Bivocom

Industrial Cellular WIFI Gateway
TG451 Series User Guide

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About This Guide

Thank you for choosing Bivocom Industrial Cellular WIFI Gateway TG451 Series.

Please thoroughly read this user guide before you configure and install the device.

This manual is compatible with below models

Model	Description
TG451-W	Industrial WCDMA WIFI Gateway
TG451-LF	Industrial LTE/WCDMA WIFI Gateway

Summary of Changes

Date	Version	Notes	Editor
09-17-2017	V1.0	Initial new version	Wei Liu

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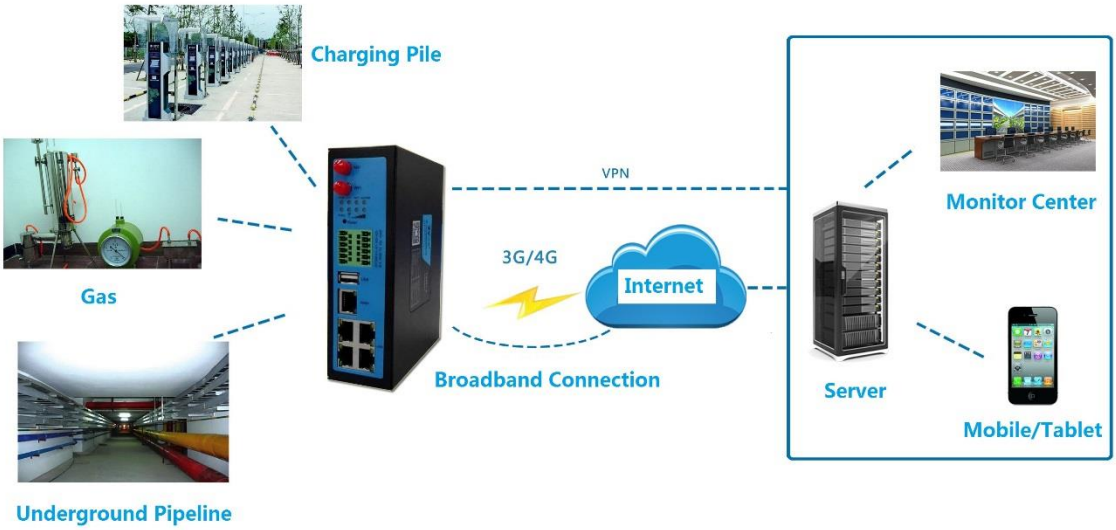
1. Introduction

1.1 Overview

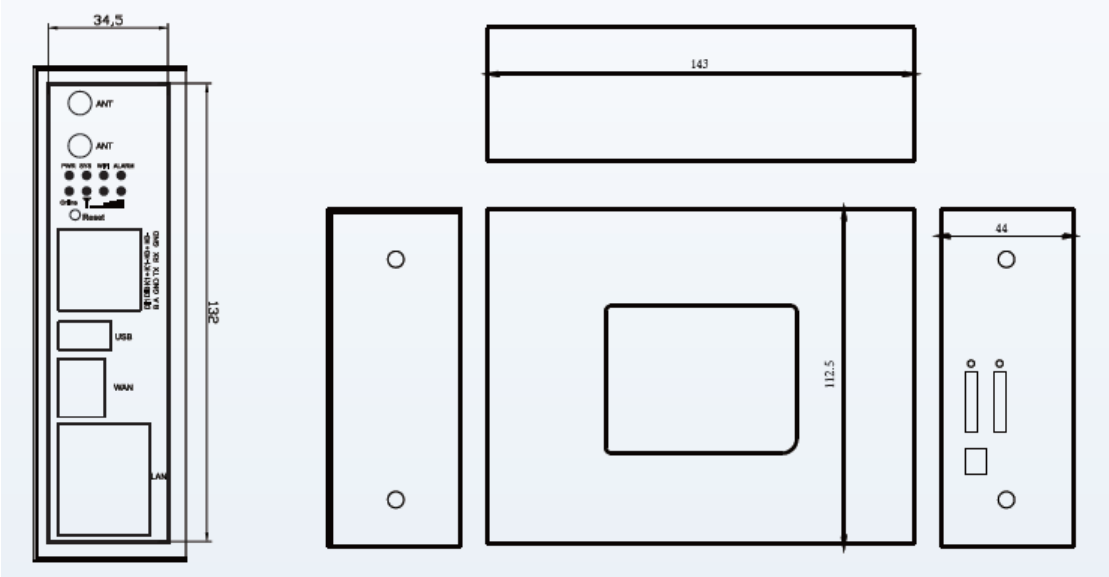
TG451 Series Gateway is a type of industrial 802.11/b/g/n cellular gateway, which adopts high-powered industrial 32-bits CPU, with multi-layer software detection and hardware protection mechanism to ensure reliability and stability of the device. It supports worldwide carrier 4G/3G/2G cellular network FDD-LTE, TDD-LTE, and WCDMA, EVDO, TD-SCDMA, EDGE, CDMA 1X and GPRS. With rich VPN protocols (IPSEC, PPTP, L2TP and OpenVPN) to ensure the security of data transmission, and rich interfaces, such as 4x LAN ports, 1x WAN port, 1x USB port, 2x Relay(Option), 1x RS232(Or RS485), 1x RS485, 2x DI(Digital Input), 1x CAN(Option), Dual SIM(Single module, option) and Dual SIM(Dual Module, option), GPS(Option) and WIFI, etc.

1.2 Applications

TG451 Series Gateway utilizes cellular network to connect your network devices and serial port devices to your center for remote monitoring and control.
Typical application as below.



1.3 Dimensions



1.4 Physical Characteristics

Item	Content
Housing	Metal, IP30
Dimensions	145x143x45mm (5.71x5.63x1.77 inches), Antenna and other accessories not included.
Weight	790g (1.74lbs)

2. Getting Started

2.1 Package Checklist

The following components are included in your TG451 package.
Check the list before installation. If you find anything missing, Please feel free to contact Bivocom.

- TG451 Gateway Host
- Power Adapter(DC 12V/1.5A)
- WIFI Antenna(Female SMA)
- 2xCellular Antennas (Male SMA)
- Console Cable(RS232)
- Ethernet Cable(1 meter)

- 2x6-Pin Terminal Block
- 1x2-Pin Terminal Block
- DIN-rail mounting

Figure 1

2.2 Installation

2.2.1 SIM/UIM Card

TG451 supports normal SIM/UIM only, so if you're using a Micro SIM or Nano SIM card, you may need to use a Micro SIM or Nano SIM to Normal SIM adapter.
Make sure your Gateway is powered off, then use a needle object(such as a pen) to push the button near the SIM/UIM card holder, it will flick out immediately. Put the SIM/UIM card to card holder with chipset upside, insert it to Gateway and make sure it's tightly matched.
Warning: Never install SIM/UIM card when Gateway is powered on.

