GL·ÎNet



Collie
(GL-X300B)
USER MANUAL

Table of Contents

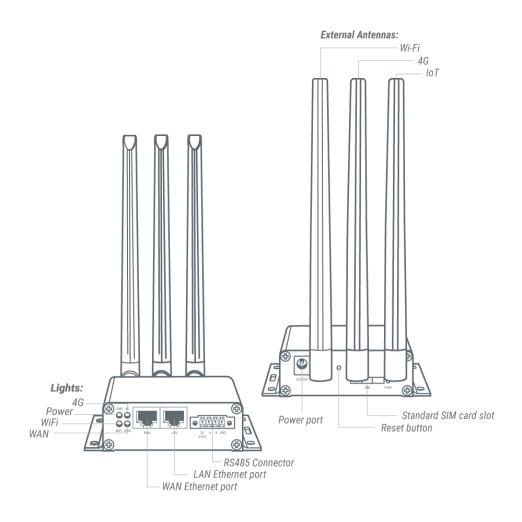
1.	Get	ting Started with GL.iNet Collie	1
	1.1.	Power on	2
	1.2.	Connect	3
	(1)	Connect via LAN	3
	(2)	Connect via Wi-Fi	4
	1.3.	Access the Web Admin Panel	4
	1) L	anguage Setting	4
	2) A	Admin Password Setting	5
	3) A	Admin Panel	6
2.	INT	ERNET	7
	2.1.	Cable	8
	(1)	DHCP	9
	(2)	Static	10
	(3)	PPPoE	10
	2.2.	Repeater	11
	2.3.	3G/4G Modem	12
	AT (Command	14
3.	WIF	RELESS	15
4.	CLII	ENTS	17
5.	UPO	GRADE	18
	5.1.	Online Upgrade	18
	5.2.	Upload Firmware	19
	(1)	Official OpenWrt/LEDE firmware	20
	(2)	Compile your own firmware	20
	5.3.	Auto Upgrade	20
6.	FIR	EWALL	21
	6.1.	Port Forwards	22
	6.2.	Open Ports on Router	23
	6.3.	DMZ	23
7.	VPN	N	24
8.	RS4	185	27

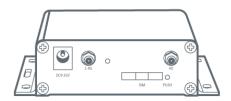
	8.1.	Config	27
	8.2.	Socket (RS485 to TCP/UDP)	28
	8.3.	MQTT	32
9.		LICATIONS	
	9.1.	Plug-ins	35
	9.2.	Remote Access	36
	Cloud Management		
DDNS			
	9.3.	Captive Portal	38
1(0. M	ORE SETTINGS	38
	10.1.	Admin Password	
	10.2.	LAN IP	39
	10.3.	Time Zone	40
	10.4.	MAC Clone	
	10.5.	Custom DNS Server	42
	10.6.	Network Mode	43
	10.7.	Revert Firmware	44

1. Getting Started with GL.iNet Collie

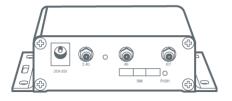
Model:

GL-X300B





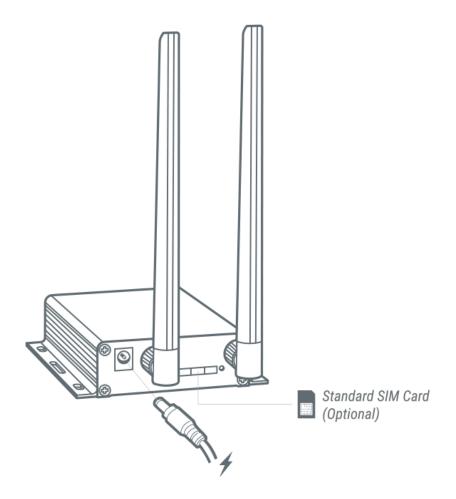




IoT Version (GL-X300T)

1.1. Power on

Plug the power cable into the power port of the router. Make sure you are using a standard **DC 12V/1.0 A** power adapter. Otherwise it may cause malfunction.



Note: Hot plug for SIM card is **not** supported. If you want to use, please insert SIM card before powering on the router.

GL·ÎNet Page 2 | 45

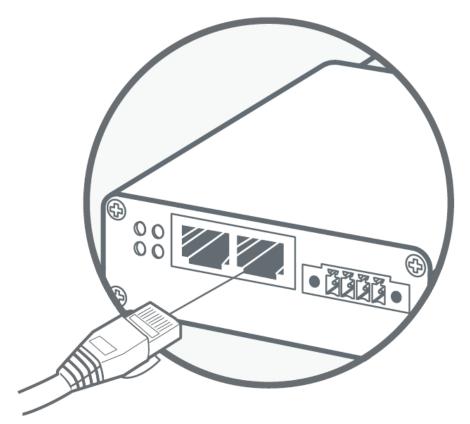
1.2. Connect

You can connect to the router via Ethernet cable or Wi-Fi.

Note: This step only connects your devices to the local area network (LAN) of the router. You cannot access the Internet currently. In order to connect to the Internet, please finish the setup procedures below and then follow Internet to set up an Internet connection.

(1)Connect via LAN

Connect your device to the LAN port of the router via Ethernet cable.



Plug the cable connecting to your computer into LAN port

GL·ÎNet Page 3 | 45

(2)Connect via Wi-Fi

Search for the SSID of the router in your device and input the default password: **goodlife**.

Note: The SSID was printed on the bottom label of the router with the following format:

GL-X300B-XXX

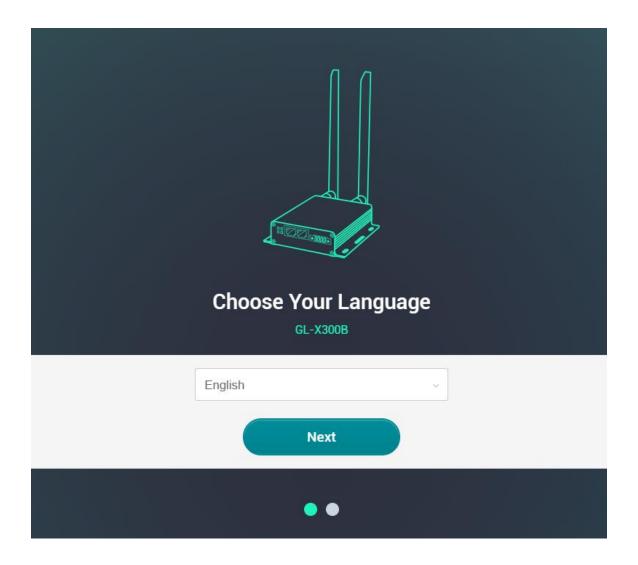
1.3. Access the Web Admin Panel

Open a web browser (we recommend Chrome, Firefox) and visit http://192.168.8.1. You will be directed to the initial setup of the web Admin Panel.

