hours.
Local Domain Name	Enter the local domain name of a private network (optional)
DNS Server 1&2	Enter the IP address for the DNS server (optional)
WINS Server	Enter the WINS server (optional)
Starting IP	The starting IP for the DHCP relay range
Ending IP	The ending IP for the DHCP relay range
Subnet Mask	Enter a Subnet mask for the DHCP relay range
List of DHCP Range for Relay	Shows all IP addresses for the DHCP relay range
Allocate IP Address Manually	By selecting an IP address from the drop-down list and click Copy to, you can edit the MAC addresses and IP addresses already assigned by the router and add it to Static DHCP Client List.
MAC Address	The MAC addresses of the computer.
IP Address	The IP address to be related to the MAC address.
Static DHCP Client List	Shows the IP addresses locked to specific MAC addresses

Wireless AP

You can set the device to work in AP mode. This is the most common mode for all wireless APs. In this mode, the AP will act as a central connection point which other wireless clients can connect to.



Basic Setting --> Wireless LAN --> AP

These are the basic wireless settings for the Storage Router.

Basic wireless settings for the AP.

Wireless: ● Enabled ○ Disabled

Multiple SSID Index: 1

SSID: oring

Channel: Auto

WDS-Master Mode: Disabled

AP Isolation: Disabled

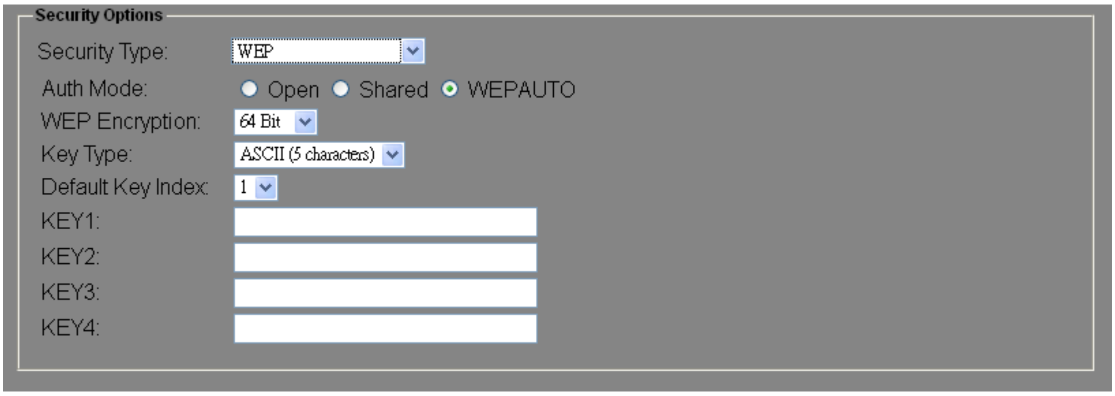
Security Options

Security Type: None

Label	Description
SSID index	The index of the SSID
SSID	SSID (Service Set Identifier) is a unique name that identifies a network. All devices on the network must be set with the same SSID in order to communicate with each other. Fill in a new SSID in this field if you do not want to use the default value.
Channel	Specify a channel to be used. **Channel 6** is the default channel. You can also select a new number from the dropdown list. All devices on the network must be set to use the same channel to communicate on the network.
WDS-Master Mode	A WDS master is the central control point for authenticating wireless clients, caching client key material, distributing MFP key material, reporting radio management information to an upstream network management station, and updating other APs participating in WDS. You can set the device as the WDS-master by selecting from the list.
AP Isolation	This function prevents devices connected to an AP from communicating directly with each other. This function is useful when many wireless clients request your network frequently.
Security options	You can choose the security type for your WLAN connection from the following options: **None**: no encryption **WEP**: WEP (Wired Equivalent Privacy) is a wireless security protocol for WLAN. WEP will encrypt data transmitted on the WLAN. **WPA/WPA2 Personal**: uses a pre-shared key for authentication. This pre-shared key is then dynamically sent between the AP and clients.

	Each authorized computer is given the same pass phrase. **WPA/WPA2 Enterprise**: this type includes all of the features of WPA/WPA2 Personal plus support for 802.1x RADIUS authentication. **802.1x**: authentication through a RADIUS server

When you set security type as **WEP**, the following fields will appear to allow you to configure individual settings.



Security Options

Security Type: WEP

Auth Mode: ○ Open ○ Shared ● WEPAUTO

WEP Encryption: 64 Bit

Key Type: ASCII (5 characters)

Default Key Index: 1

KEY1:

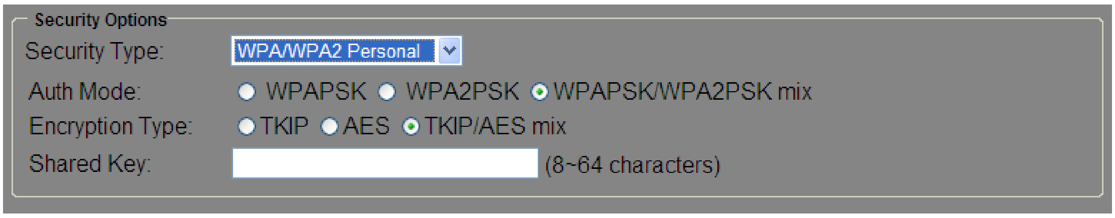
KEY2:

KEY3:

KEY4:

Label	Description
Auth Mode	Available values include **Open**, **Shared**, and **WEPAUTO**. When choosing **Open** or **Shared**, all of the clients must select the same authentication to associate this AP. If select **WEPAUTO**, the clients do not have to use the same **Open** or **Shared** authentication. They can choose any one to authenticate.
WEP Encryption	You can select **64 Bit** or **128 Bit**.
Key Type	Available values include **ASCII** and **Hex Key Type**. ASCII (American Standard Code for Information Interchange) is a code for representing English characters as numbers in the range from 0 to 127. Hex digits uses 0–9 to represent values zero to nine, and characters A-F to represent values ten to fifteen.
Default Key Index	Select one of the keys to be the active key
Key 1 to 4	You can input up to four encryption keys.

When you set security type as **WPA/WPA2-Personal**, the following fields will appear to allow you to configure individual settings.



Security Options

Security Type: WPA/WPA2 Personal

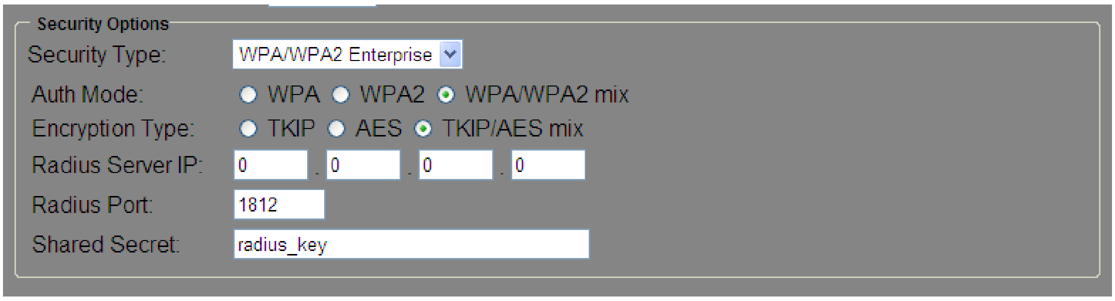
Auth Mode: ○ WPAPSK ○ WPA2PSK ● WPAPSK/WPA2PSK mix

Encryption Type: ○ TKIP ○ AES ● TKIP/AES mix

Shared Key: (8~64 characters)

Label	Description
Auth Mode	Available values include **WPAPSK**, **WPA2PSK**, and **WPAPSK/WPA2PSK mix.** WPAPSK and WPA2PSK will encrypt the link without additional RADIUS server, only an access point and client station that supports WPA-PSK is required. For WPA/WPA2, authentication is achieved via WPA RADIUS Server. You need a RADIUS or other authentication server on the network.
Encryption Type	Available values include **TKIP**, **AES**, and **TKIP/AES mix**. WPA-PSK uses TKIP encryption, and WPA2-PSK uses AES encryption. TKIP/AES provides the most reliable security, and is easiest to implement.
Shared Key	Enter a pass phrase in this field. The value must be within 8 to 64 characters

When you set security type as **WPA /WPA2 Enterprise**, the following screen will appear to allow you to configure individual settings.



Security Options

Security Type: WPA/WPA2 Enterprise

Auth Mode: ○ WPA ○ WPA2 ● WPA/WPA2 mix

Encryption Type: ○ TKIP ○ AES ● TKIP/AES mix

Radius Server IP: 0 . 0 . 0 . 0

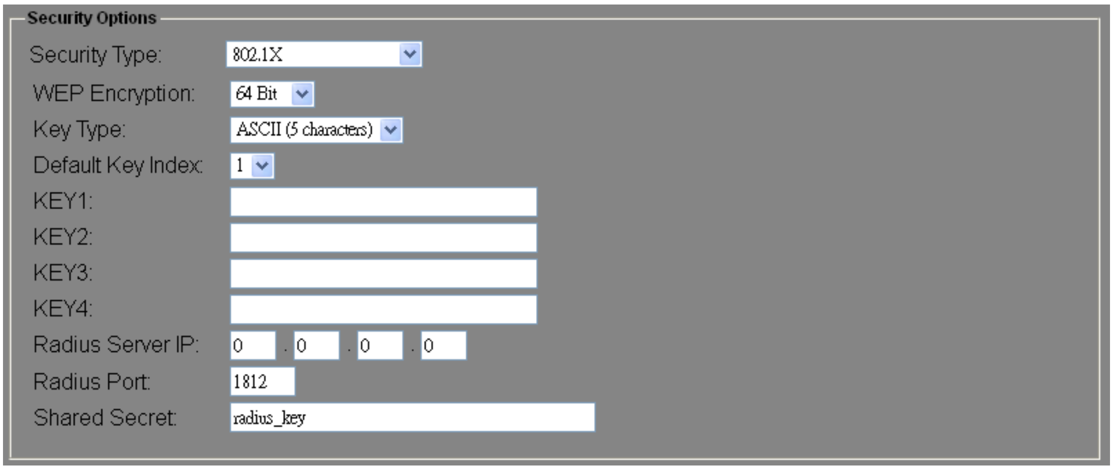
Radius Port: 1812

Shared Secret: radius_key

Label	Description
Auth Mode	Available values include **WPAPSK**, **WPA2PSK**, and **WPAPSK/WPA2PSK mix.** WPAPSK and WPA2PSK will encrypt the link without additional RADIUS server, only an access point and client station that supports WPA-PSK is required. For WPA/WPA2, authentication is achieved via WPA RADIUS Server. You need a RADIUS or other authentication server on the network.
Encryption Type	Available values include **TKIP**, **AES**, and **TKIP/AES mix**. WPA-PSK uses TKIP encryption, and WPA2-PSK uses AES encryption. TKIP/AES provides the most reliable security, and is

	easiest to implement.
Radius Server IP	Enter the IP address of the RADIUS server
Radius Port	Enter the RADIUS port (default is 1812)
Shared Secret	Enter the RADIUS password or key

When you set security type as **802.1x**, the following fields will appear to allow you to configure individual settings.



Security Options

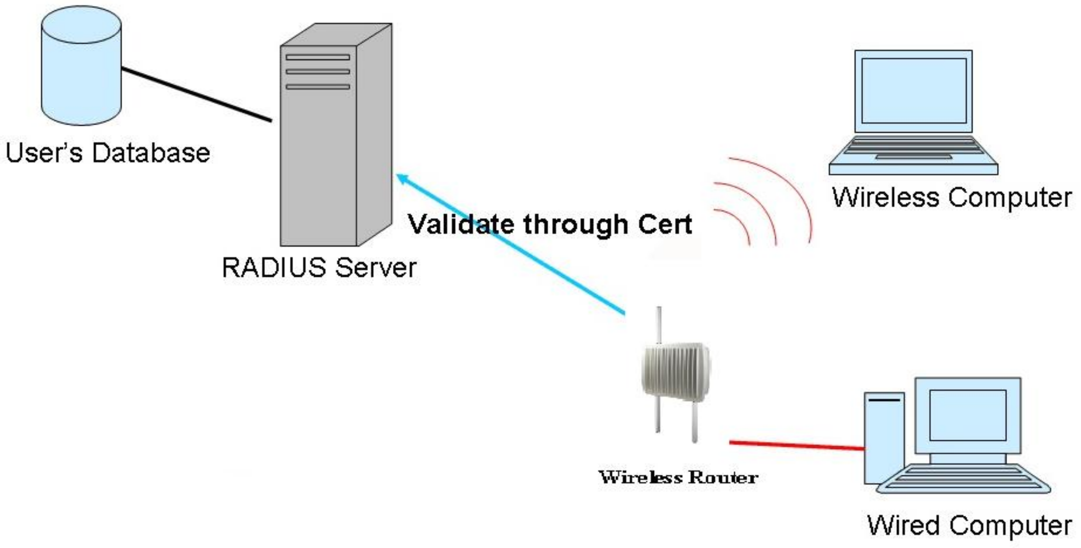
Security Type:	802.1X
WEP Encryption:	64 Bit
Key Type:	ASCII (5 characters)
Default Key Index:	1
KEY1:	
KEY2:	
KEY3:	
KEY4:	
Radius Server IP:	0 . 0 . 0 . 0
Radius Port:	1812
Shared Secret:	radius_key

Label	**Description**
WEP Encryption	You can select **64 Bit** or **128 Bit**.
Key Type	Available values include **ASCII** and **Hex Key Type**. ASCII (American Standard Code for Information Interchange) is a code for representing English characters as numbers in the range from 0 to 127. Hex digits uses 0–9 to represent values zero to nine, and characters A-F to represent values ten to fifteen.
Default Key Index	Select one of the keys to be the active key
Key 1 to 4	Input up to four encryption keys
Radius Server IP	Enter the IP address of the RADIUS server
Radius Port	Enter the RADIUS port (default is **1812**)
Shared Secret	Enter the RADIUS password or key

RADIUS (Remote Authentication Dial-In User Service) is a widely deployed protocol that enables companies to authenticate and authorize remote users' access to a system or service from a central network server.

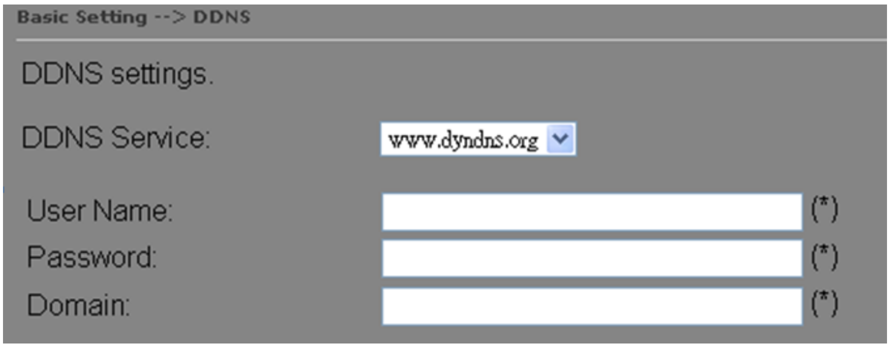
When you configure the remote access server for RADIUS authentication, the credentials of the connection request are passed to the RADIUS server for authentication and authorization. If the request is both authenticated and authorized, the RADIUS server sends an accept message back to the remote access server and the connection attempt is accepted. If the request is either not authenticated or not authorized, the RADIUS server sends a reject message back to the remote access server and the connection attempt is rejected.