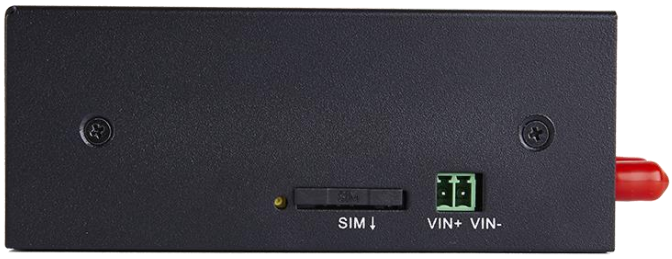
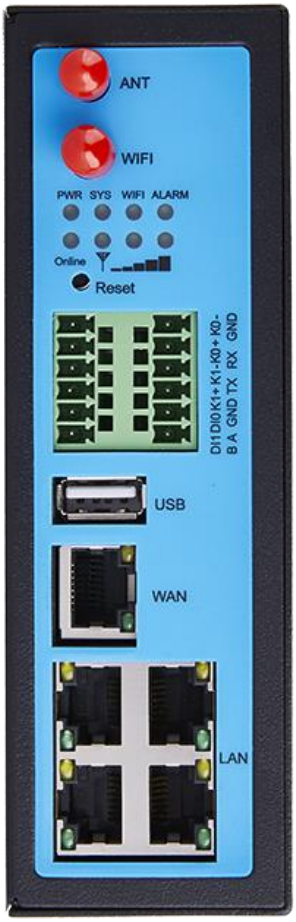


Figure 2: SIM Slot and Power Supply Interface

2.2.2 6-Pin Terminal Block and Console Cable



TG451 supports RS232 and RS485 serial port, which can be used for firmware upgrade, system log checking, or acts as serial port of a DTU(Please refer to Bivocom TD210 Series DTU).

TG451 is designed with industrial terminal block interface, and the cable in this package with ends of female connector and stripping cable, the signal of console cable is defined as below,

RS232 Cable(with DB9 female connector and stripping cable)

Color of cable	Corresponding DB9-Female Pin No.	Corresponding Pin No. of Gateway
Blue	2(RX)	TX
Brown	3(TX)	RX
Black	5(GND)	GND

RS485 Cable

Color of cable	TG451 Gateway
Red	(A)
Black	(B)

2.2.3 USB Port

Interface standard	USB2.0
Usage	For data storage and upgrade

2.2.4 Relay Interface (K0+ K0-, K1+ K1-)

Range	Supports max. 5A output, supports 220V AC, 30V DC
Usage	To control the power supply of peripherals

2.2.5 Digital Input (DI0, DI1)

Input range	DC 0~30V(0~2V is low level, about 2V is high level
Usage	To detect status of peripherals

2.2.3 Power Supply

We suggest you use Bivocom standard power adapter (1.5A/12VDC). If you have to use your own power supply, make sure the power range is 5-35VDC and it is stable enough(Ripple shall be less than 300mV, and Instantaneous voltage shall not larger than 35V).

2.2.4 Cellular Antenna

Screw the 2 SMA male cellular antennas to TG451(SMA female port), make sure it is screwed tightly to ensure the strength of signal.

2.2.5 WIFI Antenna

Screw the SMA female WIFI antenna to TG451(SMA male port), make sure it is screwed tightly to ensure the strength of signal.

2.3 LED Indicators

TG451 Series Gateway provides LED indicators, as following.

Indicator	Status	Content
Power	On	Powered On
	Off	Powered Off
Signal Strength	1 Lights	Signal weak
	2 Lights	Signal Middium
	3 Lights	Signal Strong
System	Blink	System works
	Off	System doesn't work
Online	On	Gateway accesses to Internet
	Off	Gateway doesn't access to Internet
Alarm	On	● SIM/UIM Card is not insert corectly or broken ● Antenna signal is too weak
	1 Blink Per Second	Cellular module was not registered to Gateway
	2 Blinks Per Second	Gateway can't access to Internet
	Off	Gateway doesn't have any alarm
WIFI	On	WIFI Enabled
	Off	WIFI Disabled
WAN	On	WAN is connected
	Off	WAN is not connected
LAN	LAN1 Blink	LAN1 works
	LAN2 Blink	LAN2 works
	LAN3 Blink	LAN3 works
	LAN4 Blink	LAN4 works

	Off	LAN is not connected

2.4 Reset

You can click Reset button to reset settings to defaults to solve the problem of incorrect configuration that makes you couldn't access to internet, login and management, etc.
Use a needle object(such as pen) to insert into hole of 'Reset', hold until all the LED indicators turn off.

3. Configuration and Management

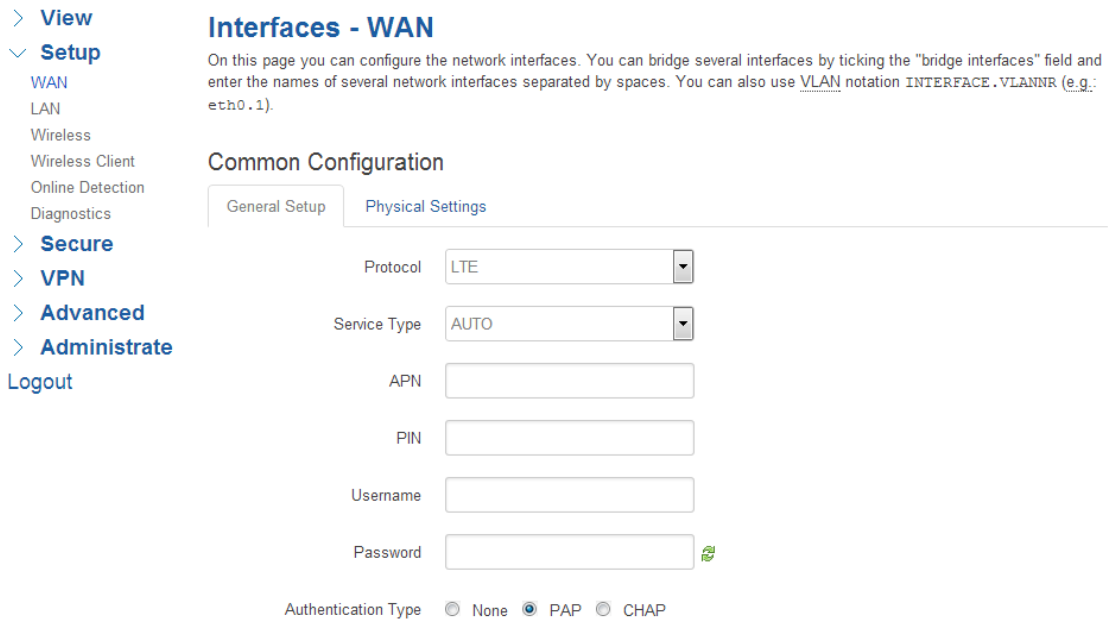
Use an Ethernet cable to connect the LAN port of TG451 to your laptop, or use your laptop or mobile phone to connect to WIFI hotspot 'Bivocom' of TG451, login with password: admin123, then configure you local IP to 192.168.1.100.
Open browser, input 192.168.1.1 to enter into to login page, input username: admin, and password: admin, to go to configuration page.