1) Language Setting

You need to choose the display language of the Admin Panel. Currently, our routers support **English**, 简体中文, 繁體中文, **Deutsch**, **Français, Español, Italiano**, 日本語 and 한국어.

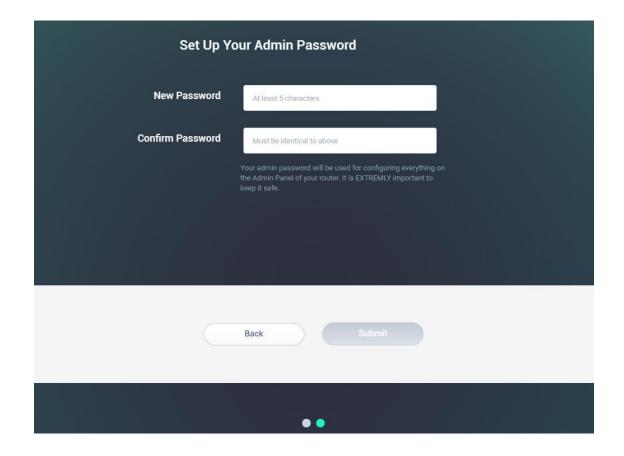
GL·ÎNet Page 4 | 45



2) Admin Password Setting

There is no default password for the Admin Panel. You have to set your own password, which must be at least 5 characters long. Then, click Submit to proceed.

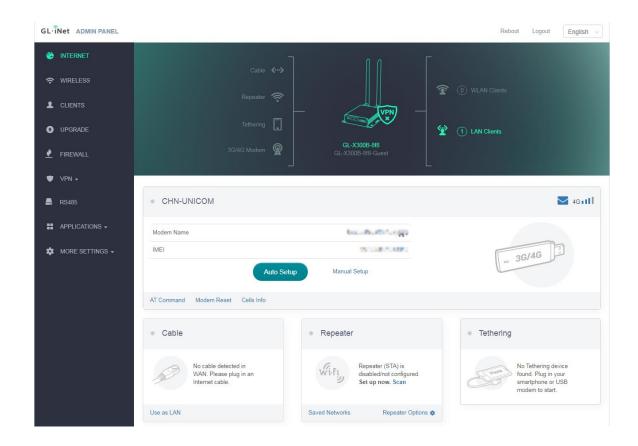
GL·ÎNet Page 5 | 45



Note: This password is for this web Admin Panel and the embedded Linux system. It will not change your Wi-Fi password.

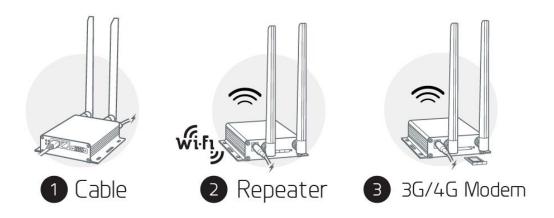
3) Admin Panel

After the initial setup, you will enter the web Admin Panel of the router. It allows you to check the status and manage the settings of the router.

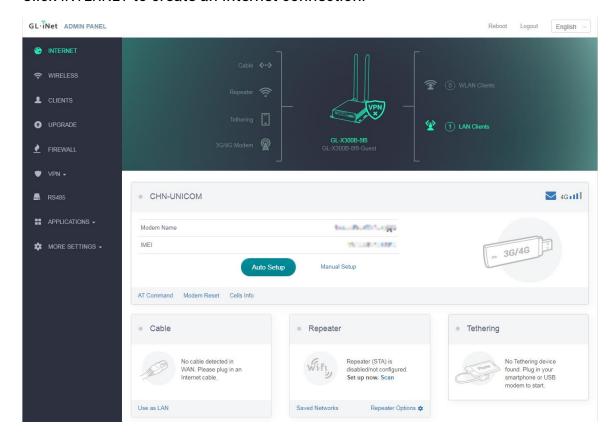


2. INTERNET

There are total 3 types of connection method that you can use to access the Internet: Cable, Repeater, 3G/4G Modem.



Click INTERNET to create an Internet connection.

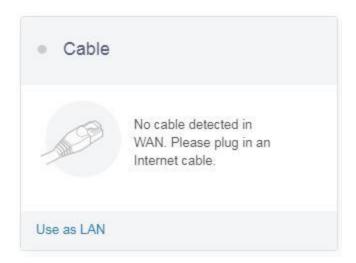


2.1. Cable

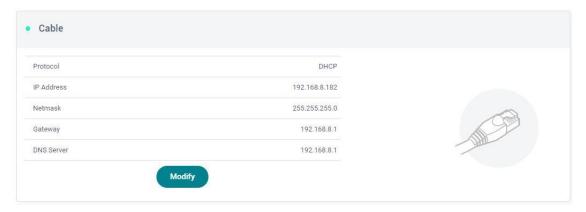
Connect the router to the modem or main router via Ethernet cable to access the Internet.

Before plugging the Ethernet cable into the WAN port of the router, you can click Use as LAN to set the WAN port as a LAN port. That is useful when you are using the router as a repeater. As a result, you can have one more LAN port.

GL·ÎNet

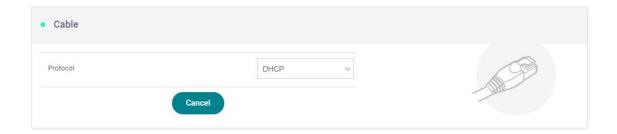


Plug the Ethernet cable into the WAN port of the router. The information of your connection will be shown on the Cable section. DHCP is the default protocol. You can click Modify to change the protocol.



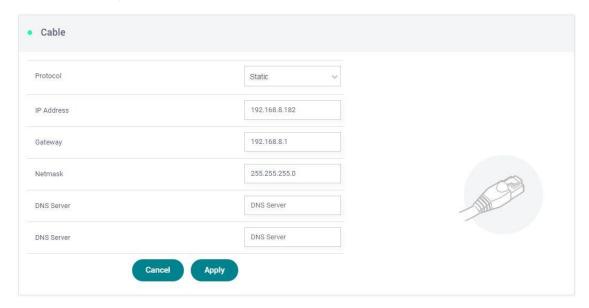
(1)DHCP

DHCP is the default and most common protocol. It doesn't require any manual configuration.