The principle of the Radius server is shown in the following pictures:



DDNS

DDNS (Dynamic Domain Name System) allows you to configure a domain name for your IP address which is dynamically assigned by your ISP. Therefore, you can use a static domain name that always points to the current dynamic IP address.



Basic Setting --> DDNS

DDNS settings.

DDNS Service: www.dyndns.org

User Name: (*)

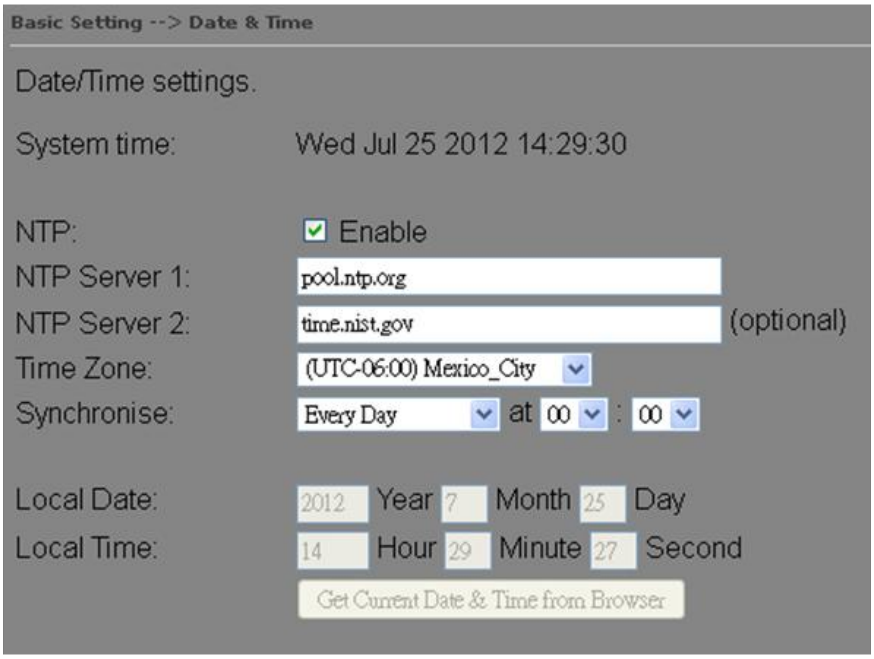
Password: (*)

Domain: (*)

Label	Description
DDNS Service	Choose a DDNS service provider from the list
User Name	Enter the user name of your DDNS account
Password	Enter the password of your DDNS account
Domain	Enter the domain name provided by your dynamic DNS service provider

Date & Time

In this page, you can set the date & time of the device. A correct date and time will help the system log events. You can set up a NTP (Network Time Protocol) client to synchronize date & time with a NTP server on the Internet.



Basic Setting --> Date & Time

Date/Time settings.

System time: Wed Jul 25 2012 14:29:30

NTP: ☑ Enable

NTP Server 1: pool.ntp.org

NTP Server 2: time.nist.gov (optional)

Time Zone: (UTC-06:00) Mexico_City

Synchronise: Every Day at 00 : 00

Local Date: 2012 Year 7 Month 25 Day

Local Time: 14 Hour 29 Minute 27 Second

Get Current Date & Time from Browser

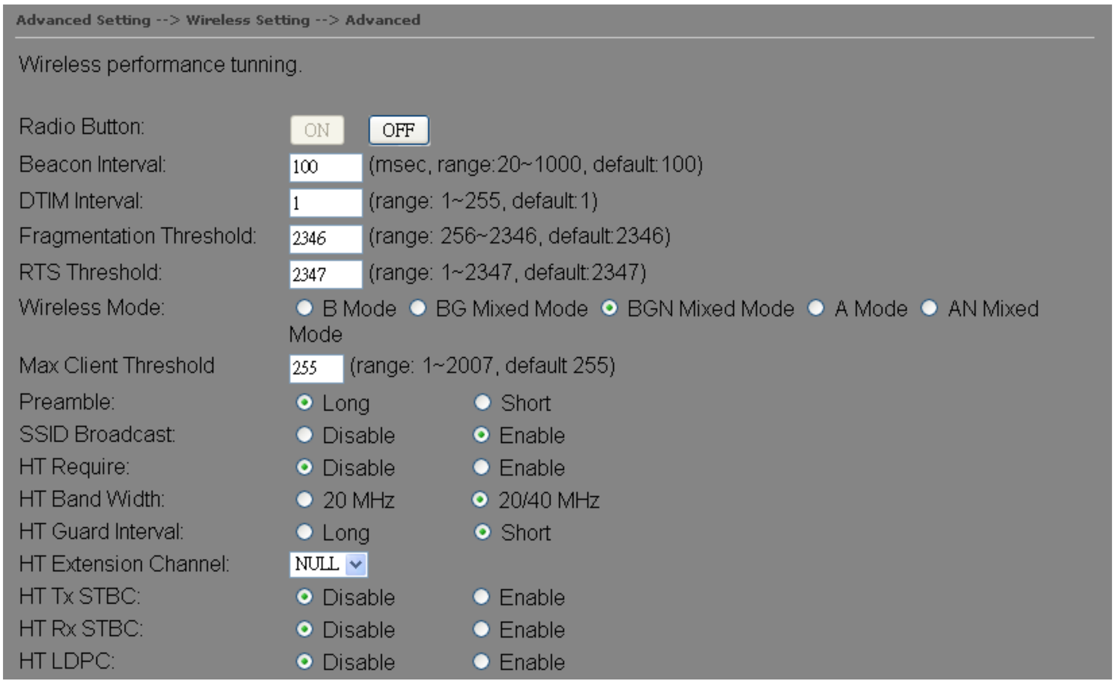
Label	Description
NTP	Enables or disables NTP function
NTP Server 1	The primary NTP server
NTP Server 2	The secondary NTP server
Time Zone	Select the time zone you are located in
Synchronize	Specify the scheduled time for synchronization
Local Date	Set a local date manually
Local Time	Set a local time manually
Get Current Date & Time from Browser	Click to set the time from your browser

5.2.2 Networking Setting

This section will guide you through various networking settings, including wireless, NAT, firewall, VPN, VRRP, and routing protocol.

Wireless Setting – Advanced Setting

This page allows you to set up wireless configuration.



Advanced Setting --> Wireless Setting --> Advanced

Wireless performance tunning.

Radio Button: ON OFF

Beacon Interval: 100 (msec, range:20~1000, default:100)

DTIM Interval: 1 (range: 1~255, default:1)

Fragmentation Threshold: 2346 (range: 256~2346, default:2346)

RTS Threshold: 2347 (range: 1~2347, default:2347)

Wireless Mode: ○ B Mode ○ BG Mixed Mode ● BGN Mixed Mode ○ A Mode ○ AN Mixed Mode

Max Client Threshold 255 (range: 1~2007, default 255)

Preamble: ● Long ○ Short

SSID Broadcast: ○ Disable ● Enable

HT Require: ● Disable ○ Enable

HT Band Width: ○ 20 MHz ● 20/40 MHz

HT Guard Interval: ○ Long ● Short

HT Extension Channel: NULL

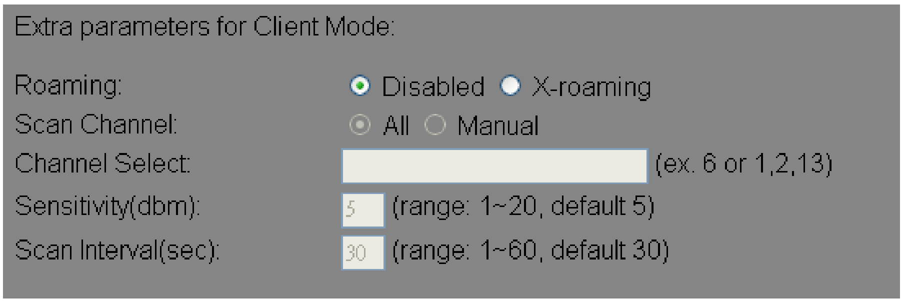
HT Tx STBC: ● Disable ○ Enable

HT Rx STBC: ● Disable ○ Enable

HT LDPC: ● Disable ○ Enable

Label	Description
Radio Button	Enables or disables wireless function
Beacon Interval	A beacon is a packet sent by a wireless access point to synchronize wireless devices. The beacon interval value indicates the frequency interval of the beacon. Increasing the beacon interval reduces the number of beacons and the overhead associated with them. The default value is **100**, but **50** is recommended when reception is poor.
DTIM Interval	A DTIM interval determines how often a beacon frame includes a Delivery Traffic Indication message, a message that informs the clients about the presence of buffered multicast/broadcast data on the access point. The message is generated within the periodic beacon at a frequency specified by the DTIM Interval. When the AP sends a DTIM with a DTIM interval value, the client hearing the beacons will awake to receive the messages. The default value is **1**, and the value must be between 1 and 255 milliseconds.
Fragmentation Threshold	The value specifies the maximum size for a packet before data is fragmented into multiple packets. The value should remain at the default **2346** (the range is 256 - 2346 bytes). If you experience a high packet error rate, you may slightly increase the value. Setting the value too low may result in poor network performance. Only

	minor modifications of this value are recommended.
RTS Threshold	The RTS (Request to Send) Threshold is the amount of time a wireless device, attempting to send, will wait for a recipient to acknowledge that it is ready. Normally, the AP sends a RTS frame to a station and negotiates the sending of data. After receiving the RTS, the station responds with a CTS (Clear to Send) frame to acknowledge the right to begin transmission. To ensure communication, the maximum value should be used, which is the default value **2347** (the range is 0-2347 bytes). If a network packet is smaller than the preset RTS threshold size, the RTS/CTS mechanism will not be enabled.
Wireless Mode	You can select 802.11 b, b/g, or b/g/n mode.
Preamble	Available values include **Long** and **Short**, with **Long** as the default value. If all clients and access points in your wireless network support short preamble, then enabling it can boost overall throughput. However, if any wireless device does not support short preamble, then it will not be able to communicate with your network. If you are not sure whether your radio supports the short RF preamble, you must disable this feature.



Extra parameters for Client Mode:

Roaming: ● Disabled ○ X-roaming

Scan Channel: ● All ○ Manual

Channel Select: [ ] (ex. 6 or 1,2,13)

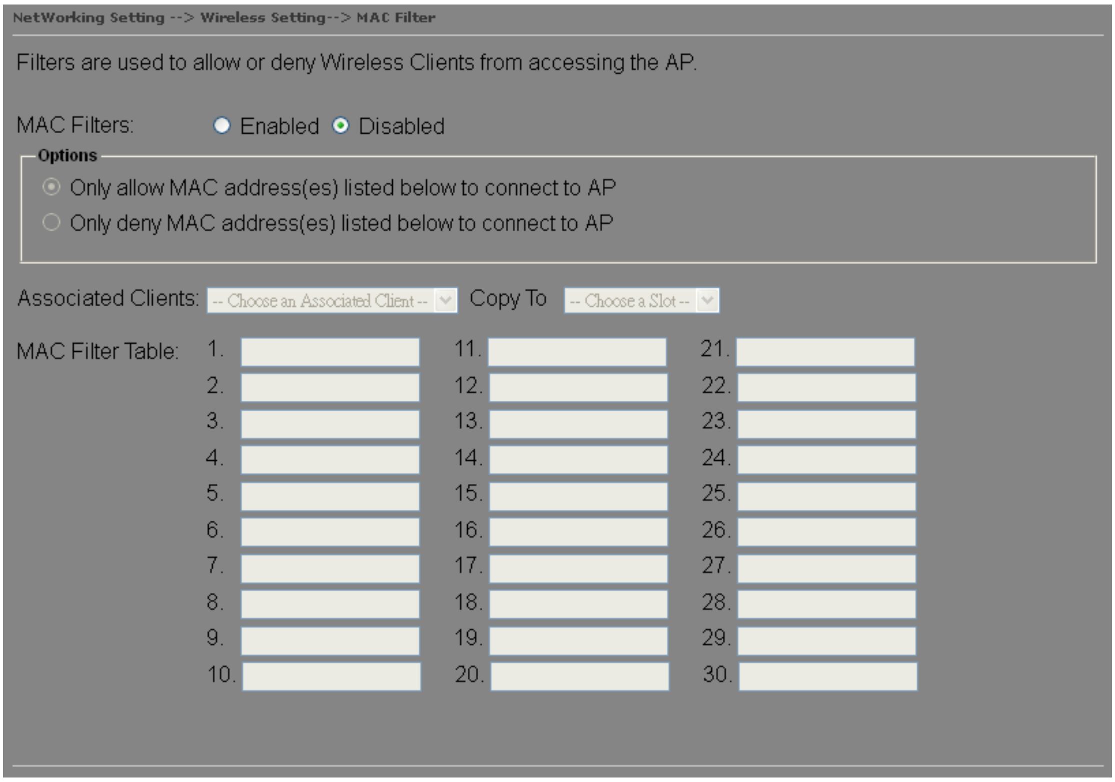
Sensitivity(dbm): [5] (range: 1~20, default 5)

Scan Interval(sec): [30] (range: 1~60, default 30)

Label	Description
Roaming	Select **Disabled** to disable X-Roaming protocol or select **X-roaming** to enable X-Roaming protocol
Scan Channel	Select **All** to scan all supported channels or **Manual** to scan only selected channels specified in Channel Select**.**
Channel Select	Assign the value roaming channels
Sensitivity	Configures signal sensitivity
Scan Interval	Configures scan interval

Wireless Setting – MAC Filter

This page allows you to set up MAC filters to allow or deny wireless clients to connect to the router. You can manually add a MAC address or select a MAC address from the Associated Clients list currently associated with the router.



NetWorking Setting --> Wireless Setting--> MAC Filter

Filters are used to allow or deny Wireless Clients from accessing the AP.

MAC Filters: ○ Enabled ● Disabled

Options

● Only allow MAC address(es) listed below to connect to AP

○ Only deny MAC address(es) listed below to connect to AP

Associated Clients: -- Choose an Associated Client -- Copy To -- Choose a Slot --

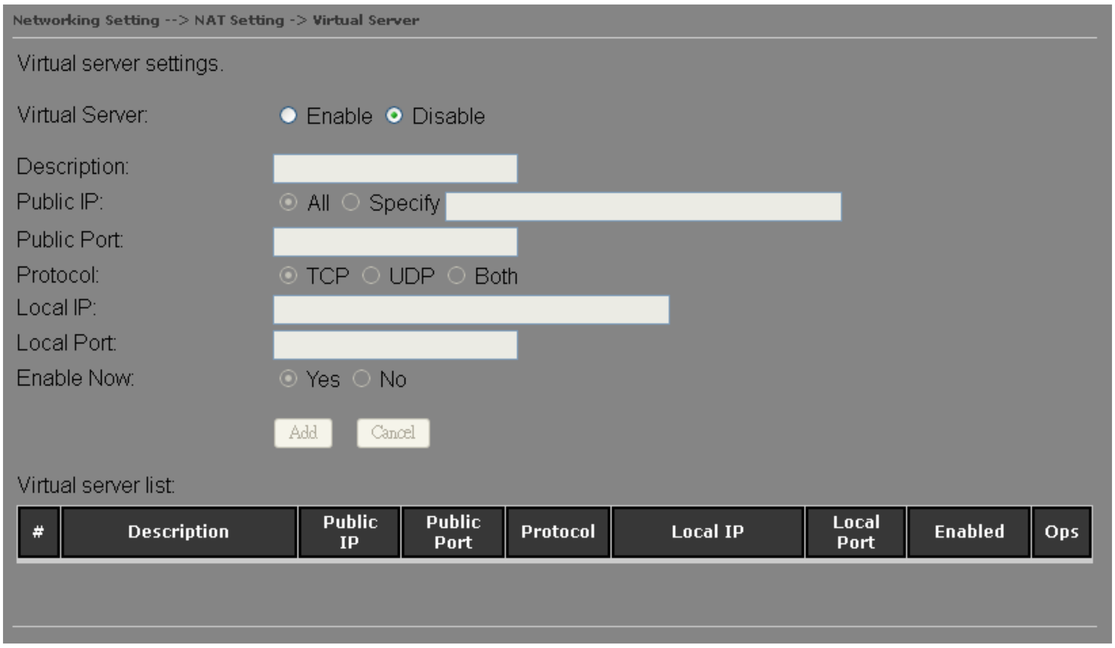
MAC Filter Table:

1.	11.	21.
2.	12.	22.
3.	13.	23.
4.	14.	24.
5.	15.	25.
6.	16.	26.
7.	17.	27.
8.	18.	28.
9.	19.	29.
10.	20.	30.