3.1 Setup

Main menu of this page includes, WAN, LAN, Wireless, Online Detection, Diagnostics.

3.1.1 WAN

WAN supports DHCP/Static IP/PPPoE/3G/LTE connection mode.
Choose the mode you need, then click 'Switch Connection Mode' and configure the related parameters, then you can connect to the internet.



1) Server Type

Type of network, the default value is AUTO, you can keep it or choose your own preference.

2) APN

Different carrier might have different APN, please ask your carrier if you have no idea of what your APN is.

3) PIN

PIN code of SIM card, please use it carefully, or the SIM card may be locked.

4) PAP/CHAP Username

Only for private network SIM card, if you're using public network SIM card, just keep it as null.

5) PAP/CHAP Password

Only for private network SIM card, if you're using public network SIM card, just keep it as null.

6) Call Center No.

When you're using SIM card, different carrier may have different call center Number, please ask your carrier for this info if you have questions.

7) Authentication Type

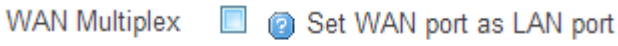
If there have username and password, you need to choose authentication type.

- PAP, Plaintext Authentication
- CHAP, Handshake authentication

You need to choose the authentication type according to carrier's network, or you may fail to dial up.

8) WAN Used As LAN

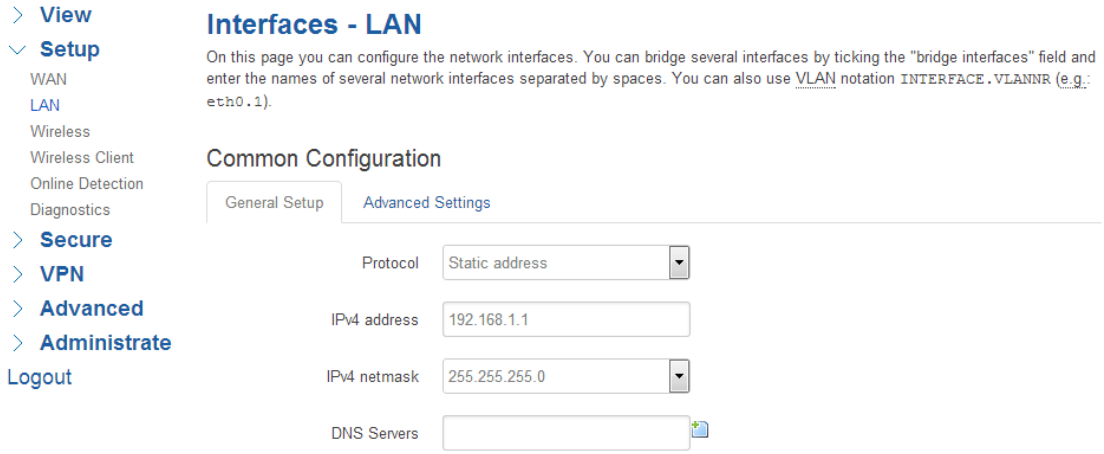
When you use 4G/3G/2G cellular network to access internet, you can change the WAN to act as a LAN port.



3.1.2 LAN

Menu of LAN are mainly for configuring IP address of Gateway, enabling DHCP server, and assign the IP address.

The meaning of the parameters are as follows.



1) IPv4 Address

To configure IP address of LAN port.

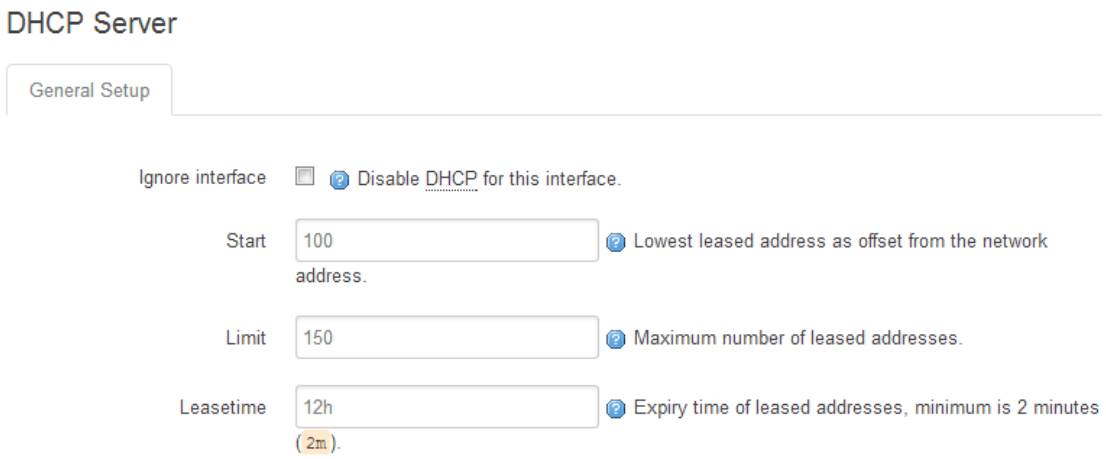
2) IPv4 Netmask

The netmask of LAN port IP address.

3) IPv4 Gateway

Specify the next-hop routing gateway.

4) DHCP Settings



- **Disable DHCP**

Click to disable DHCP server.

- **Start**

Assign the IP address of DHCP server. For example, 100 means IP address starts from 192.168.1.100.

- **Limit**

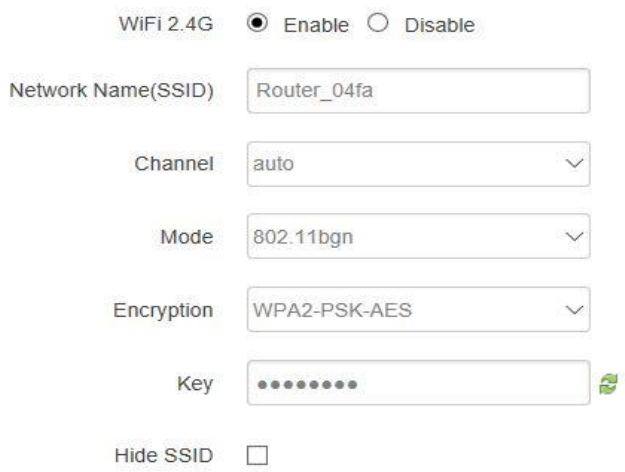
Assignable number of IP address, to ensure numbers of IP address of start and limit not exceed 250.

- **Lease time**

Time of assigning the IP address.

3.1.3 Wireless

Menu of wireless are mainly for configuring the SSID, work mode, password, etc.