(2)Static

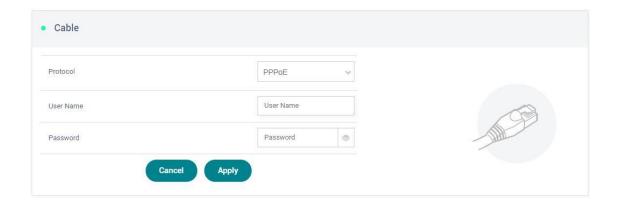
Static is required if your Internet Service Provider (ISP) has provided a fixed IP address for you or you want to configure the network information such as IP address, Gateway, Netmask manually. Change it according to your needs and then click Apply.



(3)PPPoE

PPPoE is required by many Internet Service Providers (ISP). Generally, your ISP will give you a modem and provide you a username and password that you needed when you are creating the Internet connection.

Under PPPoE protocol, enter your username and password, then click Apply.

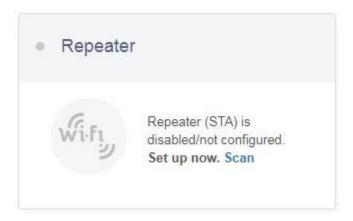


2.2. Repeater

Using Repeater means connecting the router to another existing wireless network, e.g. when you are using free Wi-Fi in a hotel or cafe.

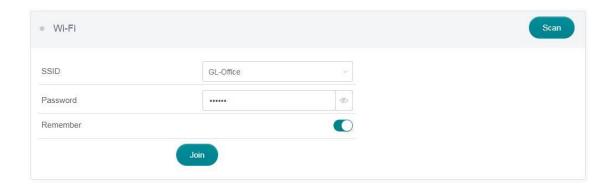
It works in WISP (Wireless Internet Service Provider) mode by default, which means that the router will create its own subnet and act as a firewall to protect you from the public network.

In Repeater section, click Scan to search for the available wireless networks nearby.



Choose a SSID from the drop-down list and enter its password. You can also enable the Remember button to save the current chose wireless network. Finally, click Join.

GL·iNet



2.3. 3G/4G Modem

Collie has a built-in 3G/4G modem which you can insert your SIM card directly. Please insert the SIM card before powering on the router. Then, you should find the name of your carrier, click Auto Setup to create the connection.

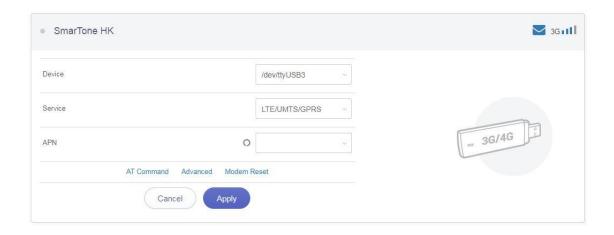
Note: Some 3G/4G modems will be recognized as Tethering connection.



You can also click Manual Setup to set up manually.

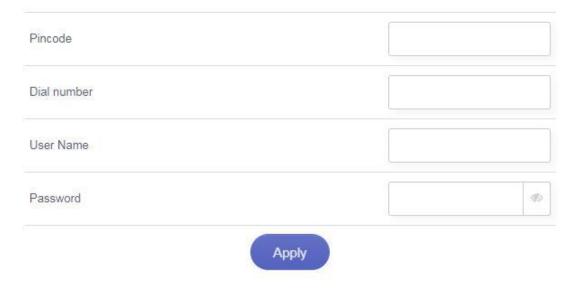
In General, you can set up by the three basic parameters below. Click Apply to connect.

- Device: Please choose /dev/cdc-wdm0 (qmi) or /dev/ttyUSB3.
- **Service Type**: Indicate the service of your SIM card.
- APN: Confirm with your SIM card carrier.

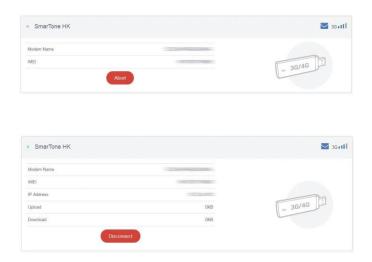


Advanced Settings:

- **Dial Number**: Generally, it is a default value and you don't need to set it manually. However, if you have this info, please input it.
- Pincode, Username and Password: Generally, these are not necessary for an unlocked SIM card. However, if you have a locked SIM card, please consult your service provider.

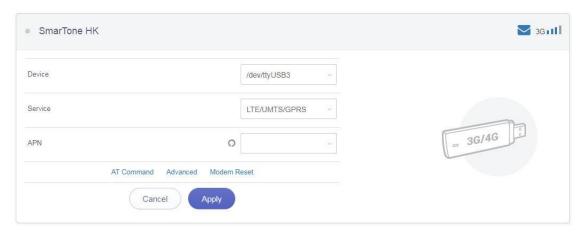


It is connected when the IP address of your SIM card shows up.

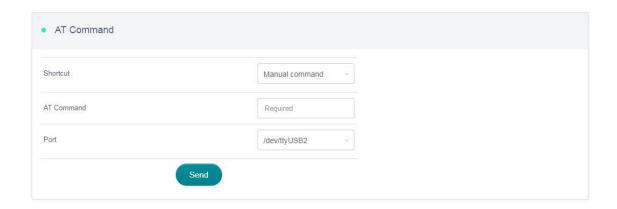


AT Command

The built-in modem supports AT command for the management and configuration of the modem. In 3G/4G Modem section, Click AT Command.



- Shortcut: There are several pre-configured AT commands that you can use directly. If you want to run your own AT command, choose Manual command.
- AT Command: The place where you can input AT command. For the list of AT command, please refer to the AT command manual of the built-in modem.
- Port: The default port for AT command is /dev/ttyUSB2.



3. WIRELESS

In WIRELESS, you can check the current status and change the settings of the wireless network created by the router. The wireless network can be turned on or off by switching the **ON/OFF** button.

Wi-Fi Name (SSID): The name of the Wi-Fi. It is not suggested to use unicode characters such as **Chinese**.

Wi-Fi Security: The encryption method of the Wi-Fi.

Wi-Fi Key: The password of the Wi-Fi, which must be at least 8 characters long. We suggest you to change it when you receive the router.

SSID Visibility: Show or hide the SSID.