Label	Description
MAC Filter	Select **Enabled** or **Disabled** to activate or deactivate MAC filters
Options	Select one of the options to allow or deny the MAC address in the list
Associated Clients	Shows the wireless MAC addresses associated with the router
MAC Filter Table	You can edit up to MAC addresses in these fields
Apply	Click to activate the configurations

NAT Setting - Virtual Server

This page allows you to set up virtual server setting. A virtual server allows Internet users to access services on your LAN. This is a useful function if you host services online such as FTP, Web or game servers. A public port must be defined for the virtual server on your router in order to redirect traffic to an internal LAN IP address and LAN port. Any PC used as a virtual server must have a static or reserved IP address.



Networking Setting --> NAT Setting -> Virtual Server

Virtual server settings.

Virtual Server:	○ Enable ● Disable
Description:	
Public IP:	● All ○ Specify
Public Port:	
Protocol:	● TCP ○ UDP ○ Both
Local IP:	
Local Port:	
Enable Now:	● Yes ○ No

Virtual server list:

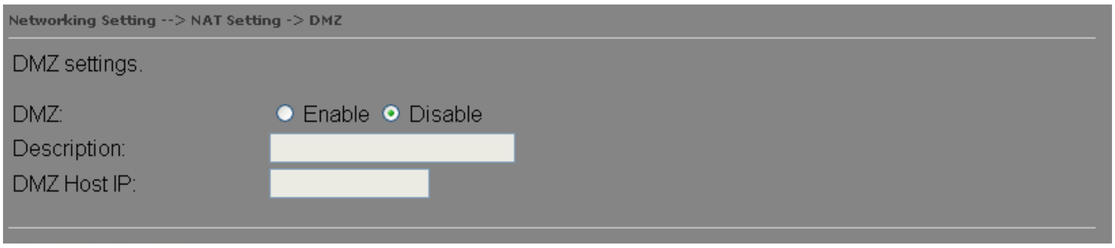
#	Description	Public IP	Public Port	Protocol	Local IP	Local Port	Enabled	Ops

Label	Description
Virtual Server	Select **Enabled** or **Disabled** to activate or deactivate virtual server
Description	Enter the description of the entry. Acceptable characters are 0-9, a-z, and A-Z. A null value is allowed.
Public IP	Enter a public IP allowed to access the virtual service. If not specified, choose **All**.
Public Port	The port number to be used to access the virtual service on the WAN (Wide Area Network)
Protocol	The protocol used for the virtual service
Local IP	The IP address of the computer that will provide virtual service
Local Port	The port number of the service used by the private IP computer
Enable Now	Enables the virtual server entry after adding it
Virtual server list	Click **Edit** to edit the virtual service entry and **Del** to delete the entry.

NAT Setting – DMZ

DMZ (Demilitarized Zone) allows a computer to be exposed to the Internet without passing through the security settings and therefore is unsecured. This feature is useful for special purposes such as gaming.

To use this function, you need to set an internal computer as the DMZ host by entering its IP address. Adding a client to the DMZ may expose your local network to a variety of security risks, so use this function carefully.



Networking Setting --> NAT Setting -> DMZ

DMZ settings.

DMZ: ○ Enable ● Disable

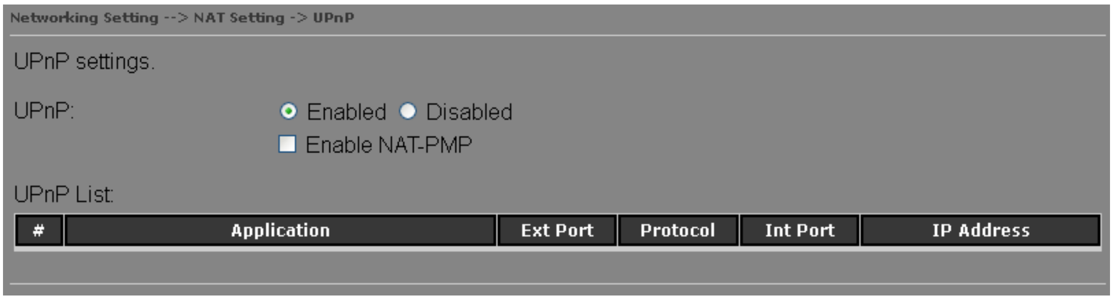
Description:

DMZ Host IP:

Label	Description
DMZ	Enables or disables DMZ
Description	Enter a description for the DMZ host entry
DMZ Host IP	Enter the IP address of the computer to act as the DMZ host

NAT Setting – UPnP

The UPnP (Universal Plug and Play) feature allows Internet devices to access local host resources or devices as needed. UPnP-enabled devices can be automatically discovered by the UPnP service application on the LAN.



Networking Setting --> NAT Setting -> UPnP

UPnP settings.

UPnP: ● Enabled ○ Disabled

□ Enable NAT-PMP

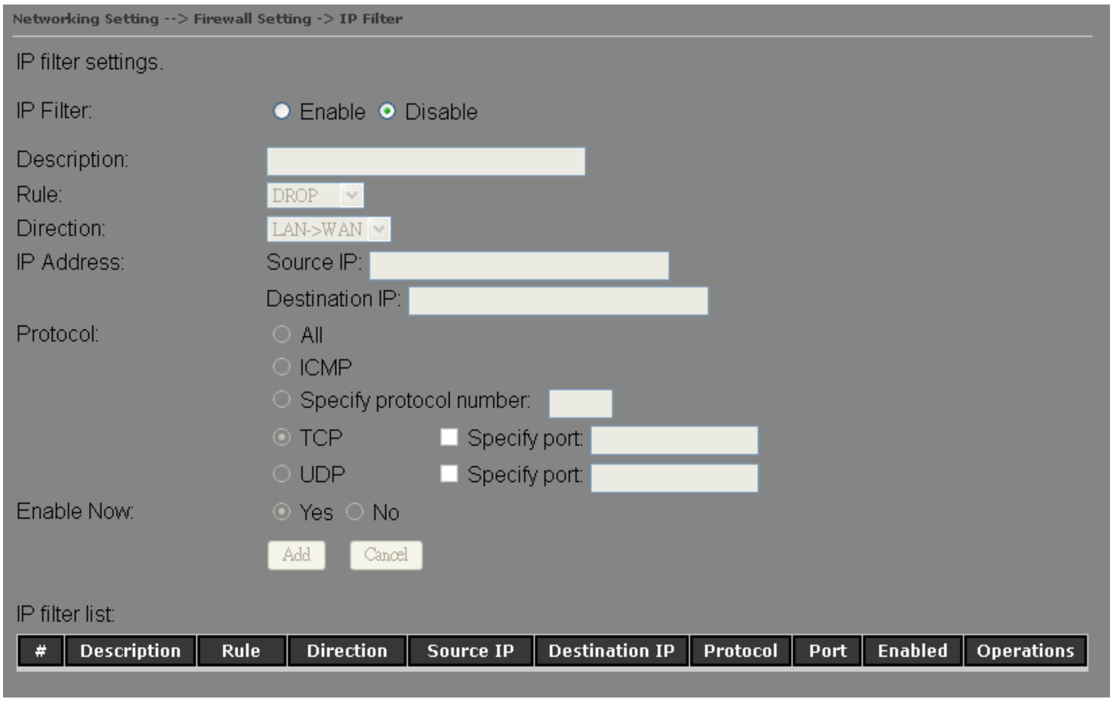
UPnP List:

#	Application	Ext Port	Protocol	Int Port	IP Address

Label	Description
UPnP	Enable or disable UPnP.
Enable NAT-PMP	NAT-PMP allows a computer in a private network (behind a NAT router) to automatically configure the router to allow parties outside the private network to contact with each other. NAT-PMP operates with UDP. It essentially automates the process of port forwarding. Check the box to enable NAT-PMP.
UPnP List	This table lists the current auto port forwarding information. Application: The application that generates this port forwarding. Ext Port: The port opened on WAN Protocol: The protocol type Int Port: The port redirected to the local computer IP Address: The IP address of local computer to be redirected to

Firewall Setting – IP Filter

IP filters enable you to control the forwarding of incoming and outgoing data between your LAN and the Internet and within your LAN. This control is implemented via IP filter rules which are defined to block attempts by certain computers on your LAN to access certain types of data or Internet locations. You can also block incoming access to computers on your LAN.



Networking Setting --> Firewall Setting -> IP Filter

IP filter settings.

IP Filter: ○ Enable ● Disable

Description:

Rule: DROP

Direction: LAN->WAN

IP Address: Source IP:

Destination IP:

Protocol: ○ All
○ ICMP
○ Specify protocol number:
● TCP □ Specify port:
○ UDP □ Specify port:

Enable Now: ● Yes ○ No

Add Cancel

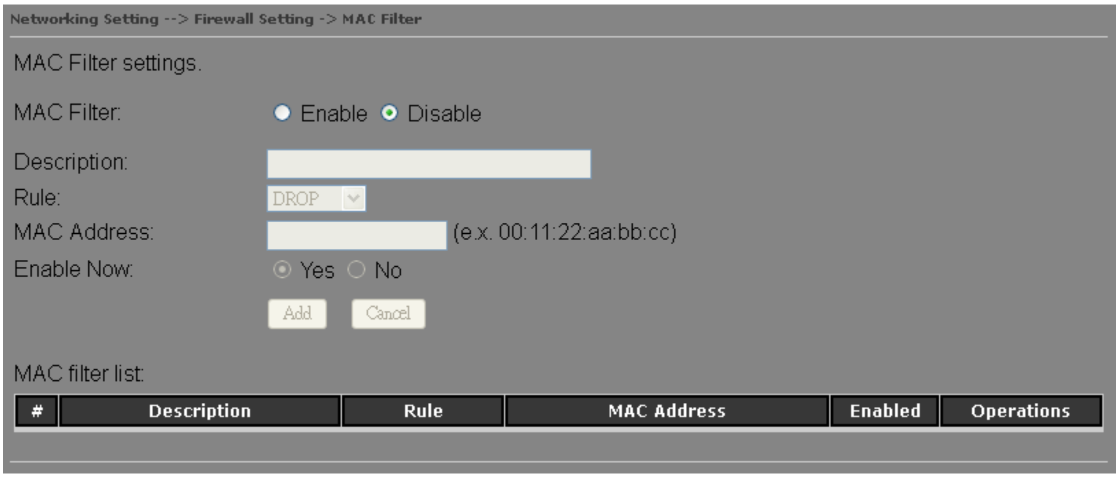
IP filter list

#	Description	Rule	Direction	Source IP	Destination IP	Protocol	Port	Enabled	Operations

Label	Description
IP Filter	Enables or disables the IP Filter
Description	Enter description for the entry.
Rule	Configures the rules to be applied to the IP filter. Available options include **DROP**, **ACCEPT**, and **REJECT.**
Direction	Specifies the direction of data flow to be filtered
IP Address	Enter the IP address of the source and destination computer
Protocol	Configures the protocol to be filtered
Enable Now	Click **Yes** to enable the entry after adding it
IP filter list	Shows the information of all IP filters. Click **Edit** to edit the entry or **Del** to delete the entry.

Firewall Setting – MAC Filter

This page enables you to deny or allow LAN computers to access the Internet based on their MAC addresses.



Networking Setting --> Firewall Setting -> MAC Filter

MAC Filter settings.

MAC Filter: ○ Enable ● Disable

Description:

Rule: DROP

MAC Address: (e.x. 00:11:22:aa:bb:cc)

Enable Now: ● Yes ○ No

MAC filter list:

#	Description	Rule	MAC Address	Enabled	Operations

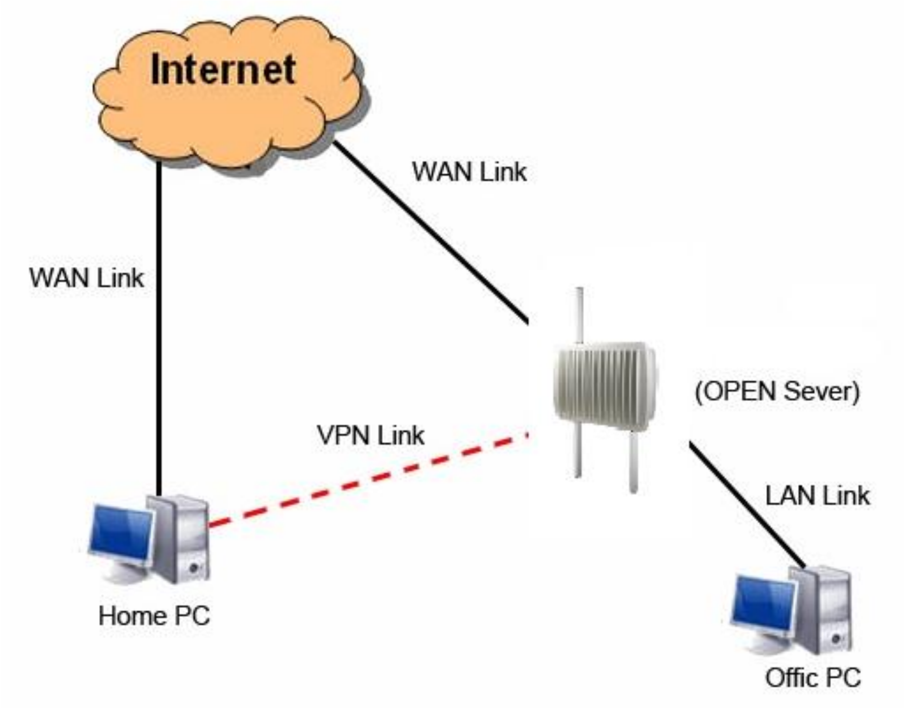
Label	Description
MAC Filter	Enables or disables the MAC Filter
Description	Enter description for the entry
Rule	Configures the rules to be applied to the MAC filter. Available options include **DROP**, **ACCEPT**, and **REJECT.**
MAC Address	Enter the MAC address to be filtered
Enable Now	Click **Yes** to enable the entry after adding it
IP filter list	Shows the information of all MAC filters. Click **Edit** to edit the entry or **Del** to delete the entry.

Vpn Setting – Open Vpn

A VPN is a method of linking two locations as if they are on a local private network to facilitate data transmission and ensure data security. The links between the locations are known as tunnels. VPN can achieve confidentiality, authentication, and integrity of data by utilizing encapsulation protocols, encryption algorithms, and hashing algorithms.