1) WIFI 2.4G

Click ‘Enable’, to enable the WIFI function.

2) Network Name（SSID）

WIFI network name.

3) Channel

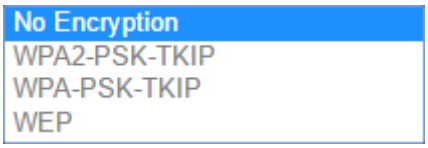
Support 1-13 channels, default value is auto, channel can be changed automatically.

4) Mode

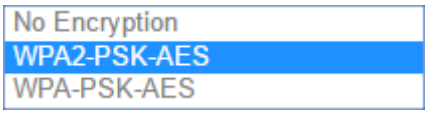
Support 802.11b, 802.11g, 802.11bgn.
802.11b up to 11Mbps, 802.11g up to 54Mbps and 802.11n up to 300Mbps.

5) Encryption

You can only choose below types if the mode is set as 802.11b or 802.11g.



While if mode is set as 802.11bgn, you can only choose below types.



6) Key

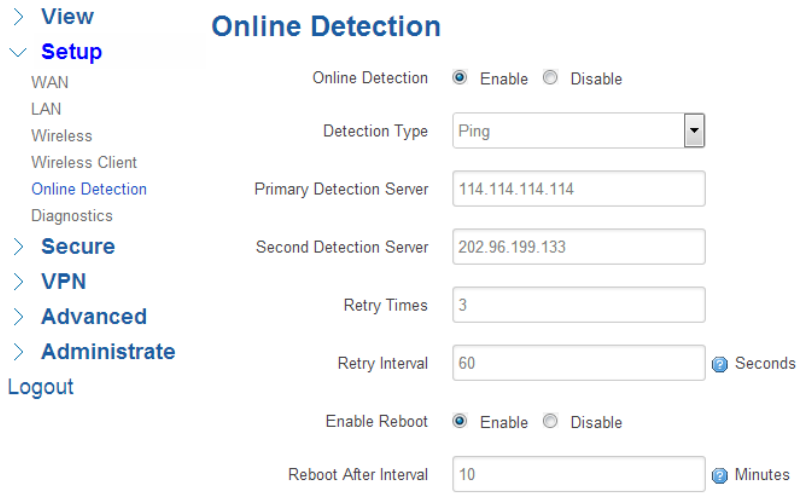
Password of sharing the WIFI, user need to input it to access the internet. The minimum length of password is 8 bytes.

7) Hide SSID

When Hide SSID enabled, SSID is invisible, and user need to input the SSID to share the WIFI.

3.1.4 Online Detection

Online detection will auto check the internet connection status of the Gateway, if there has issue of connection, Gateway will auto reconnect. If it fails to reconnect after times of trial, Gateway will reboot, to ensure getting online.
The meaning of the parameters are as follows.



1) Detection Type

There are 3 types: ping, traceroute and DNS.

- **Ping**

Gateway will ping an IP address or DNS, if works, that means Gateway is online.

- **Traceroute**

Traceroute will trace routing path, if achieves the target address, that means Gateway is online.

- **DNS**

DNS will analytic a domain, if it works, that means Gateway is online.

Note: the default setting is Ping, which is highly recommended, as traceroute will cost dataflow of SIM card, while DNS is faster, but as it has cache, it may shows the Gateway is online even it is offline.

2) Primary Detection Server

It can be an IP address or a Domain Name.

3) Second Detection Server

If primary detection server fails, then Gateway will auto switch to second detection server.

4) Retry Times

You can set up retry time in case detection fails.

5) Retry Interval

The interval time between 2 detection.

6) Enable Reboot

Click enable, and Gateway will reboot within the time set if it fails to reconnect.

7) Reboot After Interval

You can specify the time of offline, to reboot the Gateway.

3.1.5 Diagnostics

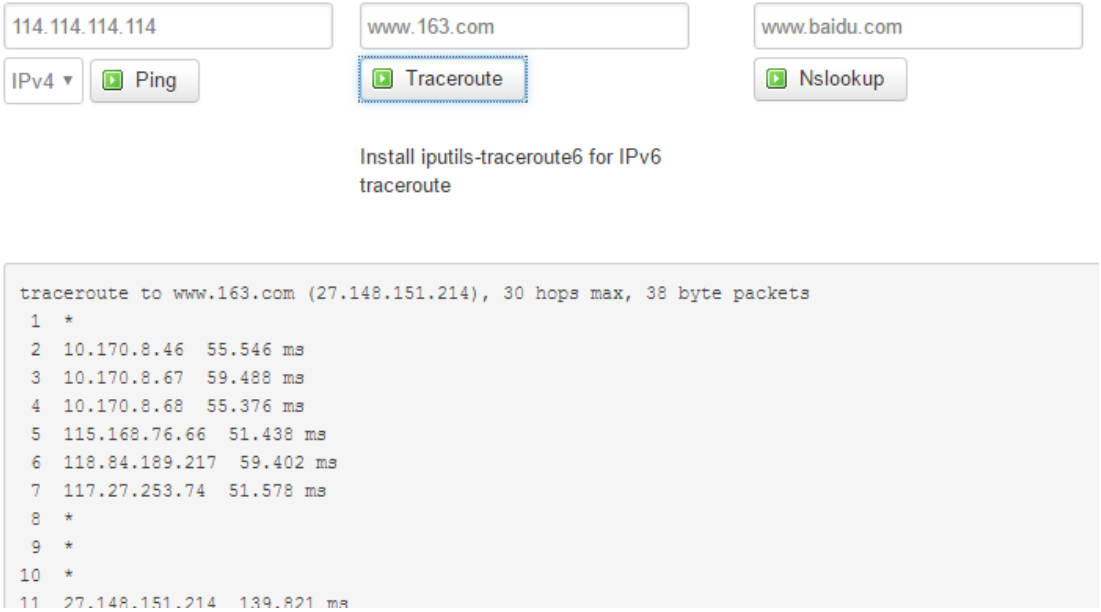
There are 3 types of network diagnosis: ping, traceroute and dnslookup
Parameter of ping and traceroute can be a Domain Name or an IP address, used for checking if Gateway is online or not. While Dnslookup is to analytic domain.

1) Ping

Click ping, then you can check if there is response from an IP address, as bellow.

2) Traceroute

Click traceroute, then you can see similar reponse as below.



3) Nslookup

Click nslookup, then you can see similar reponse as below.