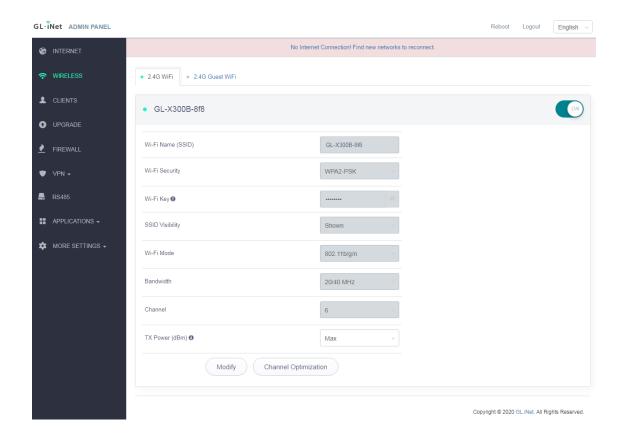
Wi-Fi Mode: Wi-Fi protocol standards. It supports 802.11/b/g/n. It is suggested to use default 802.11b/g/n or select Wi-Fi mode based on your demand.

Bandwidth: The bandwidth is the Wi-Fi channel frequency coverage range. Select 20/40MHz or 40MHz or 20MHz based on your demand.

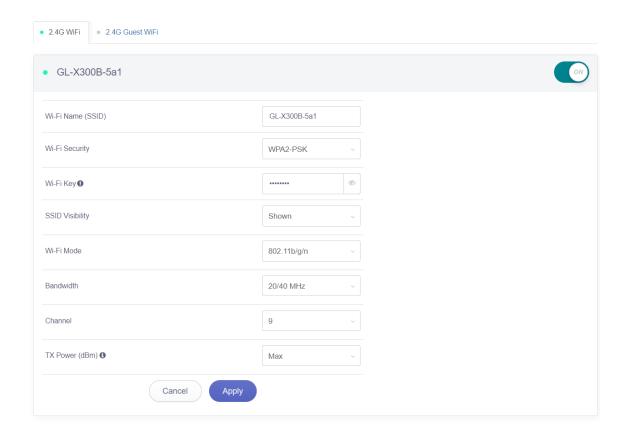
Channel: The router will not choose the best channel itself. You need to choose a channel manually. If your router is used as a Wi-Fi repeater, the channel will be fixed according to the connected wireless network.

TX Power (dBm): It specifies the signal strength. It has 4 levels, Max, High, Medium, Low. Default setting is Max.

Channel Optimization: It will optimize your Wi-Fi signal and channel according to the Wi-Fi environment.



Click Modify to change the settings of the wireless network.



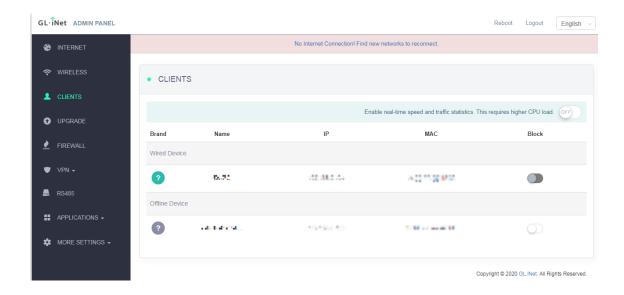
4. CLIENTS

You can manage all connected clients in CLIENTS.

You can see their name, IP, MAC address.

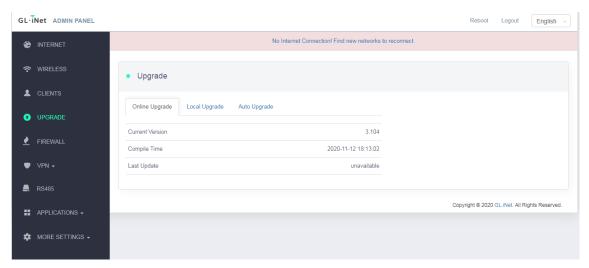
Click the button on the right to block any unwanted client.

Click the button on the right corner to enable real-time speed and traffic statistics. This requires higher CPU load.



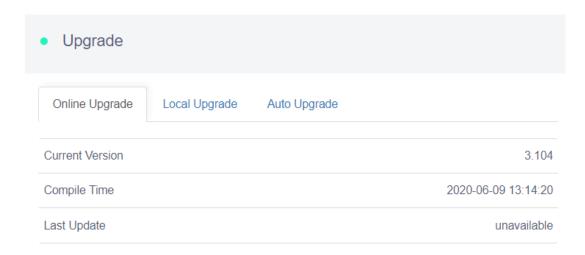
5. UPGRADE

Click UPGRADE to check any available update and upgrade the firmware.



5.1. Online Upgrade

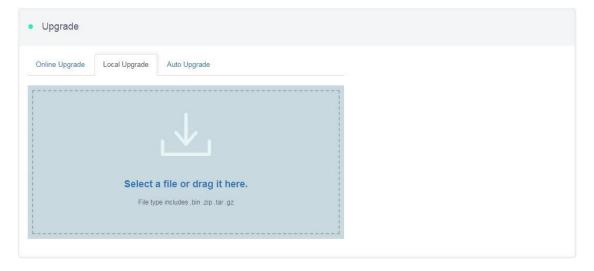
You can find the current firmware version here. If your router is connected to the Internet, it will check for the newer firmware version available for download.



Note: It is suggested to uncheck **Keep setting** during firmware upgrade. If you keep the settings and encounter problems after the upgrade, please reset the router.

5.2. Upload Firmware

Click Local Upgrade to upload a firmware file to the router. Simply drag and drop your firmware file to the area indicated.



(1) Official OpenWrt/LEDE firmware

You can download the official firmware from our website.

Collie: http://download.gl-inet.com/firmware/x300b/

Find the available firmware from the folder according to your device model, and they are located in different sub-folders:

release: Official GL.iNet OpenWrt/LEDE firmware.

clean: Clean versions of OpenWrt/LEDE firmware with Luci admin page only.

testing: Beta version of GL.iNet OpenWrt/LEDE firmware.

(2) Compile your own firmware

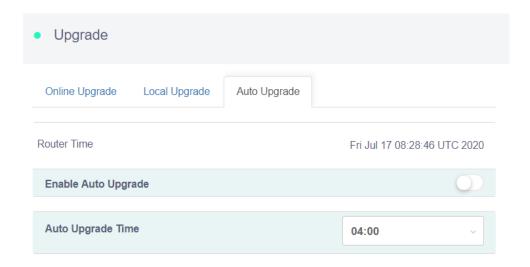
You can compile your own firmware and flash to the router. Please refer to https://github.com/gl-inet/imagebuilder

Note: If you uploaded an incompatible firmware thus bricked the router, please use Uboot to re-install the correct firmware.