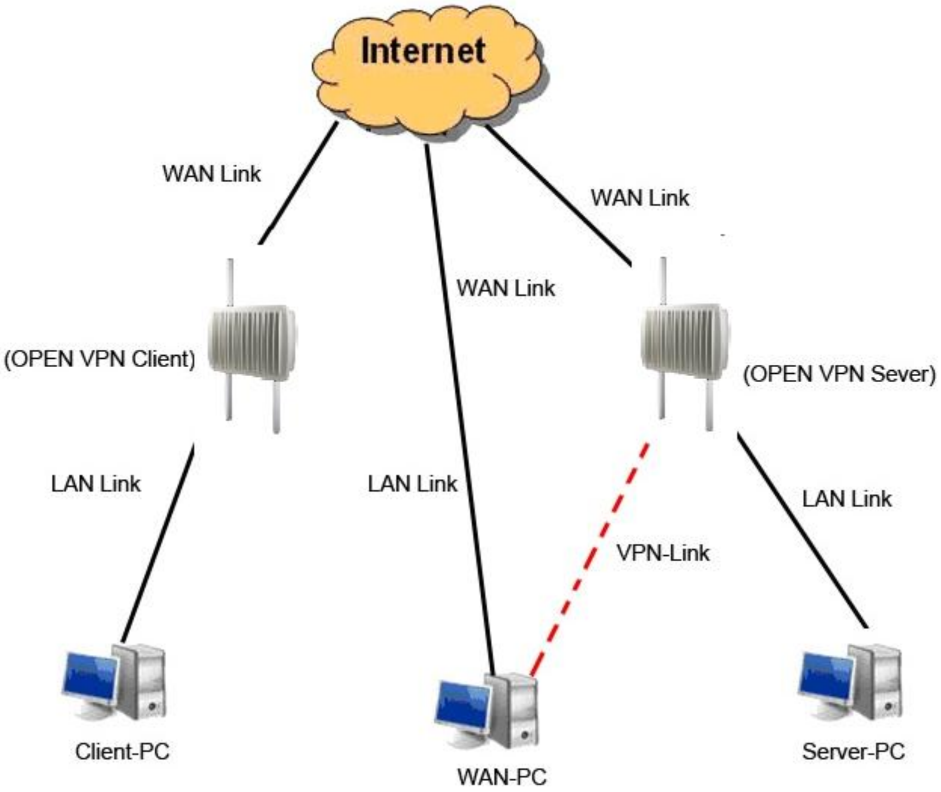
Open VPN enables you to easily set up a virtual private network over an encrypted connection. It is a full-function SSL VPN solution which accommodates a wide range of configurations including remote access, site-to-site VPNs, WiFi security, and enterprise-level remote access with load balancing, failover, and fine-grained access control features.

To set up your router as an Open VPN server, you need to install openvpn client software for your Windows-based PC. You can download it from http://openvpn.net/download.html#stablel.

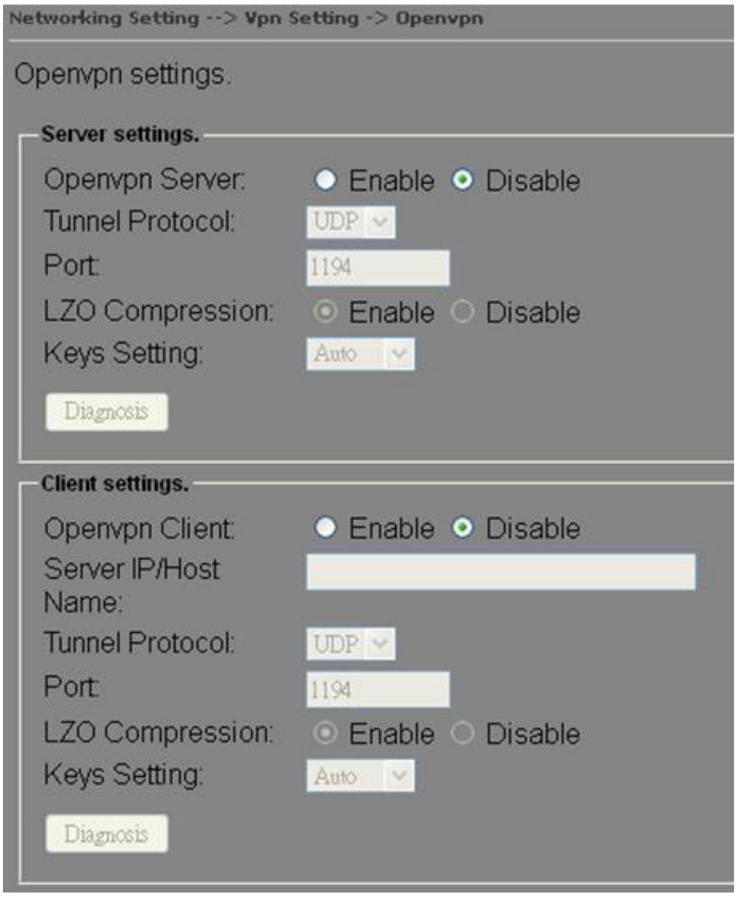


Connection to Open VPN Server

When you enable Open VPN Client, you need two routers to create site-to-site VPN connections. The server IP and client IP address should be within the same network domain.



Open VPN Server and Client Connection



Networking Setting --> Vpn Setting -> Openvpn

Openvpn settings.

Server settings.

Openvpn Server: ○ Enable ● Disable

Tunnel Protocol: UDP

Port: 1194

LZO Compression: ● Enable ○ Disable

Keys Setting: Auto

Diagnosis

Client settings.

Openvpn Client: ○ Enable ● Disable

Server IP/Host Name:

Tunnel Protocol: UDP

Port: 1194

LZO Compression: ● Enable ○ Disable

Keys Setting: Auto

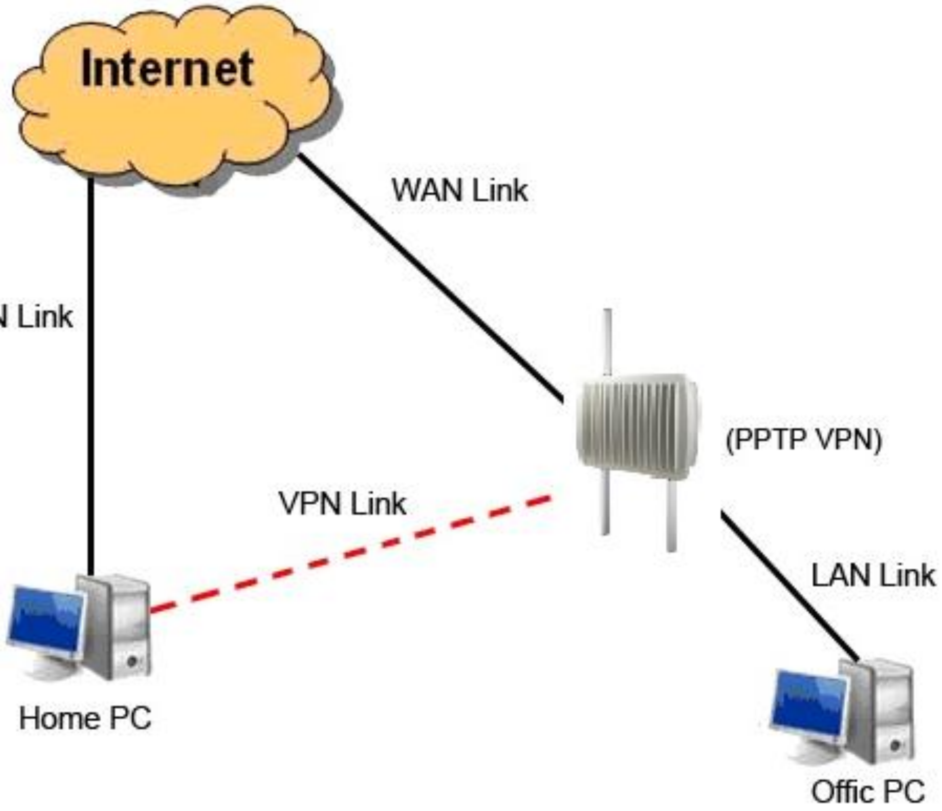
Diagnosis

Label	Description
Open VPN Server	Enables or disables the function of Open VPN server
Tunnel Protocol	Select **UDP** or **TCP** protocol depending on your needs. TCP is more reliable than UDP, but UDP performs better than TCP. It is recommended to use UDP if the distance between VPN server and client is short; otherwise, use TCP.
Port	The number of the port (default is **1194**).
LZO Compression	Enables or disables the function of LZO Compression
Keys Setting	Select **Auto** to use preset certificates or **Manual** to use your certificates. Please install openvpn client software to generate your certificates and paste them here. For more information, please visit openvpn website.
Open VPN Client	Enables or disables the function of Open VPN client.
Server IP	Enter the Open VPN server IP address
Tunnel Protocol	Select **UDP** or **TCP** protocol depending on your needs. TCP is more reliable than UDP, but UDP performs better than TCP. It is recommended to use UDP if the distance between VPN server and client is short; otherwise, use TCP.

Port	The number of the port (default is **1194**).
LZO Compression	Enables or disables the LZO Compression
Keys Setting	Select **Auto** to use preset certificates or **Manual** to use your certificates. Please install openvpn client software to generate your certificates and paste them here. For more information, please visit openvpn website.

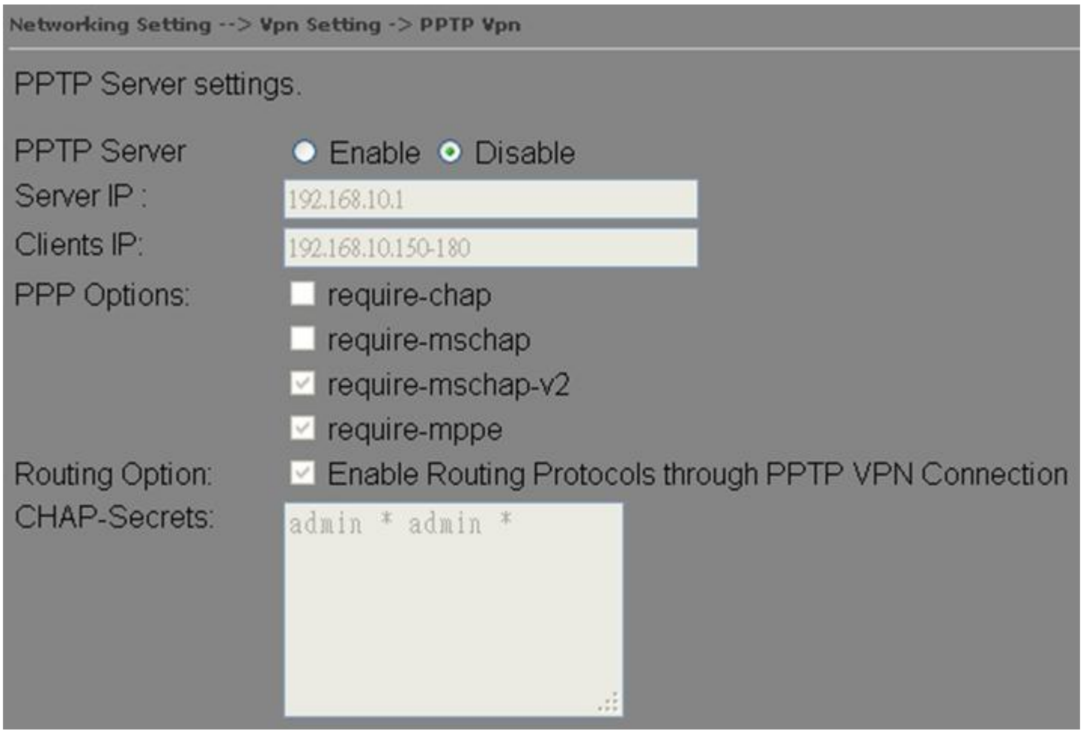
Vpn Setting – PPTP VPN

PPTP (Point to Point Tunneling Protocol) VPN allows PCs connected to the router through WAN ports to act as PCs in the same LAN.



To create a PPTP connection to the router, you must create a new network connection on your Windows PC by right clicking **Network > Property > Create a new connection > Connect to my work space (VPN) > Use VPN to Internet**, and then enter the user name and password set in the page.

After setting up a new connection, you can make configurations in the following page.



Networking Setting --> Vpn Setting -> PPTP Vpn

PPTP Server settings.

PPTP Server ○ Enable ● Disable

Server IP : 192.168.10.1

Clients IP: 192.168.10.150-180

PPP Options: □ require-chap
□ require-mschap
☑ require-mschap-v2
☑ require-mppe

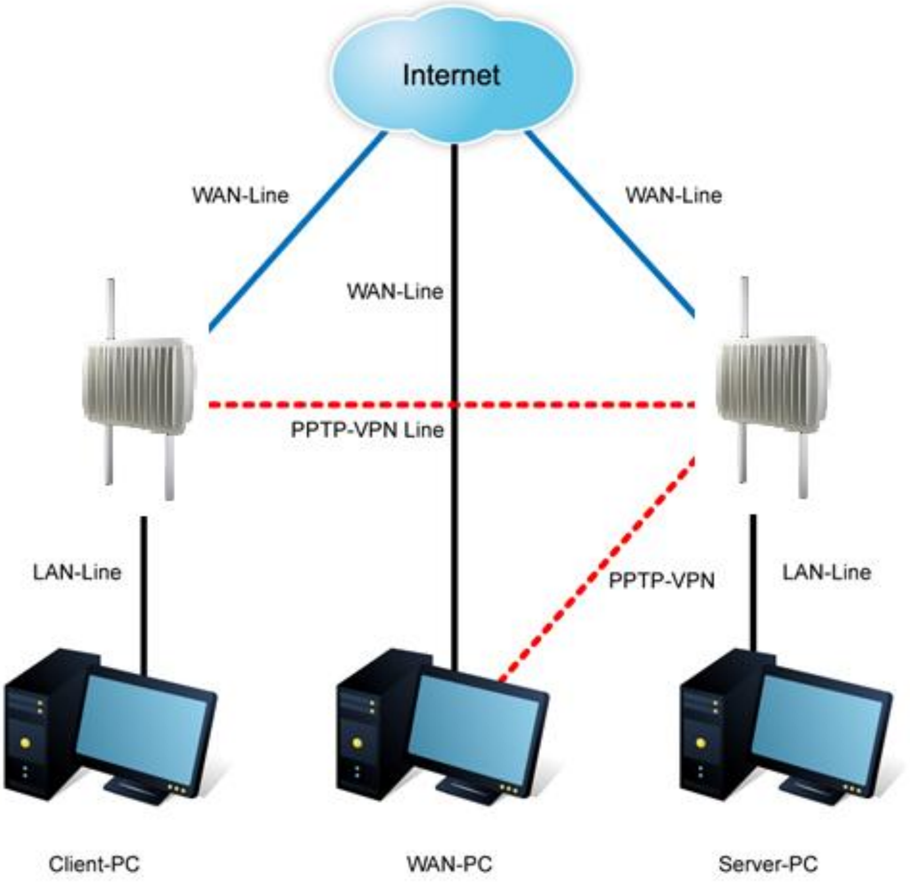
Routing Option: ☑ Enable Routing Protocols through PPTP VPN Connection