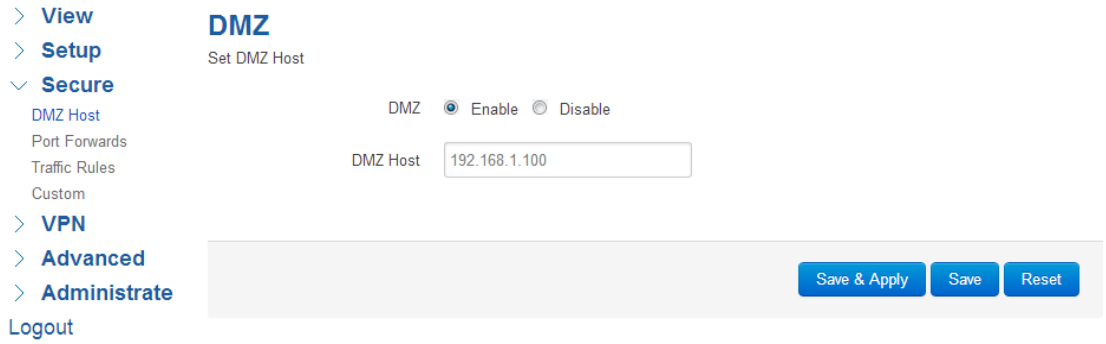

```
Server:    127.0.0.1
Address 1: 127.0.0.1 localhost

Name:      www.baidu.com
Address 1: 14.215.177.38
Address 2: 14.215.177.37
```

3.2 Security

Menu of Security are for configuring the firewall, to ensure the security of accessing to internet, and implement the port forwarding, access control, data packet filtering, and other functions.

3.2.1 DMZ Host

DMZ can forward the port of WAN to a host of LAN; all packet from WAN will be forwarded to specified host of LAN.



1) DMZ

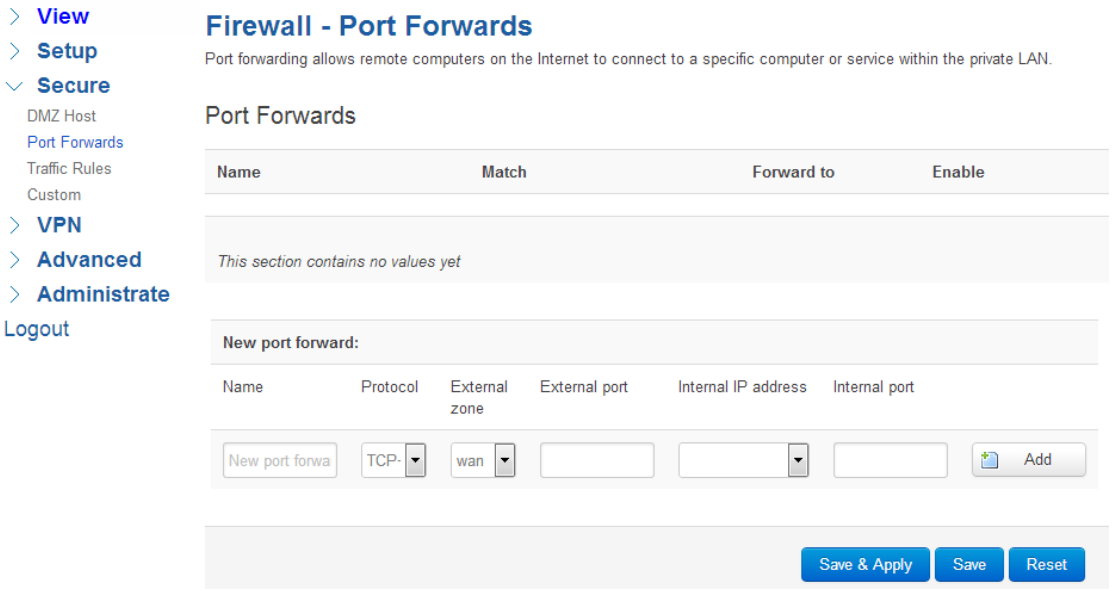
You can enable or disable the DMZ.

2) DMZ Host

An IP address of a host of LAN you want to map.

3.2.2 Port Forwarding

Comparing with DMZ, Port Forwarding is for more precise control, user can forward the data packet of a port to a host of LAN, to forward different port to different host.



1) Name

You can name the rule you created.

2) Protocol

You can choose TCP, UDP, or TCP/UDP.

3) External Port

Destination port before port forwarding.

4) Internal IP Address

The Host IP address to forward.

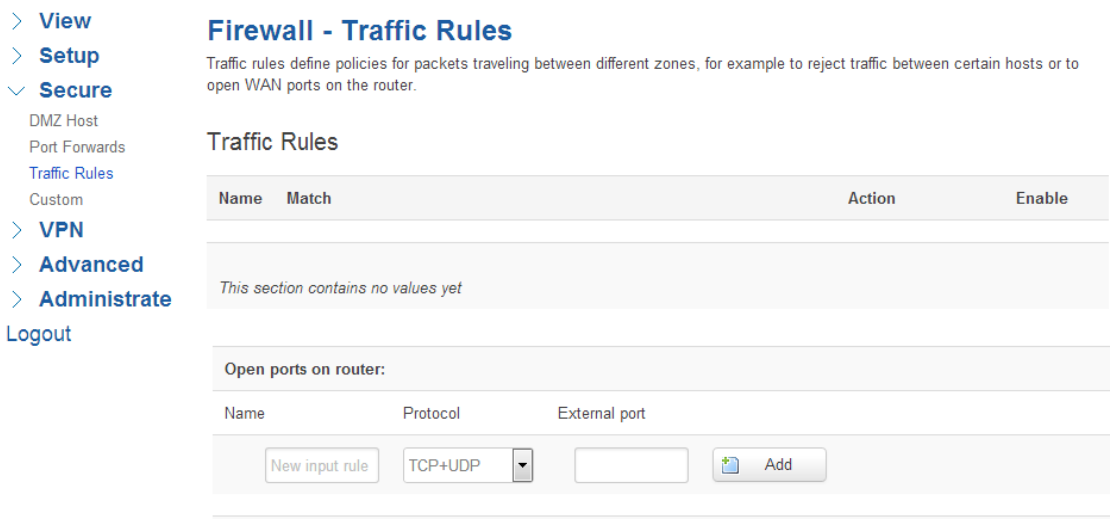
5) Internal Port

The destination port after port forwarding. Normally, external port and internal port are the same, but also can be different.

After configured above-mentioned, click ‘Add’, then a new rule will be added, and click ‘Save & Apply’, to have the rule take effect.

3.2.3 Traffic Rules

Traffic rules is used for opening some Gateway ports, such as remote access the configuration page of Gateway, you can open port 80; for remote SSH connection, you can open port 22.



1) Name

You can name the rule yourself.

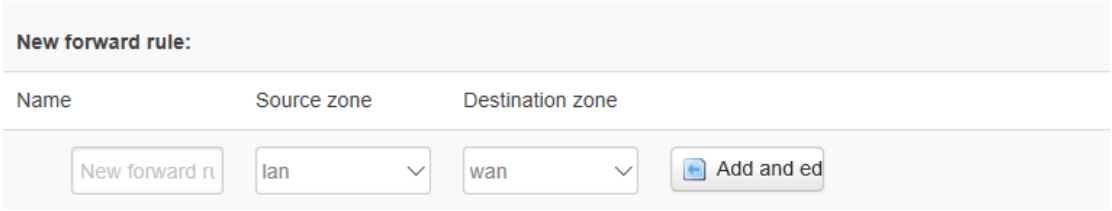
2) Protocol

Choose the protocol of you want to forward can be TCP, UDP, or TCP/UDP.