5.3. Auto Upgrade

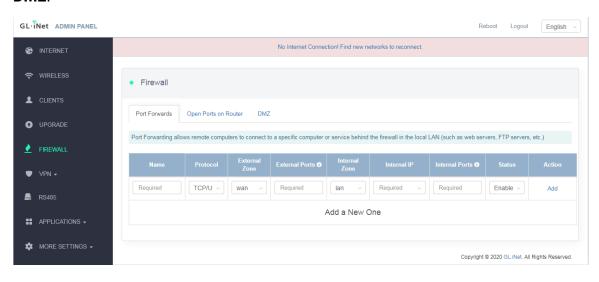
You can enable auto upgrade. The router will search for available update and upgrade automatically according to the time that you set.

GL·ÎNet Page 20 | 45



6. FIREWALL

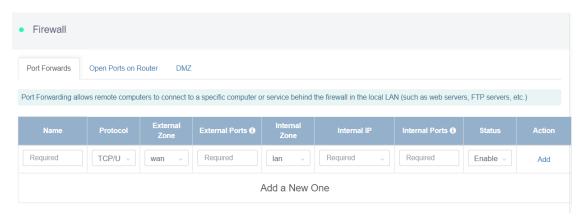
In FIREWALL, you can set up firewall rules like **port forwarding**, **open port** and **DMZ**.



6.1. Port Forwards

Port Forwarding allows remote computers to connect to a specific computer or service behind the firewall in the local LAN (such as web servers, FTP servers, etc.)

To set up port forwarding, click Port Forwards and input the required parameters or click Add a New One.



Name: The name of the rule which can be specified by the user.

Protocol: The protocol used, you can choose TCP, UDP, or both TCP and UDP.

External Zone: The zone to which hosts will be connecting.

External Ports: The numbers of external ports. You can enter a specific port number or a range of service ports (E.g. **100-300**).

Internal Zone: The zone to which the incoming connection will be redirected.

Internal IP: The IP address assigned by the router to the device which needs to be accessed remotely.

Internal Ports: The internal port number of the device. You can enter a specific port number. Leave it blank if it is same as the external port.

Status: Activate of Deactivate the rule.

6.2. Open Ports on Router

The router's services, such as web, FTP and so on, require their respective ports to be opened on the router in order to be publicly reachable.

To open a port, click Open Ports on Router and input the required parameters or click Add a New One.



Name: The name of the rule which can be specified by the user.

Port: The port number that you want to open.

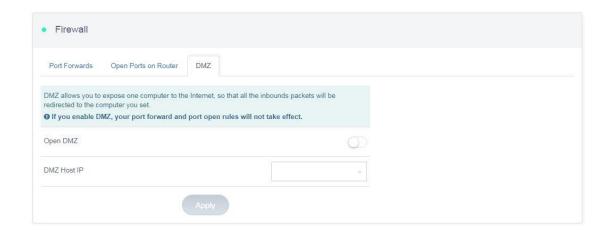
Protocol: The protocol used, you can choose TCP, UDP, or both TCP and UDP.

Status: Activate of Deactivate the rule.

6.3. DMZ

DMZ allows you to expose one computer to the Internet, so that all the inbounds packets will be redirected to the computer you set.

Click DMZ and enable Open DMZ. Input the internal IP address (E.g. 192.168.8.100) of your device which is going to receive all the inbound packets.



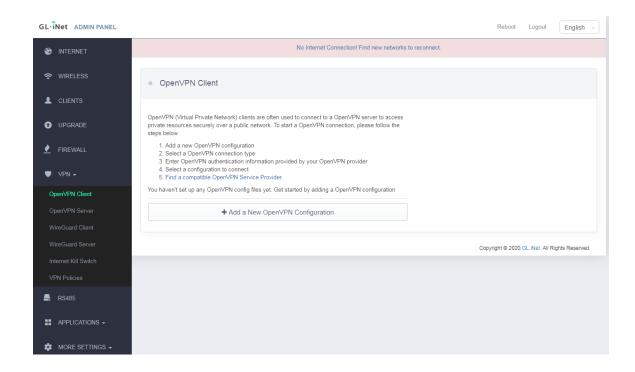
7. VPN

GL.iNet routers have pre-installed VPN server and client in **OpenVPN** and **WireGuard**.

Shadowsocks is not a default function and you need to install packages in Plugins.

Please refer to the links below for the detailed setup instruction:

- OpenVPN
- WireGuard

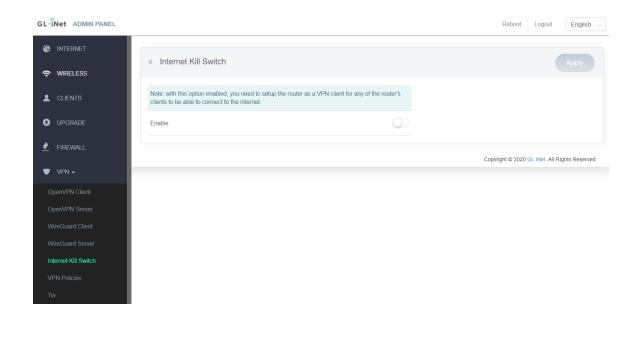


Internet Kill Switch

Starting from firmware version 3.100.

Please refer to the links below for the detailed setup instruction:

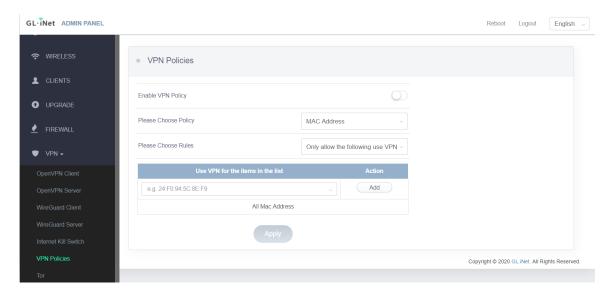
Internet Kill Switch



Starting from firmware version 3.022, users can define VPN routing policies.

Please refer to the links below for the detailed setup instruction:

VPN Policies

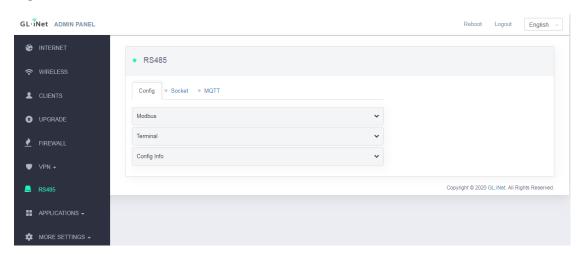




8. RS485

GL.iNet provides a simple configuration and debugging interface for RS485. We hope this simple RS485 function can meet the development and debugging of basic applications.

Including **Config** (basic configuration), **Socket** configuration, **MQTT** configuration.