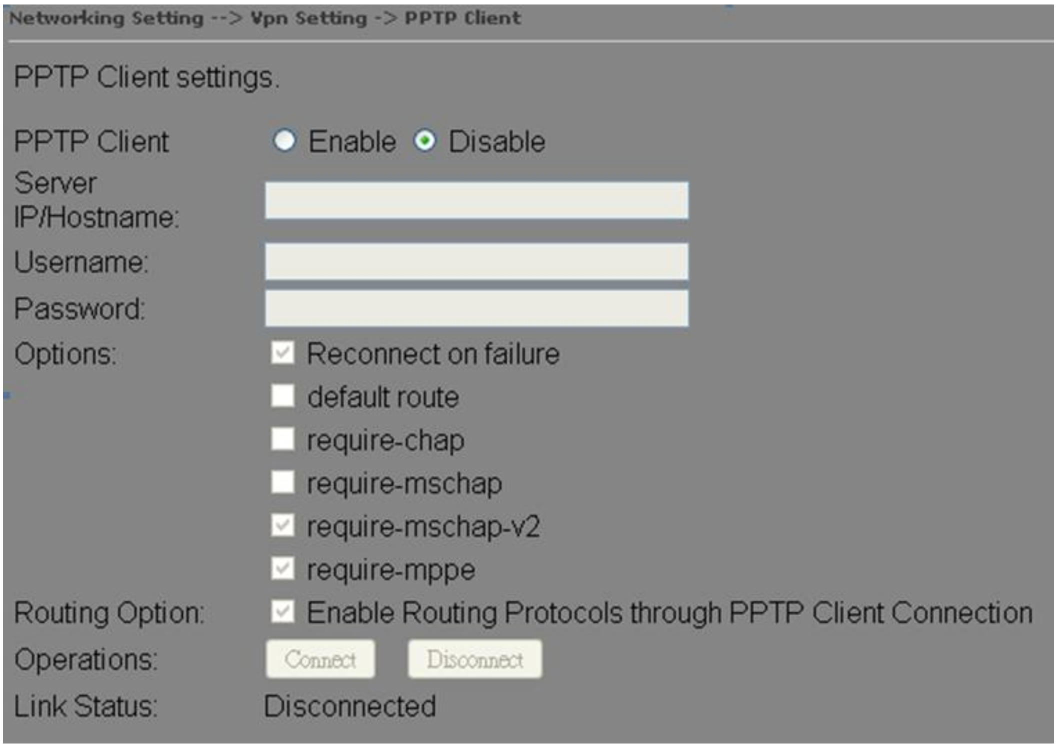
CHAP-Secrets: admin * admin *

Label	Description
PPTP Server	Enables or disables PPTP VPN server
Server IP	Enter the server IP address. The default value is the IP address of the connected LAN port.
Client IP	Enter the IP address range in the form of 192.168.10.xx-xx. The connected client will be assigned with an IP address.
CHAP-Secrets	Enter the username and password pairs in the form of **user * pass ***. Multiple username and password pairs are allowed.

Vpn Setting – PPTP Client

If a router wants to link to the routers in different networks, you should enable PPTP client in the following page.




Networking Setting --> Vpn Setting -> PPTP Client

PPTP Client settings.

PPTP Client ○ Enable ● Disable

Server IP/Hostname:

Username:

Password:

Options:
☑ Reconnect on failure
□ default route
□ require-chap
□ require-mschap
☑ require-mschap-v2
☑ require-mppe

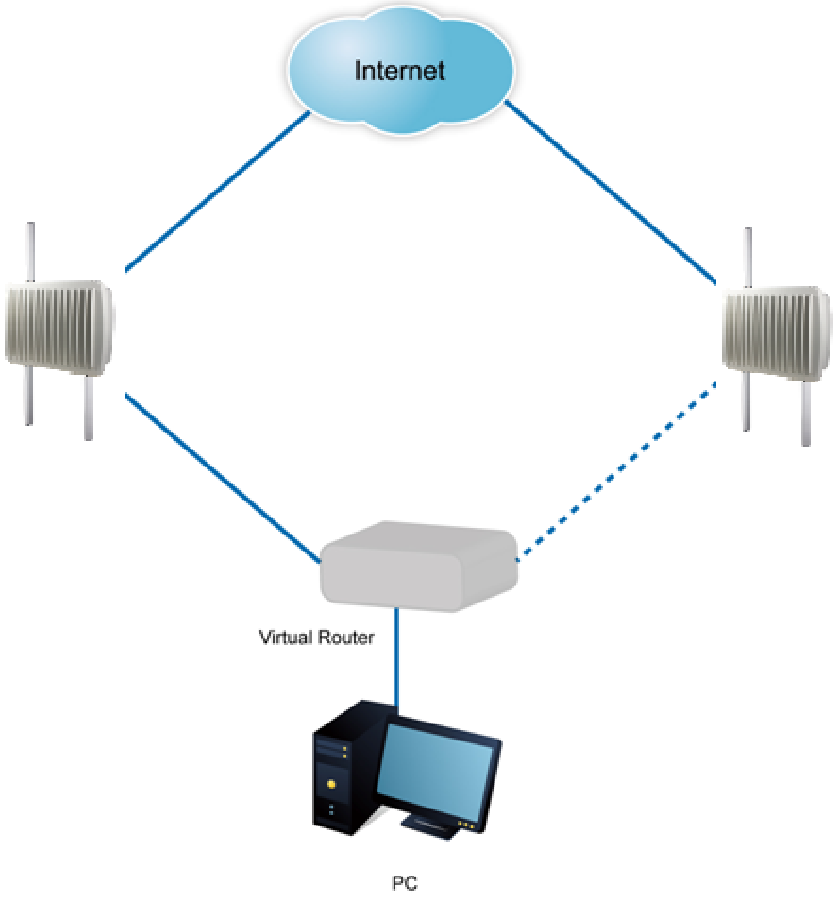
Routing Option: ☑ Enable Routing Protocols through PPTP Client Connection

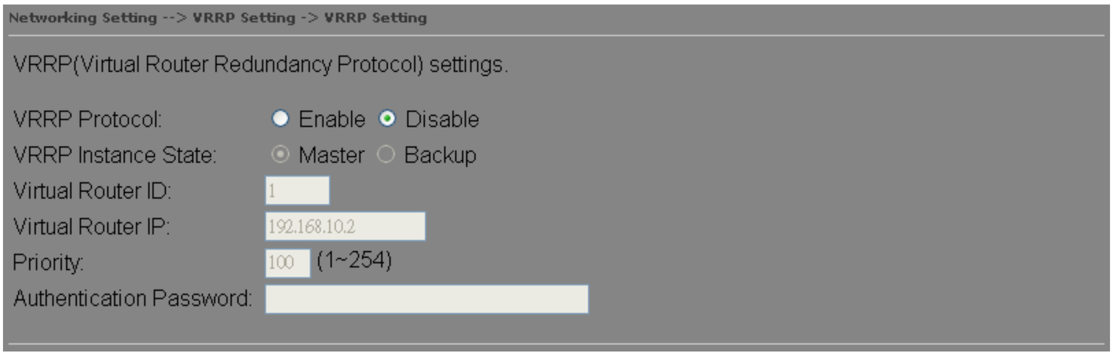
Link Status: Disconnected

Label	Description
PPTP Client	Enables or disables PPTP client
Server IP/Hostname	Enter the server IP address or hostname
Username/Password	Enter the username and password assigned by PPTP server
Options	Choose the rules to be applied **Reconnect on failure**: prompts automatic reconnection when the link fails. **Require-chap**: check to use chap authentication on your PPTP server **Require-mschap**: check to use mschap authentication on your PPTP server **Require-mschap-v2**: check to use mschap-v2 authentication on your PPTP server **Require MPPE**: check to use MPPE (Microsoft Point-to-Point Encryption) encryption on data transmitted through PPP (Point-to-Point Protocol) and VPN links.
Operations	Click **Connect** to link to the server or **Disconnect** to disconnect from the server
Link Status	Show the status of the link

VRRP

A VRRP (Virtual Router Redundancy Protocol) is a computer networking protocol aimed to eliminate the single point of failure by automatically assigning available IP routers to participating hosts. Using a virtual router ID (VRID) address and virtual router IP (VRIP) address to represent itself, a virtual router consists of two or more physical routers, including one master router and one or more backup routers. All routers in the virtual router group share the same VRID and VRIP. The master router provides primary routing and the backup routers monitor the status of the master router and become active if the master router fails.





VRRP(Virtual Router Redundancy Protocol) settings.

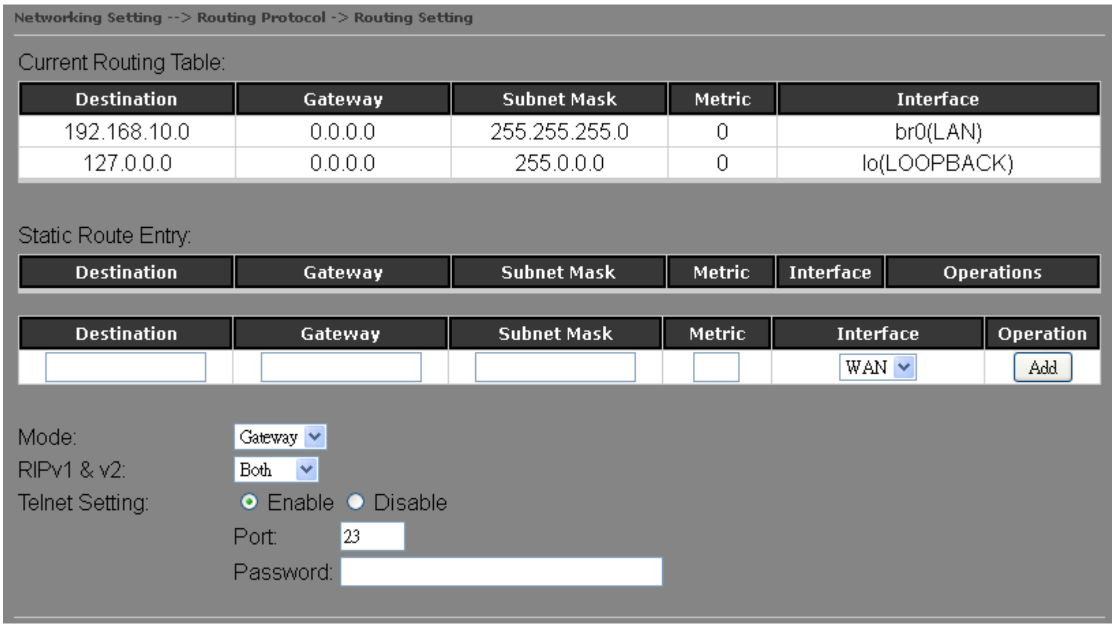
VRRP Protocol:	○ Enable ● Disable
VRRP Instance State:	● Master ○ Backup
Virtual Router ID:	1
Virtual Router IP:	192.168.10.2
Priority:	100 (1~254)
Authentication Password:	

Label	Description
VRRP Protocol	Enables or disables VRRP function
VRRP Instance State	Specifies the router to act as the master or backup router
Virtual Router ID	A VRID consists of one master router and one or more backup routers. The master router is the router that owns the IP address you associate with the VRID. Configure the VRID on the router that owns the default gateway interface. The other router in the VRID does not own the IP address associated with VRID but provides the backup path if the Master router becomes unavailable.

Virtual Router IP	An IP address associated with the VRID from which other hosts can obtain network service. The VRIP is managed by the VRRP instances belonging to a VRID.
Priority	The priority value used by the VRRP router when selecting the master virtual router.
Authentication Password	Enter the password for authentication

Routing Protocol – Routing Setting

This page shows the information of the routing table. You can configure static and dynamic routing settings in this page.



Networking Setting --> Routing Protocol -> Routing Setting

Current Routing Table:

Destination	Gateway	Subnet Mask	Metric	Interface
192.168.10.0	0.0.0.0	255.255.255.0	0	br0(LAN)
127.0.0.0	0.0.0.0	255.0.0.0	0	lo(LOOPBACK)

Static Route Entry:

Destination	Gateway	Subnet Mask	Metric	Interface	Operations

Destination	Gateway	Subnet Mask	Metric	Interface	Operation
				WAN	Add

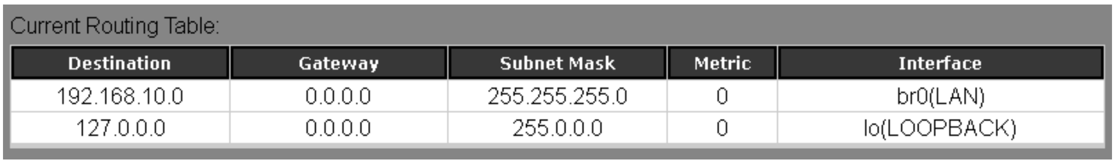
Mode: Gateway

RIPv1 & v2: Both

Telnet Setting: ● Enable ○ Disable

Port: 23

Password:

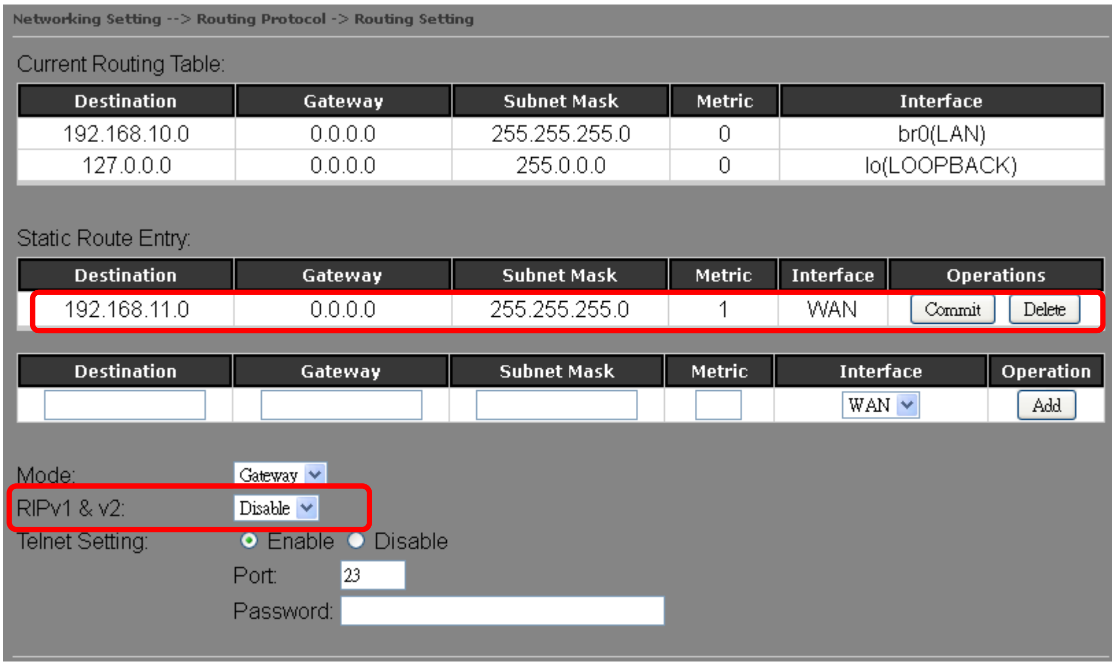


Current Routing Table:

Destination	Gateway	Subnet Mask	Metric	Interface
192.168.10.0	0.0.0.0	255.255.255.0	0	br0(LAN)
127.0.0.0	0.0.0.0	255.0.0.0	0	lo(LOOPBACK)

Static Routing

When RIPv1 & v2 is **Disabled**, the router will operate in static routing mode, which means routers forward packets using either route information from route table entries that you manually configure or the route information that is calculated using dynamic routing algorithms.