3) External Port

Choose the port you want to open.

In addition, traffic rule can be used for creating some access control rules, it can be from LAN to WAN, or WAN to LAN.



1) Name

You can name the rule yourself.

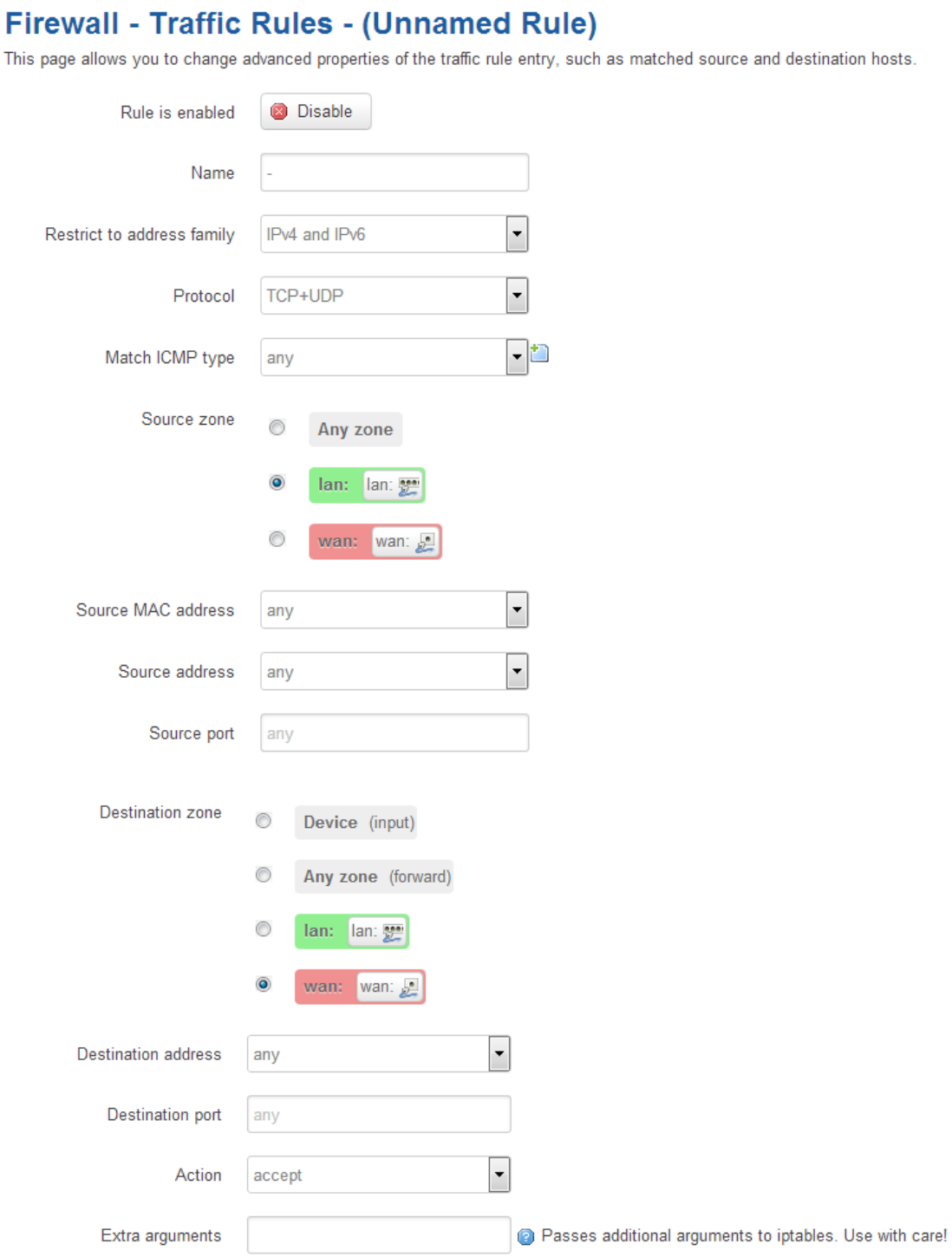
2) Source Zone

You can choose where to start the data packet.

3) Destination Zone

You can choose where to forward the data packet.

Click 'Add and Edit', then you can get more detailed matching condition.



1) Restrict to Address Family

You can choose IPv4, IPv6, or Pv4/IPv6.

2) Protocol

To choose the protocol you want for access control, it can TCP, UDP or TCP/UDP.

3) Source MAC Address

To choose the source MAC address of data packet.

4) Source Address

To choose the source IP address of data packet.

5) Source Port

To choose the source port of data packet.

6) Destination Address

To choose the destination IP address of data packet.

7) Destination Port

To choose the destination port of data packet.

8) Action

If the above-mentioned conditions matched, then you can choose below actions.

- **Accept**

Allow data packet to go through.

- **Drop**

Drop data packet

- **Reject**

Drop data packet, and return an unachievable data packet.

- **Don't Track**

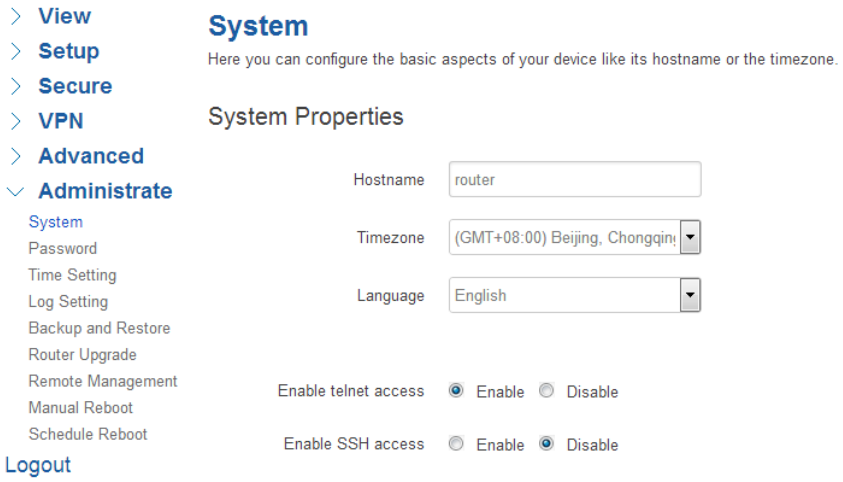
No action.

3.2.4 Custom Settings

Users can also customize some firewall rules themselves, as those rules is consist of iptable, we suggest users that are familiar with iptables command to do this. When you add rules, please add them at the bottom of existing rules, and don't delete them.