8.1. Config

Config includes Modbus (Configuration), Terminal (Terminal debug), Config Info.

Modbus: This function can perform read and write operations on terminal devices that support Modbus protocol. It requires users to have a certain knowledge of Modbus protocol.

Device ID: Device ID is 01 by default mostly. When multiple terminal devices are connected and used at the same time, separate connected devices need to be set with different ID numbers.

Function Code: Function code needs to be obtained from the terminal device manual.

Reg Addr: Register address, it needs to be obtained from the terminal device manual.

Reg Len: Register length, it needs to be obtained from the terminal device manual.

Terminal: Provide X300B and RS485 terminal debugging interface, mainly used in debugging and testing phase. Support string format and hexadecimal format, support echo and time stamp display. This function can be used to debug terminal device that supports Modbus, DL/T645, DL/T698 and other protocols.

Config Info:

Device: The /dev/ttyS0 in the interface refers to the name of the RS485 driver, and the name generally does not need to be modified.

Speed: It refers to the baud rate, which can be modified according based on the RS485 device.

Mode: Modify it to make sure it's consistent with the connected 485 terminal device (Mode info can be found on RS485 device manual).

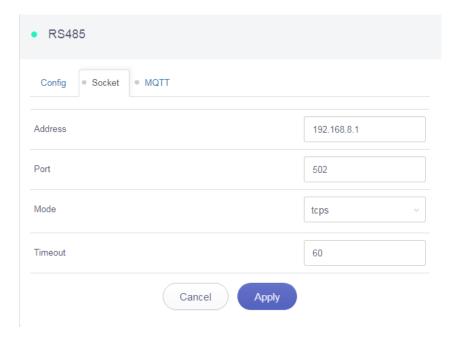
Timeout(ms): Information receiving timeout period, set according to actual needs.

8.2. Socket (RS485 to TCP/UDP)

Socket function is RS485 to TCP/UDP, and transparent transmission. There are 3 modes: TCPC, TCPS and UDP.

Below is the topology diagram and description of each mode.

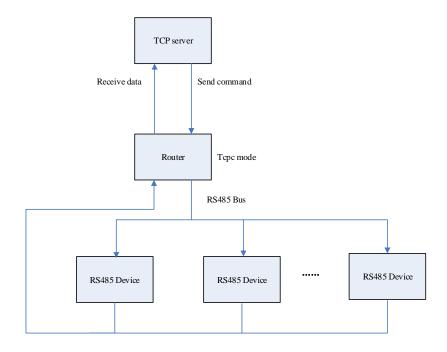
GL·ÎNet Page 28 | 45



Note: Above address is the server-side address.

TCPC TCP Client

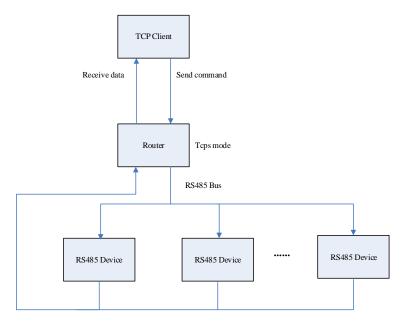
Router acts as a TCP client. After router connecting to the TCP server, the TCP server can send commands to obtain data from the RS485 terminals.



TCPS TCP Server

Router acts as a TCP server. After starting the server, the TCP client can connect to the router, and the TCP client can send commands to get the data of the RS485 terminals.

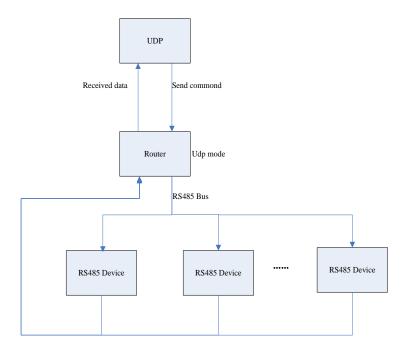
If it is in a local area network environment, fill in the address information of the router gateway IP. If it is in a wide area network environment, the router needs to have a public IP, and the address information should fill in the public IP.



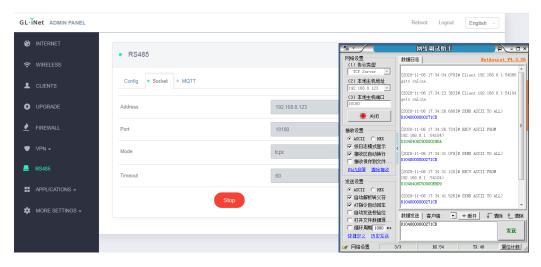
UDP

If it is in a local area network environment, fill in the address information of the router gateway IP. If it is in a wide area network environment, the router needs to have a public IP, and the address information should fill in the public IP.

GL·ÎNet



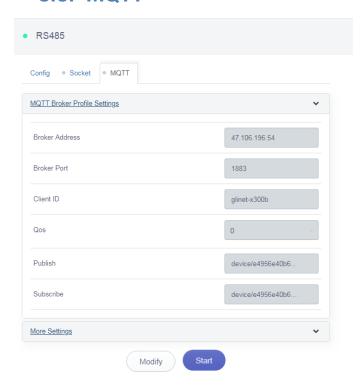
Example: Set the router to TCPC, install a TCP/UDP test program on the computer, and build a test environment on the LAN for testing.



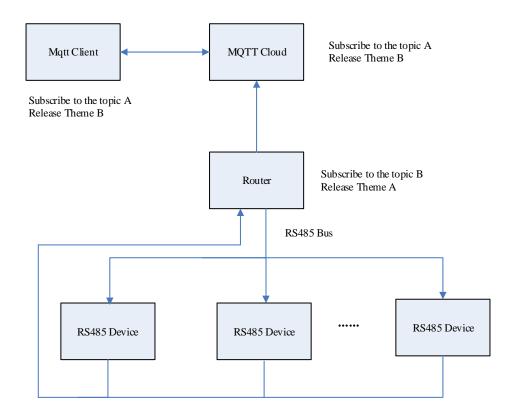
Note: The test terminal device connected to the router is a smart meter. The 0104000000271CB in the figure is a command to obtain voltage data.

Please enter the correct command according to the manual of the connected terminals. The input command is in string format, and the program will convert the command to hexadecimal and send to the terminal devices. It'll convert the obtained hexadecimal data sentence into a string format and send it to the remote server or client.

8.3. MQTT



This function is RS485 to MQTT. It can be used to connect to the Cloud platform. After connection, the Cloud platform or other clients that subscribe to the RS485 publishing topic will be able to obtain the data of the RS485 terminal devices.