Networking Setting --> Routing Protocol -> Routing Setting

Current Routing Table:

Destination	Gateway	Subnet Mask	Metric	Interface
192.168.10.0	0.0.0.0	255.255.255.0	0	br0(LAN)
127.0.0.0	0.0.0.0	255.0.0.0	0	lo(LOOPBACK)

Static Route Entry:

Destination	Gateway	Subnet Mask	Metric	Interface	Operations
192.168.11.0	0.0.0.0	255.255.255.0	1	WAN	Commit Delete

Destination	Gateway	Subnet Mask	Metric	Interface	Operation
				WAN	Add

Mode: Gateway

RIPv1 & v2: Disable

Telnet Setting: ● Enable ○ Disable

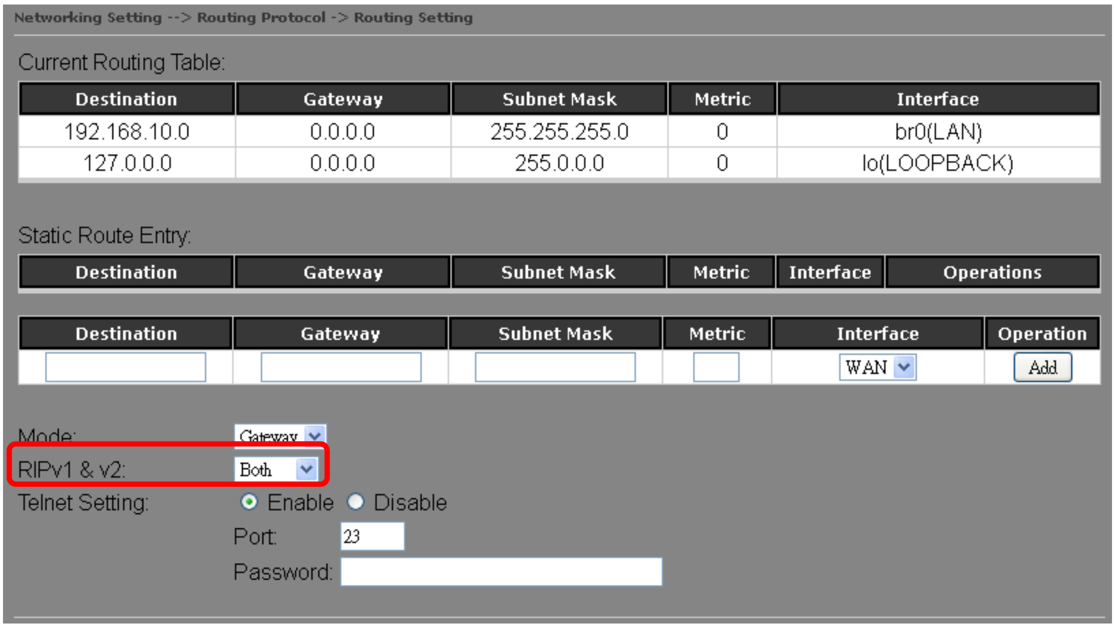
Port: 23

Password:

Dynamic Routing

Dynamic routing lets routing tables in routers change as the routes change. If the best path to a destination cannot be used, dynamic routing protocols change routing tables when necessary to keep your network traffic moving. Dynamic routing protocols include RIP, OSPF, and BGP; however, the device only supports RIP (Routing Information Protocol).

Do not choose **Disable** in the RIPv1 & v2 list if you want to enable Dynamic Routing. After clicking **Apply**, more information will be displayed in Current Routing Table.



Networking Setting --> Routing Protocol -> Routing Setting

Current Routing Table:

Destination	Gateway	Subnet Mask	Metric	Interface
192.168.10.0	0.0.0.0	255.255.255.0	0	br0(LAN)
127.0.0.0	0.0.0.0	255.0.0.0	0	lo(LOOPBACK)

Static Route Entry:

Destination	Gateway	Subnet Mask	Metric	Interface	Operations

Destination	Gateway	Subnet Mask	Metric	Interface	Operation
				WAN	Add

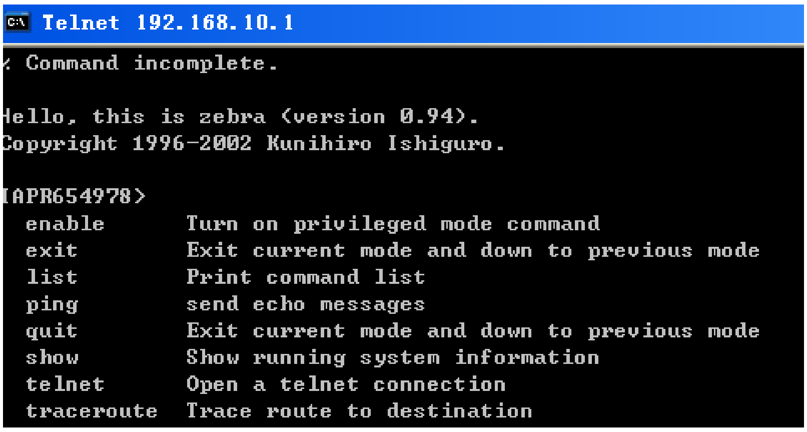
Mode: Gateway

RIPv1 & v2: Both

Telnet Setting: ● Enable ○ Disable

Port: 23

Password:

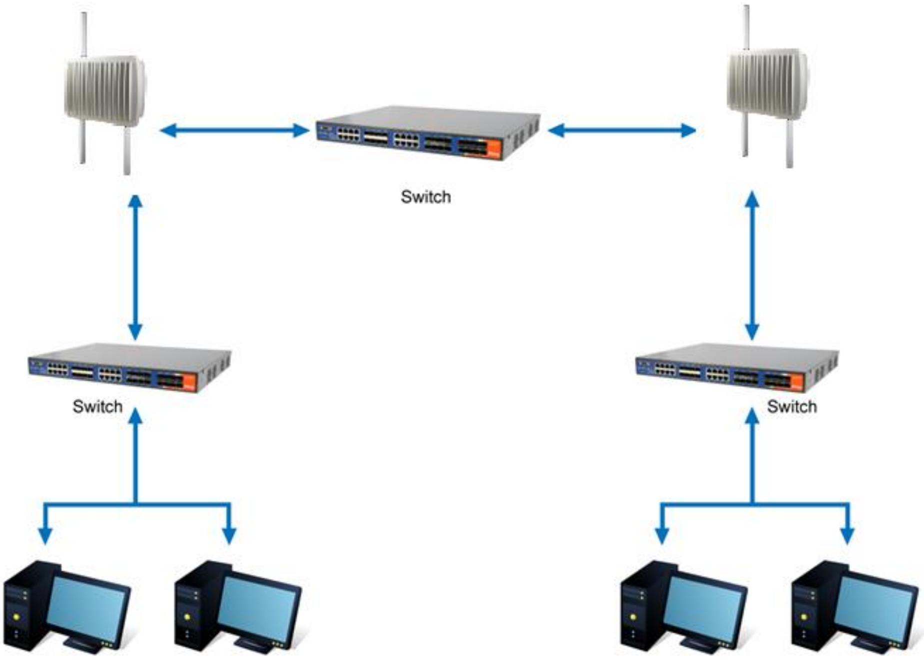
Label	Description
Current Routing Table	Shows all routing information, including static and dynamic routing (if enabled)
Static Route Entry	Fills in corresponding information to add new entries to the static routing tablet
Mode	Choose **Gateway Mode** if you want PCs in the LAN to visit external network, otherwise choose **Router Mode**
RIPv1 &v2	Choose **Disable** to disable dynamic routing or other options to configure the interfaces for dynamic routing
Telnet Setting	This option is only available when dynamic routing is enabled. It allows you to make detailed configurations via simple comments. 

Telnet 192.168.10.1

```
% Command incomplete.

Hello, this is zebra (version 0.94).
Copyright 1996-2002 Kunihiro Ishiguro.

TAPR654978>
  enable       Turn on privileged mode command
  exit         Exit current mode and down to previous mode
  list         Print command list
  ping         send echo messages
  quit         Exit current mode and down to previous mode
  show         Show running system information
  telnet       Open a telnet connection
  traceroute   Trace route to destination
```

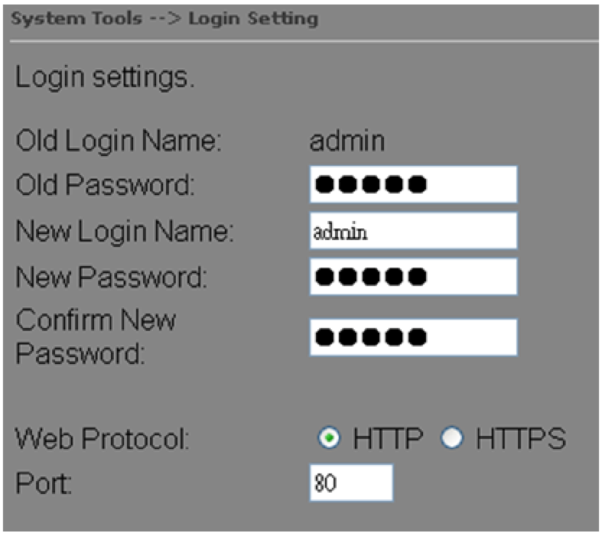


Routing Topography

5.2.3 System Tools

Login Setting

You can change login name and password in page. The default login name and password are both **admin**.



System Tools --> Login Setting

Login settings.

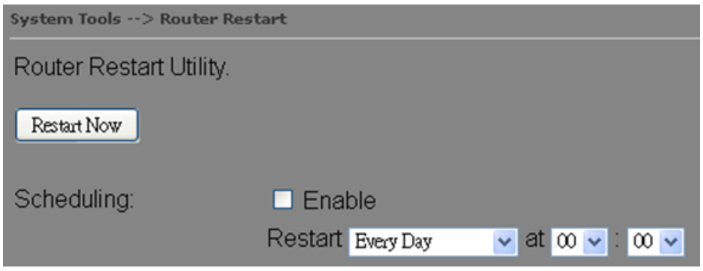
Old Login Name: admin
Old Password: ●●●●●
New Login Name: admin
New Password: ●●●●●
Confirm New Password: ●●●●●

Web Protocol: ● HTTP ○ HTTPS
Port: 80

Label	Description
Old Name	Type in current login name
Old Password	Type in current password
New Name	Enter a new login name. Acceptable characters contain '0-9', 'a-z', 'A-Z' and the length must be 1 to 15 characters. An empty name is not acceptable.
New Password	Enter a new login password. Acceptable characters contain '0-9', 'a-z', 'A-Z' and the length must be 0 to 15 characters.
Confirm New Password	Retype the new password to confirm it.
Web Protocol	Choose a web management page protocol from **HTTP** and **HTTPS**. HTTPS (HTTP over SSL) encrypts data sent and received over the Web. Choose HTTPS if you want a secure connection.
Port	Choose a web management page port number. For HTTP, default port is 80. For HTTPS, default port is 443.

Router Restart

This page allows you to configure restart settings for the router.



System Tools --> Router Restart

Router Restart Utility.

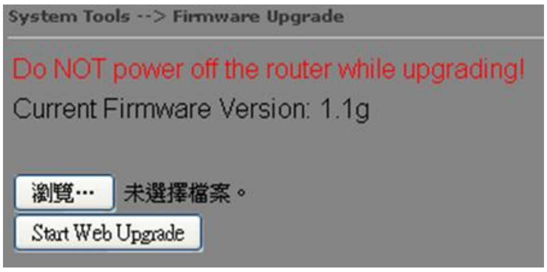
Scheduling: □ Enable

Restart Every Day at 00 : 00

Label	Description
Restart Now	Click to restart the router via warm reset
Scheduling	**Enable**: check to activate the setting Restart at: specify the time for resetting the router. You can configure the action to be performed periodically.

Firmware Upgrade

ORing launches new firmware constantly to enhance router performance and functions. To upgrade firmware, download new firmware from ORing's website to your PC and install it via Web upgrade. Make sure the firmware file matches the model of your router. It will take several minutes to upload and update the firmware. After upgrade completes successfully, reboot the router.



System Tools --> Firmware Upgrade

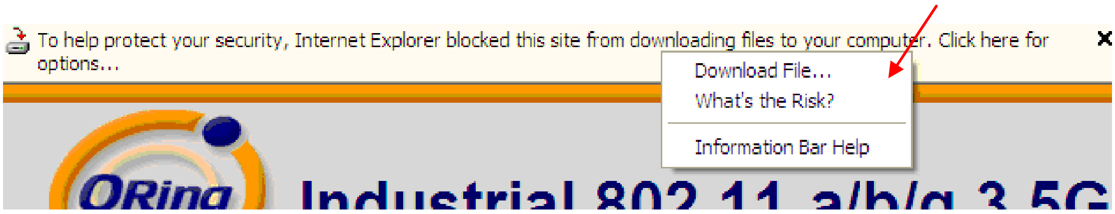
Do NOT power off the router while upgrading!

Current Firmware Version: 1.1g

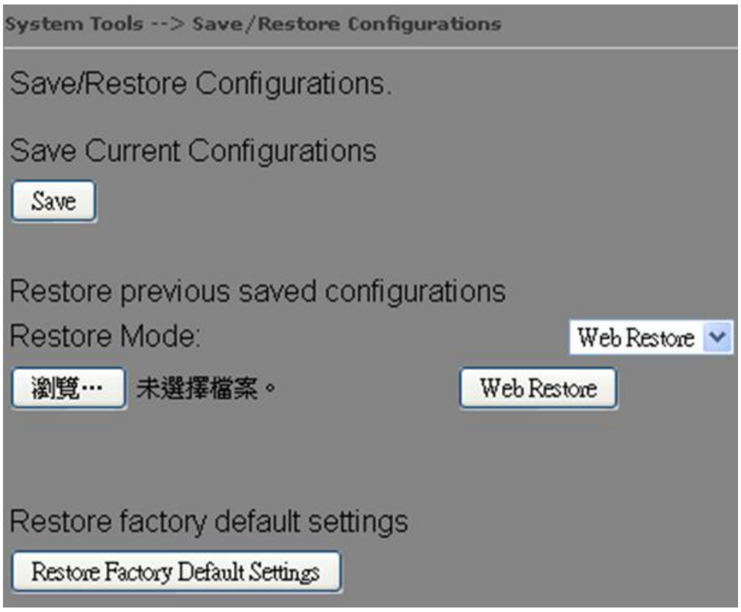
During firmware upgrading, do not turn off the power of the router or press the reset button.

Save/Restore Configurations

This page allows you to save configurations or return settings to previous status. You can download the configuration file from the Web. Note: users using old versions of Internet Explorer may have to click on the warning on top of the browser and choose Download File.



To help protect your security, Internet Explorer blocked this site from downloading files to your computer. Click here for options...


System Tools --> Save/Restore Configurations

Save/Restore Configurations.