3.3 Management

3.3.1 System



1) Host Name

The host name of Gateway, default name is Gateway.

2) Time Zone

Set up the time zone of system, default time zone is GMT8.

3) Language

Change the language of configuration interface, default language is English.

4) Enable Telnet Access

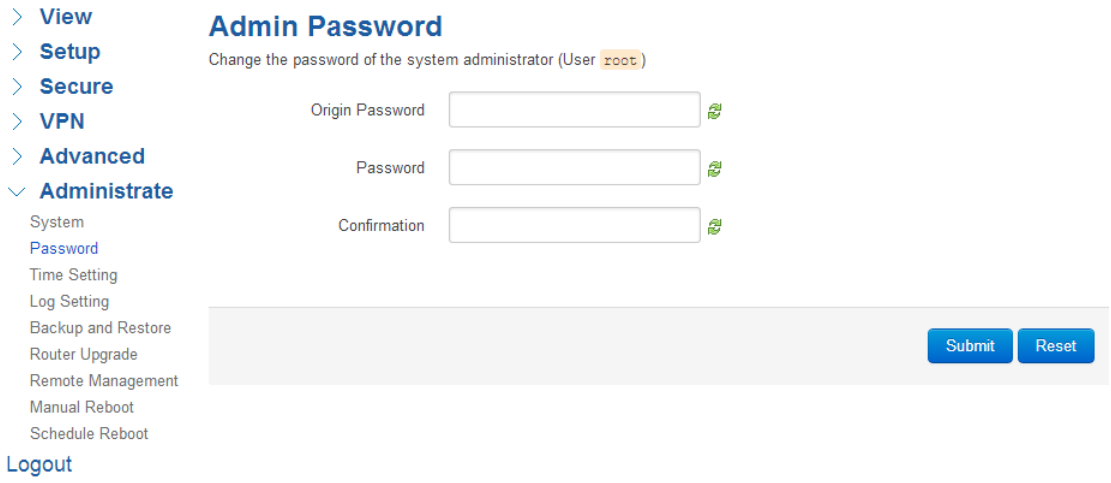
To enable the telnet server, the default function is enable.

5) Enable SSH Access

To enable the SSH server, the default function is disable.

3.3.2 Password

To revise the password of Gateway.



1) Origin Password

You'll be required to input your origin password before your revise your new password.

2) Password

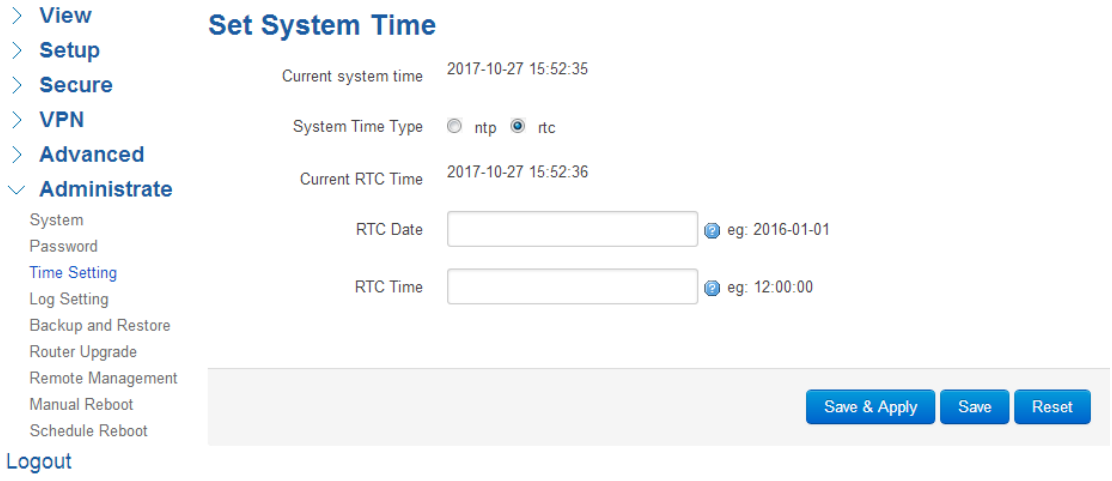
Type the new password you want to change.

3) Confirmation

Type the new password again to confirm it.
If the new password and confirmation password you type is different, then it fails to revise the password. After password revised, Gateway will return to login page, then you can input your username and password.

3.3.3 Time Setting

System time type includes RTC (Real Time Clock) and NTP (Network Time Protocol).
RTC will save time even Gateway is powered off, while for NTP, Gateway will connect to NTP server which requires internet connection, time won't be saved once powered off. But NTP will be more accurate than RTC, and you may need to adjust the time manual if it is not accurate.



1) Current System Time

Display the time of Gateway.

2) System Time Type

It includes NTP and RTC mentioned above, and different type has different configuration parameters

- **RTC**

You can update data and time yourself.

RTC Date

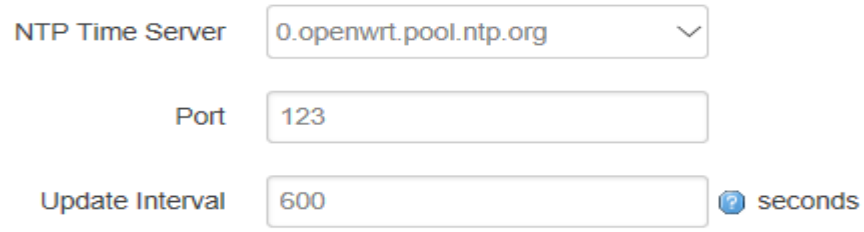
Format must be: 20xx-xx-xx (Year-Month-Day), or you will fail to update it.

RTC Time

Format must be xx: xx: xx (Hour-Min-Second), or you will fail to update it.

When choose NTP

- **NTP**



NTP Time Server

You can select the NTP time server through drop-down menu, or you can customize it.

Port

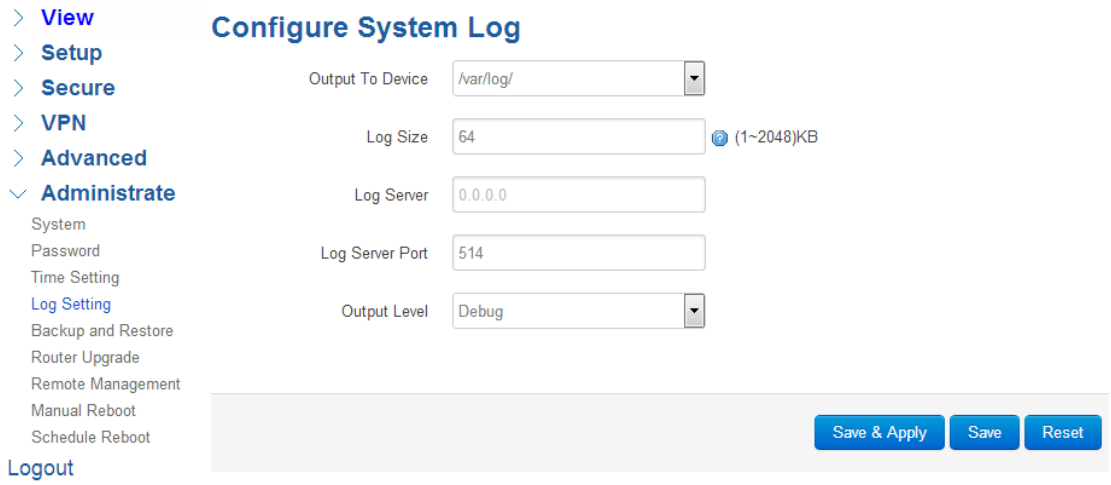
NTP time server port, default port is 123.