Connect to MQTT server test: free online MQTT server https://www.emqx.io/cn/mqtt/public-mqtt5-broker



Broker: broker.emqx.io

TCP Port: 1883

Websocket Port: 8083

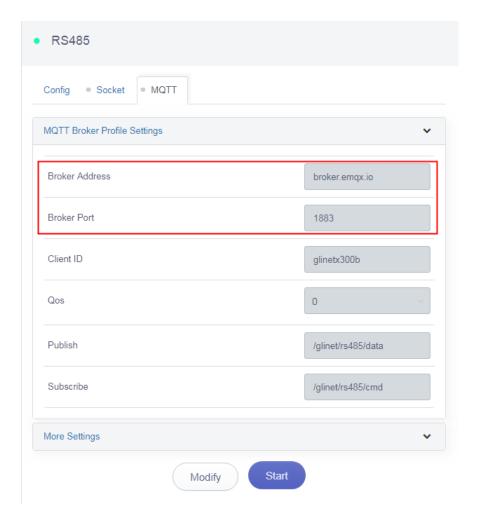
TCP/TLS Port: 8883

Websocket/TLS Port: 8084

Note: This server is for testing only and has no privacy protection. Any device can publish and subscribe to topics on it. Do not use in production.

Web page configuration is as follows, click **Start** after configuration.

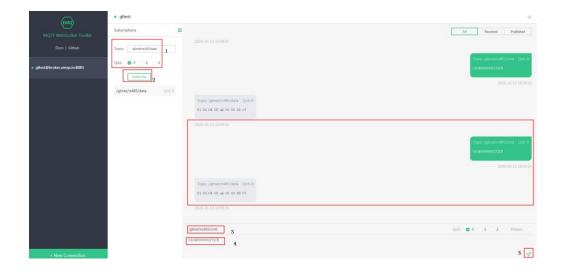
GL·ÎNet Page 33 | 45



Use the online MQTT client to configure the following to obtain data.

https://www.emqx.io/cn/mqtt/mqtt-websocket-toolkit





Note: The test terminal connected to the router is a smart meter. The 0104000000271CB in the figure is a command to obtain voltage data. Please enter the correct command according to the manual of the connected terminals.

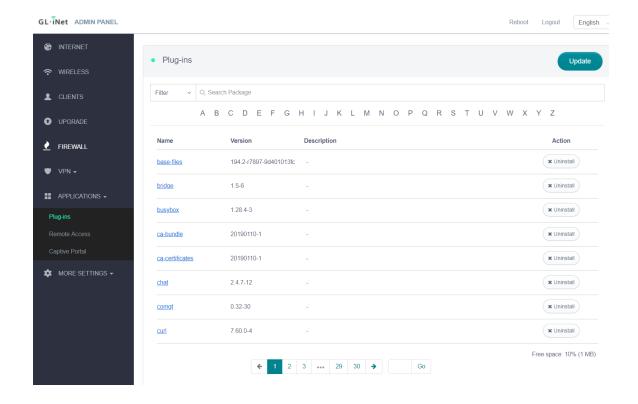
9. APPLICATIONS

9.1. Plug-ins

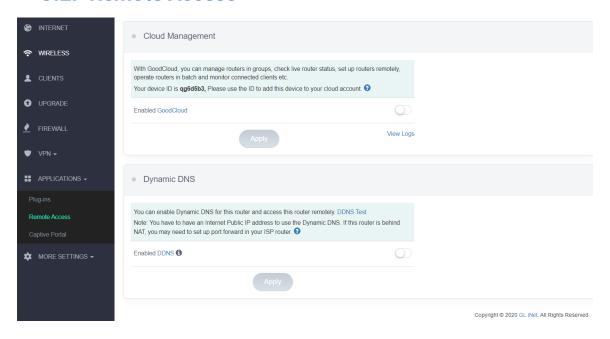
Plug-ins allows you to manage OpenWrt packages. You can install or remove any package.

Remember to click Update whenever you access this packages repository.

GL·ÎNet Page 35 | 45



9.2. Remote Access



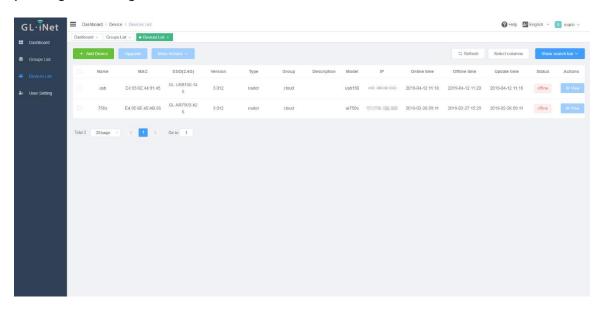


Cloud Management

GL.iNet GoodCloud cloud management services provide an easy and simple way to remotely manage routers.

In our website, you can remotely check your router status, change the password, control clients, even set email alarm when a device is online or offline.

In 3.021 version or above it is a default function, other 3.0 version need to install packages in Plug-ins.



For the details, please refer to Cloud.

DDNS

DDNS (Dynamic Domain Name Service) is a service used to map a domain name to the dynamic IP address of a network device.

You can remotely access your router by url though this function.

In 3.021 version or above it is a default function, other 3.0 version need to install packages in Plug-ins.

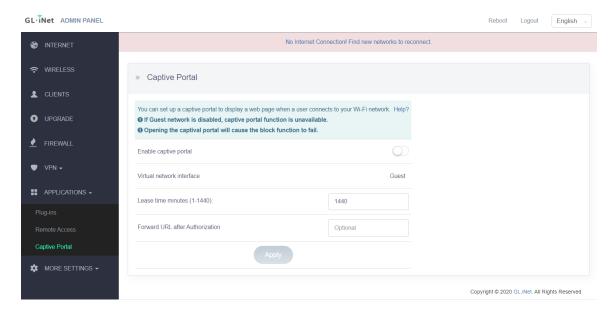
For the guidance on how to set DDNS and access, please refer to DDNS.

GL·iNet

9.3. Captive Portal

You can set a **captive portal** in our routers, when newly users connect to Wi-Fi, they need to access a web page before access the internet.

Only support 3.022 version or above.

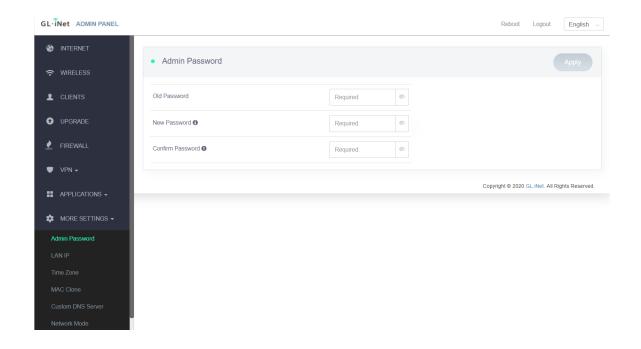


For the setup guidance, please refer to Set a Captive portal.