Save Current Configurations

Restore previous saved configurations

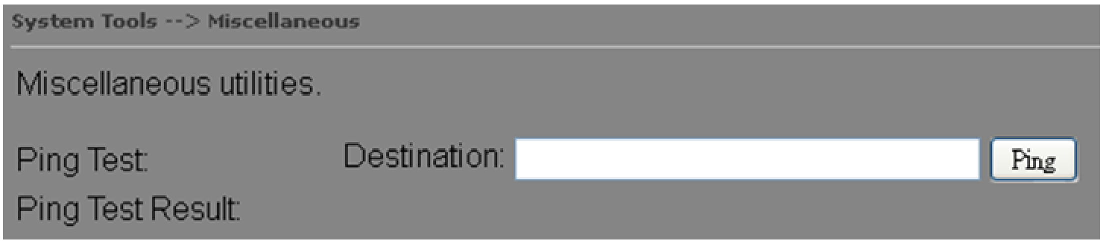
Restore Mode: Web Restore

Restore factory default settings

Label	Description
Save	Click to save existing configurations as a file for future usage.
Select File	You can restore configurations to previous status by installing a previous configuration file. To do this, choose **Web Restore** or **Tftp Restore**. If you choose **Web Restore**, you need to choose a file and click **Web Restore**. If you selet **Tftp Restore**, fill in a Tftp server IP address and the file name before clicking **Tftp Restore**.
Restore Factory Default Setting	Click to reset the router to the factory settings. The router will reboot to validate the default settings.

Miscellaneous

This page enables you to run ping test which will send out ping packets to test if a computer is on the Internet or if the WAN connection is OK. Enter a domain name or IP address in the destination box and click **Ping** to test.


System Tools --> Miscellaneous

Miscellaneous utilities.

Ping Test: Destination:

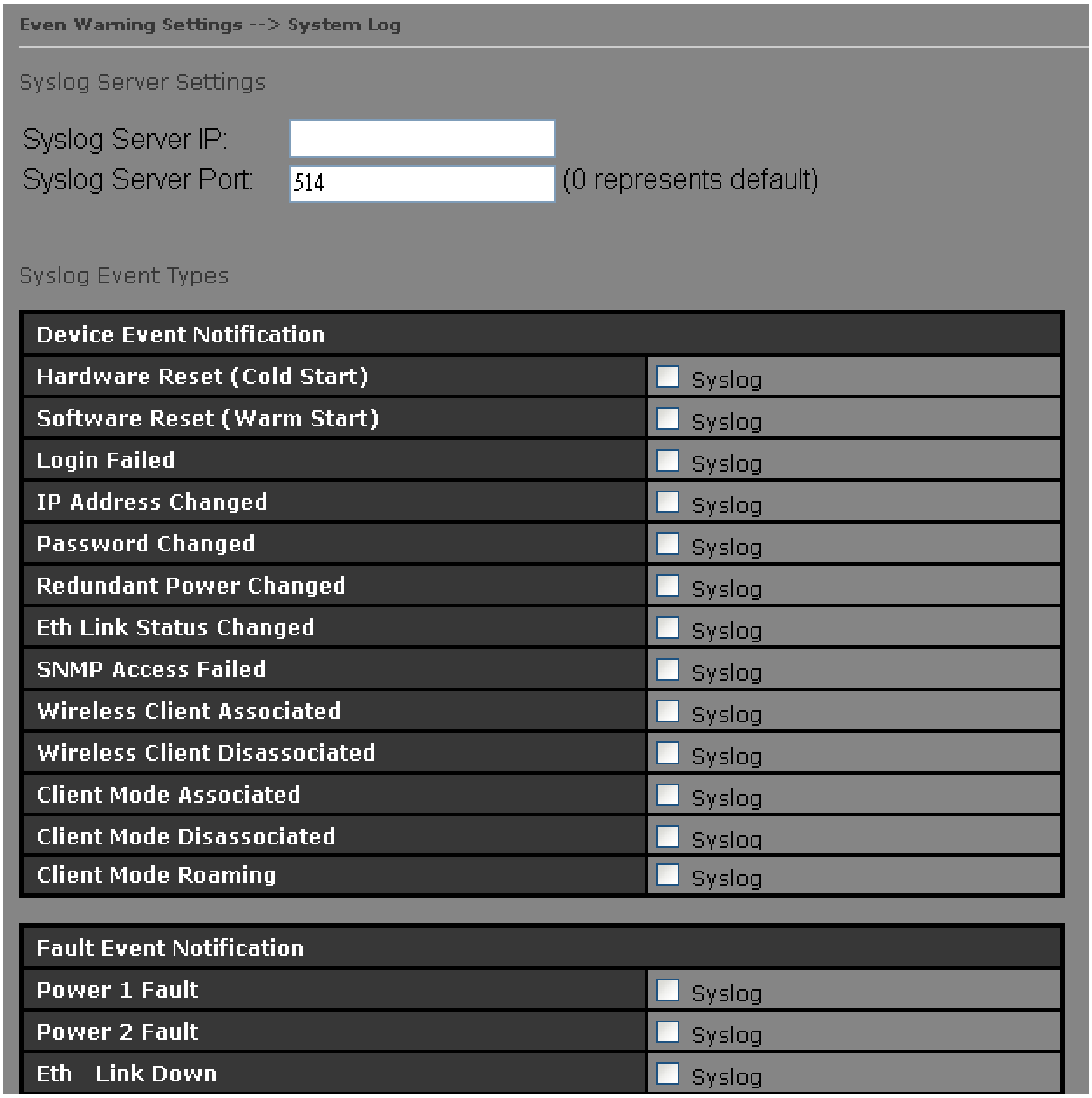
Ping Test Result:

Event Warning

When an error occurs, the router will notify you through system log, e-mail, SNMP, and

Beeper.

System Log



Even Warning Settings --> System Log

Syslog Server Settings

Syslog Server IP:

Syslog Server Port: 514 (0 represents default)

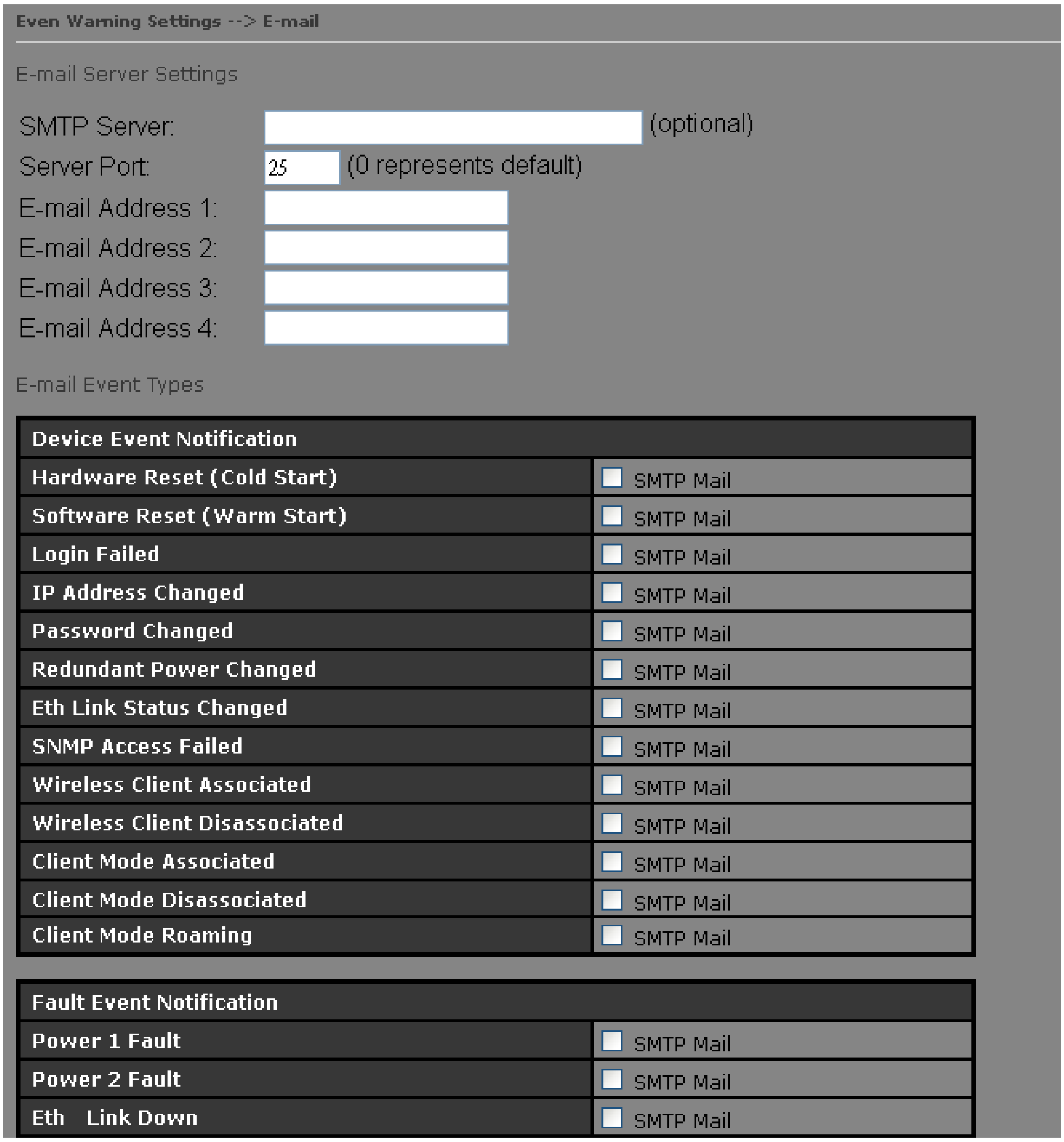
Syslog Event Types

Device Event Notification	
Hardware Reset (Cold Start)	□ Syslog
Software Reset (Warm Start)	□ Syslog
Login Failed	□ Syslog
IP Address Changed	□ Syslog
Password Changed	□ Syslog
Redundant Power Changed	□ Syslog
Eth Link Status Changed	□ Syslog
SNMP Access Failed	□ Syslog
Wireless Client Associated	□ Syslog
Wireless Client Disassociated	□ Syslog
Client Mode Associated	□ Syslog
Client Mode Disassociated	□ Syslog
Client Mode Roaming	□ Syslog

Fault Event Notification	
Power 1 Fault	□ Syslog
Power 2 Fault	□ Syslog
Eth Link Down	□ Syslog

Label	Description
Syslog Server IP	Enter the IP address of a remote server if you want the logs to be stored remotely. Leave it blank will disable remote syslog.
Syslog Server Port	Specifies the port to be logged remotely. Default port is 514.

E-mail



Even Warning Settings --> E-mail

E-mail Server Settings

SMTP Server:	(optional)
Server Port:	25 (0 represents default)
E-mail Address 1:	
E-mail Address 2:	
E-mail Address 3:	
E-mail Address 4:	

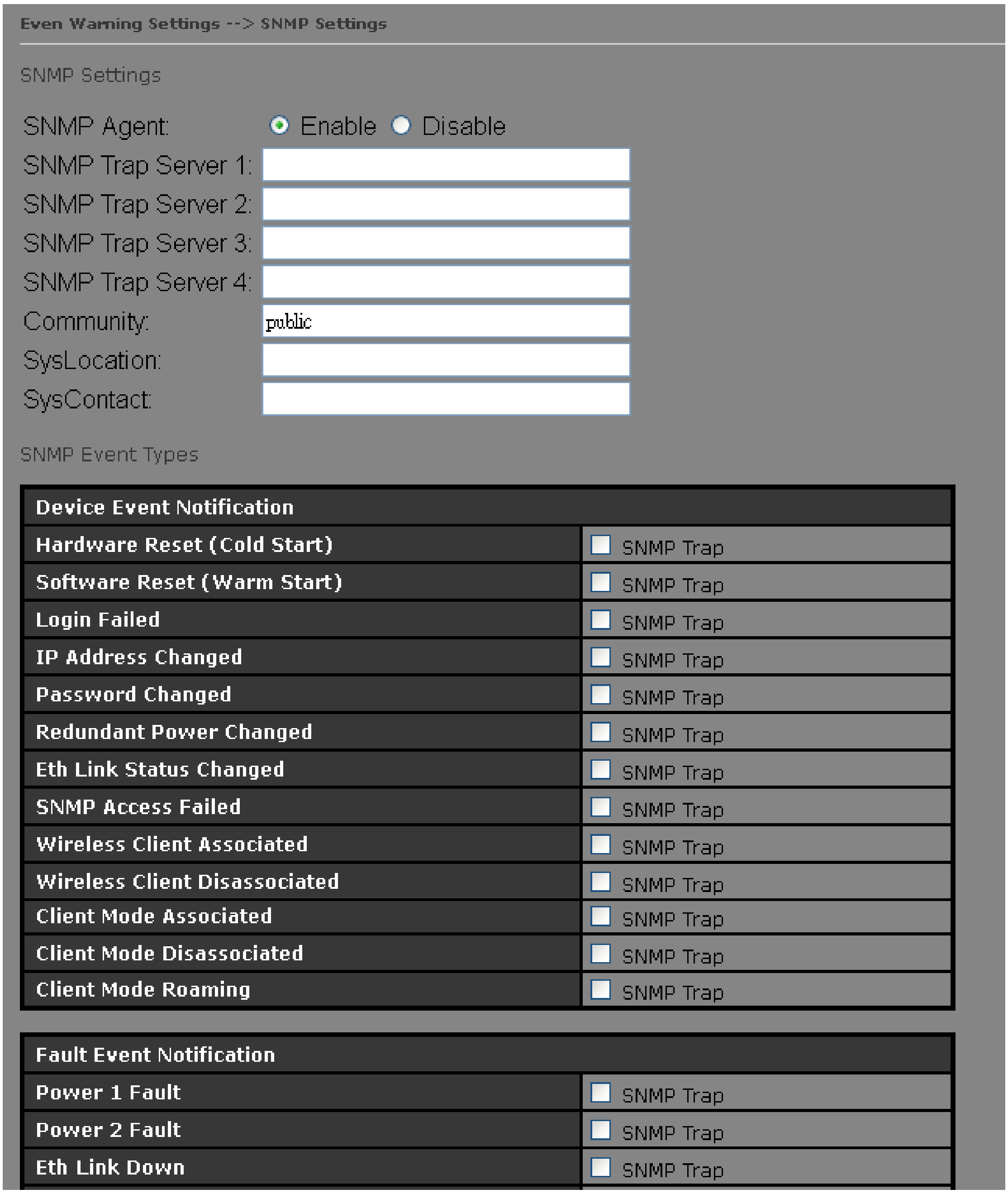
E-mail Event Types

Device Event Notification	
Hardware Reset (Cold Start)	□ SMTP Mail
Software Reset (Warm Start)	□ SMTP Mail
Login Failed	□ SMTP Mail
IP Address Changed	□ SMTP Mail
Password Changed	□ SMTP Mail
Redundant Power Changed	□ SMTP Mail
Eth Link Status Changed	□ SMTP Mail
SNMP Access Failed	□ SMTP Mail
Wireless Client Associated	□ SMTP Mail
Wireless Client Disassociated	□ SMTP Mail
Client Mode Associated	□ SMTP Mail
Client Mode Disassociated	□ SMTP Mail
Client Mode Roaming	□ SMTP Mail

Fault Event Notification	
Power 1 Fault	□ SMTP Mail
Power 2 Fault	□ SMTP Mail
Eth Link Down	□ SMTP Mail

Label	Description
SMTP Server	Enter a backup host to be used when the primary host is unavailable.
Server Port	Specifies the port where MTA can be contacted via SMTP server
E-mail Address 1-4	Enter the mail address that will receive notifications

SNMP



Even Warning Settings --> SNMP Settings

SNMP Settings

SNMP Agent:	● Enable ○ Disable
SNMP Trap Server 1:	
SNMP Trap Server 2:	
SNMP Trap Server 3:	
SNMP Trap Server 4:	
Community:	public
SysLocation:	
SysContact:	

SNMP Event Types

Device Event Notification	
Hardware Reset (Cold Start)	□ SNMP Trap
Software Reset (Warm Start)	□ SNMP Trap
Login Failed	□ SNMP Trap
IP Address Changed	□ SNMP Trap
Password Changed	□ SNMP Trap
Redundant Power Changed	□ SNMP Trap
Eth Link Status Changed	□ SNMP Trap
SNMP Access Failed	□ SNMP Trap
Wireless Client Associated	□ SNMP Trap
Wireless Client Disassociated	□ SNMP Trap
Client Mode Associated	□ SNMP Trap
Client Mode Disassociated	□ SNMP Trap
Client Mode Roaming	□ SNMP Trap

Fault Event Notification	
Power 1 Fault	□ SNMP Trap
Power 2 Fault	□ SNMP Trap
Eth Link Down	□ SNMP Trap

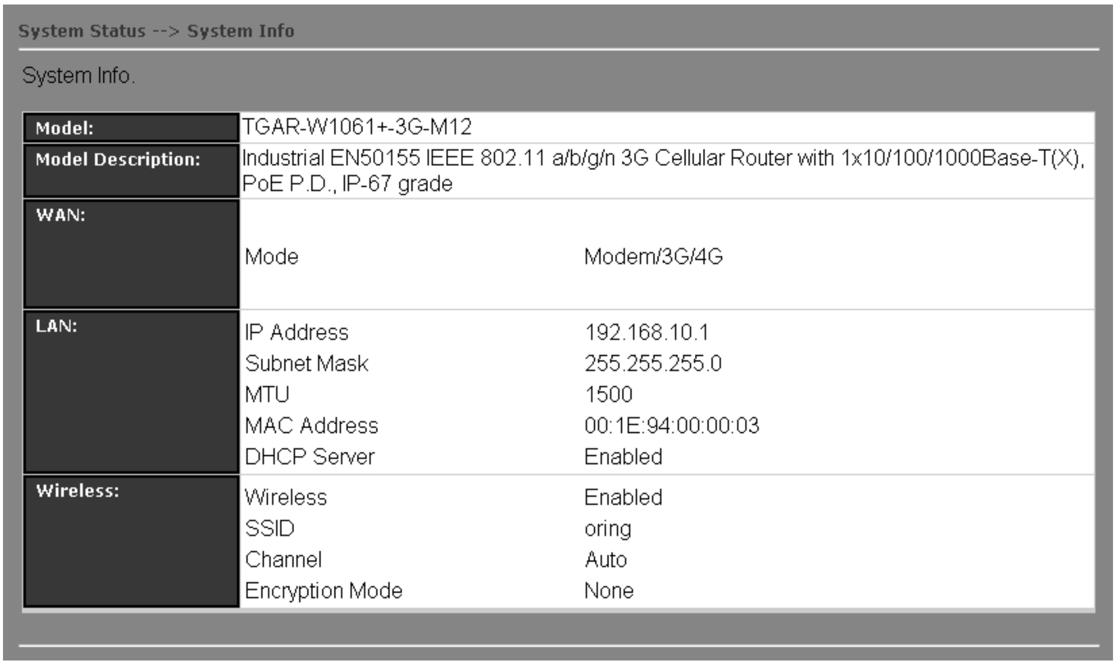
Label	Description
SNMP Agent	SNMP (Simple Network Management Protocol) Agent is a service program that runs on the access point. The agent provides management information to the NMS by keeping track of various operational aspects of the AP system. You can enable or disable the function.
SNMP Trap Server 1-4	Enter the IP address of the SNMP server which will send out traps generated by the AP.

Community	Community is a password to establish trust between managers and agents. Normally, **public** is used for read-write community.
SysLocation	Specifies sysLocation string
SysContact	Specifies sysContact string

5.2.4 System Status

System Info

This page displays the detailed information of the router including model name, description, firmware version, WAN, LAN and wireless settings.



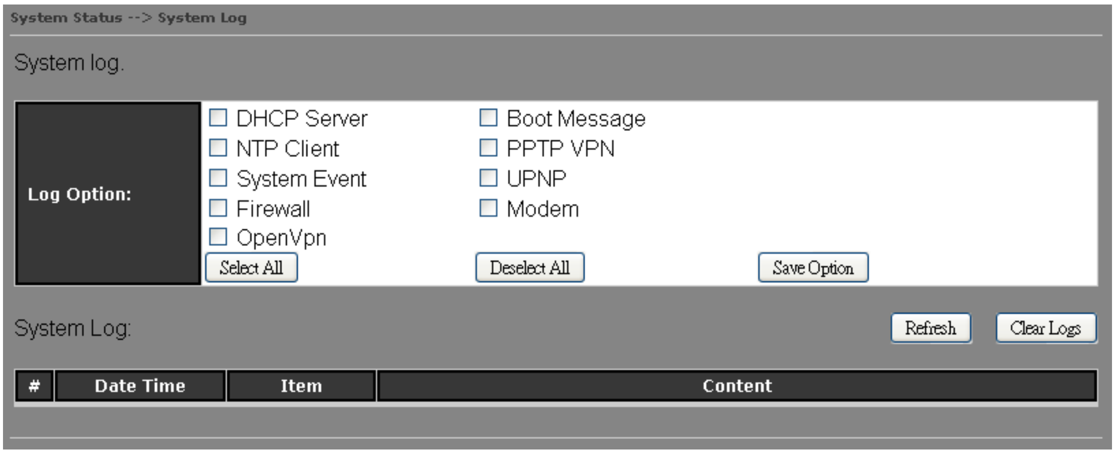
System Status --> System Info

System Info.

Model:	TGAR-W1061+-3G-M12	
Model Description:	Industrial EN50155 IEEE 802.11 a/b/g/n 3G Cellular Router with 1x10/100/1000Base-T(X), PoE P.D., IP-67 grade	
WAN:	Mode	Modem/3G/4G
LAN:	IP Address Subnet Mask MTU MAC Address DHCP Server	192.168.10.1 255.255.255.0 1500 00:1E:94:00:00:03 Enabled
Wireless:	Wireless SSID Channel Encryption Mode	Enabled oring Auto None

System Log

The router will constantly log events and activities and provide the files for you to review. You can click **Refresh** to renew the page or **Clear Logs** to clear all or certain log entries.



System Status --> System Log

System log.

Log Option:

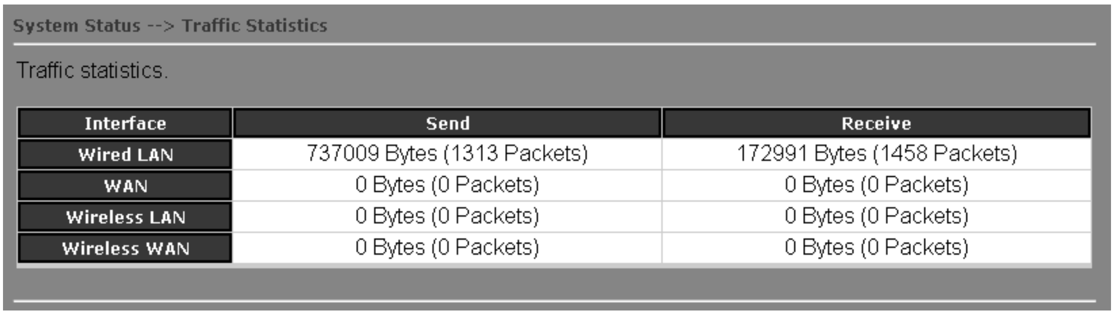
- ☐ DHCP Server
- ☐ NTP Client
- ☐ System Event
- ☐ Firewall
- ☐ OpenVpn
- ☐ Boot Message
- ☐ PPTP VPN
- ☐ UPNP
- ☐ Modem

System Log:

#	Date Time	Item	Content

Traffic Statistics

This page displays network traffic statistics for packets both received and transmitted through Ethernet ports and wireless connections.



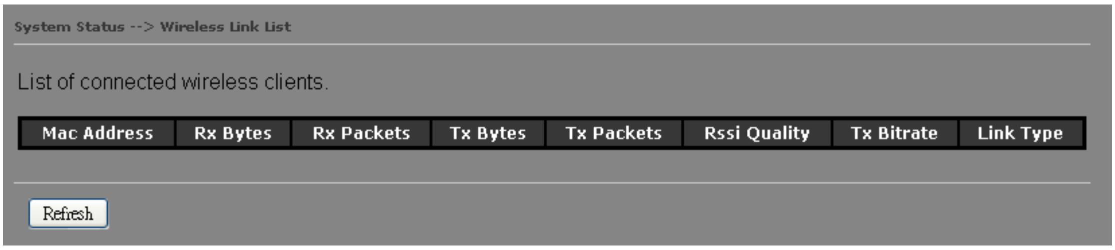
System Status --> Traffic Statistics

Traffic statistics.

Interface	Send	Receive
Wired LAN	737009 Bytes (1313 Packets)	172991 Bytes (1458 Packets)
WAN	0 Bytes (0 Packets)	0 Bytes (0 Packets)
Wireless LAN	0 Bytes (0 Packets)	0 Bytes (0 Packets)
Wireless WAN	0 Bytes (0 Packets)	0 Bytes (0 Packets)

Wireless Link List

This page displays the Mac address of all wireless clients connected.



System Status --> Wireless Link List

List of connected wireless clients.

Mac Address	Rx Bytes	Rx Packets	Tx Bytes	Tx Packets	Rssi Quality	Tx Bitrate	Link Type

Technical Specifications

ORing WLAN Access Point Model	TGAR-W1061+-3G-M12	TGAR-W1061+-4G-M12
Physical Ports		
10/100/1000Base-T(X) Ports in M12 Auto MDI/MDIX (8-pin A-coding)	**1**	
PoE P.D. port	Fully compliant with IEEE 802.3af Power Device specification Over load & short circuit protection Isolation Voltage: 1000 VDC min. Isolation Resistance : 10^8 ohms min	
SIM Card Slot	**1**	
WLAN interface		
Antenna Connector	2 x External N-Type female antenna connector	
Modulation	IEEE802.11b: CCK/DQPSK/DBPSK IEEE802.11a/g: OFDM IEEE802.11n: BPSK, QPSK, 16-QAM, 64-QAM	
Frequency Band	America / FCC: 2.412~2.462 GHz (11 channels) 5.180~5.240 GHz & 5.745~5.825 GHz (9 channels) Europe CE / ETSI: 2.412~2.472 GHz (13 channels) 5.180~5.240 GHz (4 channels	
Transmission Rate	802.11b: 1/2/5.5/11 Mbps 802.11a/g: 6/9/12/18/24/36/48/54 Mbps 802.11n(40MHz): UP to 300 Mbps	
Transmit Power	802.11a: 12dBm ± 1.5dBm@54Mbps 802.11b: 17dBm ± 1.5dBm@11Mbps 802.11g: 16dBm ± 1.5dBm@54Mbps 802.11gn HT20: 15dBm ± 1.5dBm @MCS7 802.11gn HT40: 14dBm ± 1.5dBm @MCS7 802.11an HT20: 12dBm ± 1.5dBm @MCS7 802.11an HT40: 11dBm ± 1.5dBm @MCS7	
Receiver Sensitivity	802.11a : -76dBm ± 2dBm@54Mbps 802.11b : -85dBm ± 2dBm@11Mbps 802.11g : -76dBm ± 2dBm@54Mbps 802.11gn HT20:-75dBm ± 2dBm@MCS7 802.11gn HT40:-72dBm ± 2dBm@MCS7 802.11an HT20:-74dBm ± 2dBm@MCS7 802.11an HT40:-71dBm ± 2dBm@MCS7	
Encryption Security	WEP: (64-bit ,128-bit key supported) WPA/WPA2 :802.11i(WEP and AES encryption) WPA-PSK (256-bit key pre-shared key supported) 802.1X Authentication supported TKIP encryption	
Wireless Security	SSID broadcast disable	
Cellular Interface		
Cellular Standard	GSM / GPRS/ EGPRS/ EDGE / WCDMA / HSDPA / HSUPA	GSM / GPRS/ EGPRS/ EDGE / WCDMA / HSDPA / HSUPA /HSPA+ /LTE
Antenna Connector	1 x External N-Type female antenna connector	

Band Option	Dual-band：HSUPA 1900/2100 MHz Quad-band： GSM/GPRS/EDGE 850/900/1800/1900 MHz WCDMA/HSDPA 850/900/1900/2100 MHz	**America(US)** LTE: 700/1700/2100/ MHz UMTS/HSDPA/HSUPA/HSPA+/DC-HSPA+: 800/850/1900/2100 MHz GSM/GPRS/EDGE: 850/900/1800/1900 MHz **Europe(EU)** LTE: 800/900/1800/2100/2600 MHz UMTS/HSDPA/HSUPA/HSPA+/DC-HSPA+: 900/2100 MHz GSM/GPRS/EDGE: 900/1800/1900 MHz
LED indicators		
Power indicator	3 x LEDs, PW1/PW2/PoE Green On : Power is on and booting up	
10/100/1000Base-T M12 port	1 x LED, Green for port Link/ Act at 1000Mbps	
WLAN LEDs:	1 x LED, Green for WLAN Link /Act	
WAN LED	1 x LED, Green for WAN is on and functioning Normal	
Power		
Redundant Input power	Dual DC inputs. 12-48VDC on M12 connector	
Power consumption	9W	9.5W
Overload current protection	Present	
Reverse polarity protection	Present	
Physical Characteristic		
Enclosure	IP-67	
Dimension (W x D x H)	310 (W) x 310(D) x 87 (H) (12.2 x 12.2 x 3.4 inch)	
Weight (g)	3990g	
Environmental		
Storage Temperature	-40 to 85oC (-40 to 185°F)	
Operating Temperature	-25 to 70°C (-13 to 158°F)	
Operating Humidity	5% to 95% Non-condensing	
Regulatory approvals		
EMI	FCC Part 15, CISPR (EN55022) class A, EN50155 (EN50121-3-2)	
EMS	EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-5 (Surge), EN61000-4-6 (CS), EN61000-4-8, EN61000-4-11	
Shock	IEC60068-2-27, EN61373	
Free Fall	IEC60068-2-32	
Vibration	IEC60068-2-6, EN61373	
Rail Traffic	EN50155	
Cooling	EN60068-2-1	
Dry Heat	En60068-2-2	
Safety	EN60950-1	
Warranty	5 years	

Compliance

FCC Statement

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.

RF exposure warning: The equipment complies with RF exposure limits set forth for an uncontrolled environment. The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment. This device should be operated with minimum distance 20cm between the device and all persons. Operations in the 5.15-5.25GHz band are restricted to indoor usage only.

Industry Canada Statement

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Industry Canada - Class B This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled “Digital Apparatus,” ICES-003 of Industry Canada.

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe B prescrites dans la norme sur le matérial brouilleur: “Appareils Numériques,” NMB-003 édictée par l’Industrie.

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

L'opération est soumise aux deux conditions suivantes: (1) cet appareil ne peut causer d'interférences,et (2) cet appareil doit accepter toute interférence, y compris celles susceptibles de provoquer fonctionnement du dispositif.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that permitted for successful communication.

Afin de réduire les interférences radio potentielles pour les autres utilisateurs, le type d'antenne et son gain doivent être choisie que la puissance isotrope rayonnée équivalente (PIRE) est pas plus que celle premise pour une communication réussie

RF exposure warning: The equipment complies with RF exposure limits set forth for an uncontrolled environment. The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Avertissement d'exposition RF: L'équipement est conforme aux limites d'exposition aux RF établies pour un incontrôlés environnement. L'antenne (s) utilisée pour ce transmetteur ne doit pas être co-localisés ou fonctionner en conjonction avec toute autre antenne ou transmetteur.