10. MORE SETTINGS

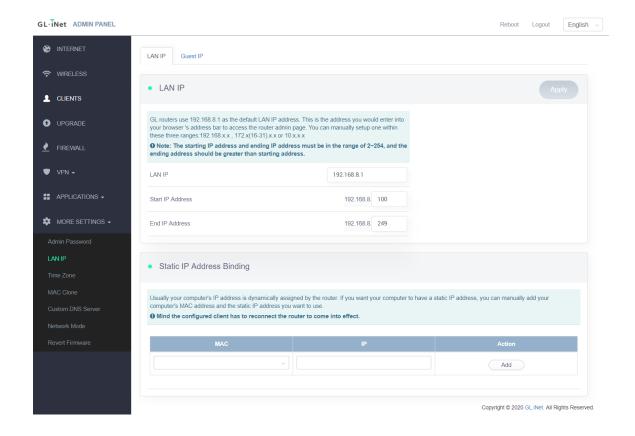
10.1. Admin Password

Change the password of the web Admin Panel, which must be at least 5 characters long. You have to input your current password in order to change it.



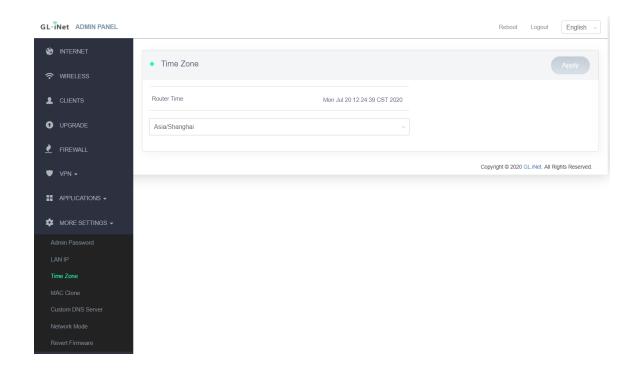
10.2. LAN IP

LAN IP is the IP address that you use to connect to this router. The default IP address of GL.iNet router is 192.168.8.1. If it conflicts with the IP address of your main router, you can change it.



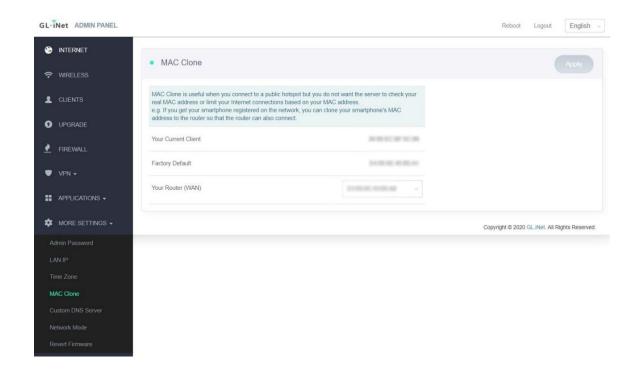
10.3. Time Zone

The time of the router's activities will be recorded according to the router time. Therefore, choosing the time zone of your location is recommended.



10.4. MAC Clone

Clone the MAC address of your current client to the router. It is used especially in hotel when the network checks your MAC address. For example, if you got your smartphone registered on the network, you can clone the MAC address of your smartphone to the router so that the router can also connect to the network.



10.5. Custom DNS Server

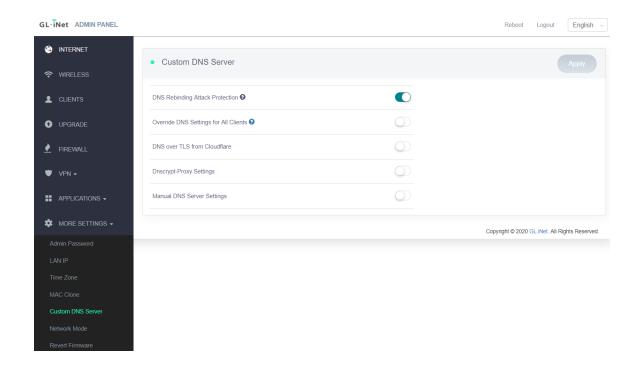
You can configure the DNS server of the router in order to prevent DNS leak or other purposes.

DNS Rebinding Attack Protection: Some network may require authentication in captive portal. Disable this option if the captive portal of your network cannot be resolved.

Override DNS Settings for All Clients: Enabling this option will capture DNS request from all connected clients.

DNS over TLS from Cloudflare: Cloudflare DNS over TLS uses the TLS security protocol for encrypting DNS queries, which helps increase privacy and prevent eavesdropping.

Manual DNS Server Settings: Input a custom DNS server manually.



10.6. Network Mode

Change the network mode to cater your usage scenario. You may need to reconnect your client device whenever you change the network mode of the router.

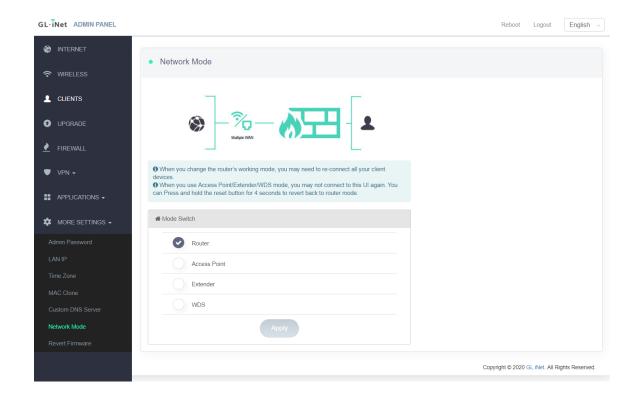
Be aware that you may not be able to access the web Admin Panel with the default IP 192.168.8.1 if you use the router in **Access Point**, **Extender** or **WDS** mode. If you want to access the web Admin Panel in this case, you have to use the IP address assigned by the main router to the GL.iNet router.

Router: Create your own private network. The router will act as NAT, firewall and DHCP server.

Access Point: Connect to a wired network and broadcast a wireless network.

Extender: Extend the Wi-Fi coverage of an existing wireless network.

WDS: Similar to Extender, please choose WDS if your main router supports WDS mode.



10.7. Revert Firmware

Revert the router to factory default settings. All your settings, applications and data will be erased.