Update Interval

How long to sync the time with NTP server, default time is 600 seconds.

3.3.4 Log Settings

Log settings is for configuring the output parameters of system log.



1) Output to Device

You can output the log to serial port, or specified file path, or external storage device, and the default path is:/var/log/

2) Log Size

Set up the size of log, default value is 64KB.

3) Log Server

Set up the IP address of log server.

4) Log Server Port

Set up the port of log server, default value is 514

5) Output Level

There are several levels supported, including ‘Debug’, ’Info’, ‘Notice’, ‘Warning’, ‘Error’, and level increased in sequence, the higher level, the less output log.

3.3.5 Backup and Reset

User can either backup the configuration of Gateway, or reset to factory defaults.

1) Download Backup

Click to generate a configuration file in format of “backup-router-2016-**-**.tar.gz”.

2) Reset to Default

Click ‘Perform Reset’, and a pop-up confirmation box with ‘Really Reset All Changes’ will display, then click ‘OK’ to reset to factory defaults.

3) Restore Backup

After reset to default, you can also upload the saved configuration file to Gateway, to recover the previous configuration. Click ‘upload archive’, select and upload the backup configuration file, and a pop-up confirmation box with ‘Really Restore’ will display, then click ‘OK’, to recover the configuration.

3.3.6 Firmware Upgrade

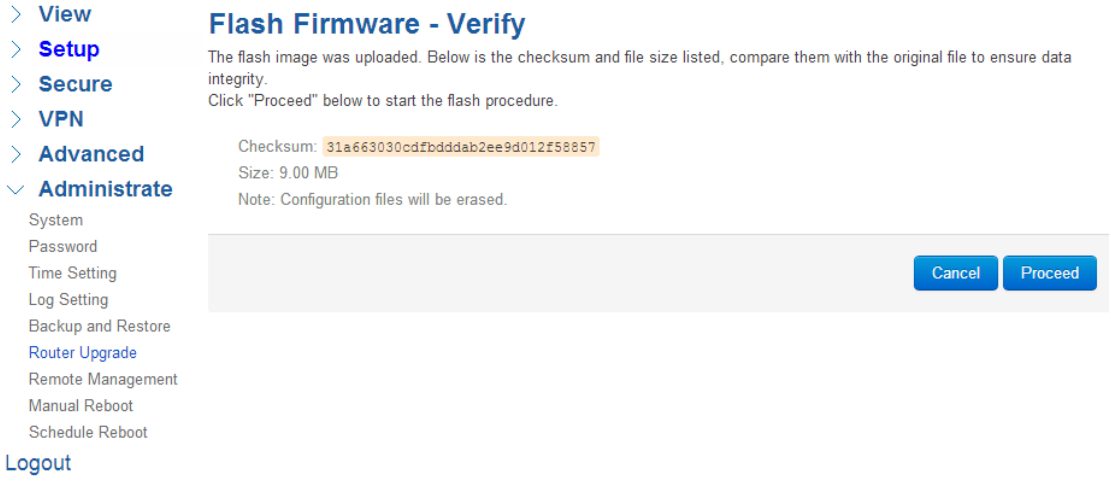
Before you upgrade the firmware for Gateway, make sure the firmware you’re planning to upload is correct. If errors occurs, use serial port and connect the Ethernet cable, upgrade the firmware through u-boot.

1) Keep Settings

Click it, and system configuration will not be changed after firmware upgrade.

2) Choose and Upload Firmware Image

Click ‘browse’ and select the firmware, then click ‘Flash Image’, and firmware will be upload to Gateway. Then you’ll go to below page.



- **Checksum**

MD5 checksum value of firmware.

- **Size**

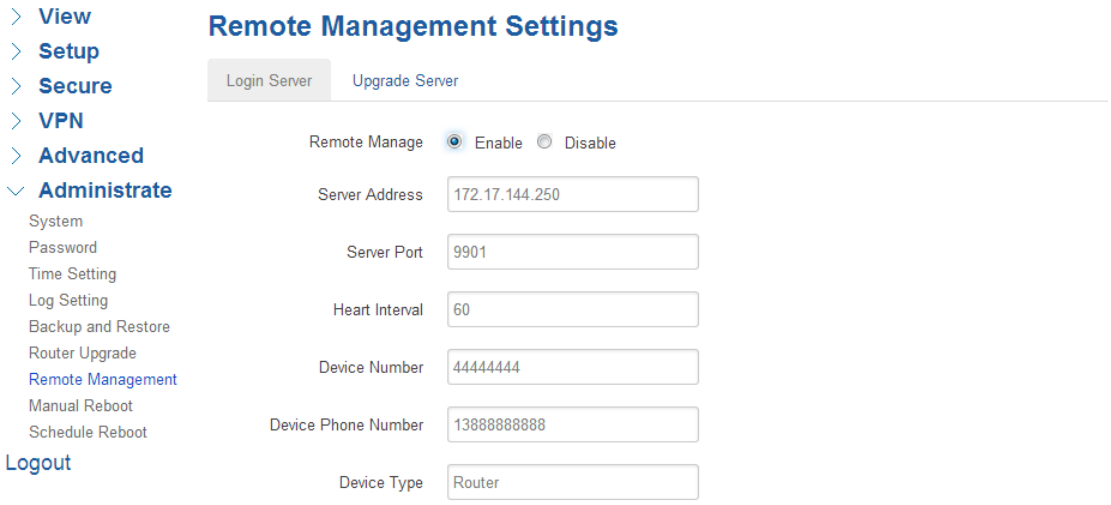
The size of firmware.

- **Proceed**

Click ‘proceed’ to start the firmware upgrade, or click ‘cancel’ to stop the firmware upgrade.

3.3.7 Remote Management

You can configure the IP address and port of remote server, device number and phone number of Gateway, etc., as below.



1) Remote Manage

You can enable or disable this function to choose if you want to remote manage the Gateway or not.

2) Server Address

Type the specified login server address you want to remote mange the Gateway, it can be either an IP address or Domain Name.

3) Server Port

The specified login server port.

4) Heartbeat Interval

The heartbeat time interval (Unit: second)

5) Device Number

Device ID of Gateway.

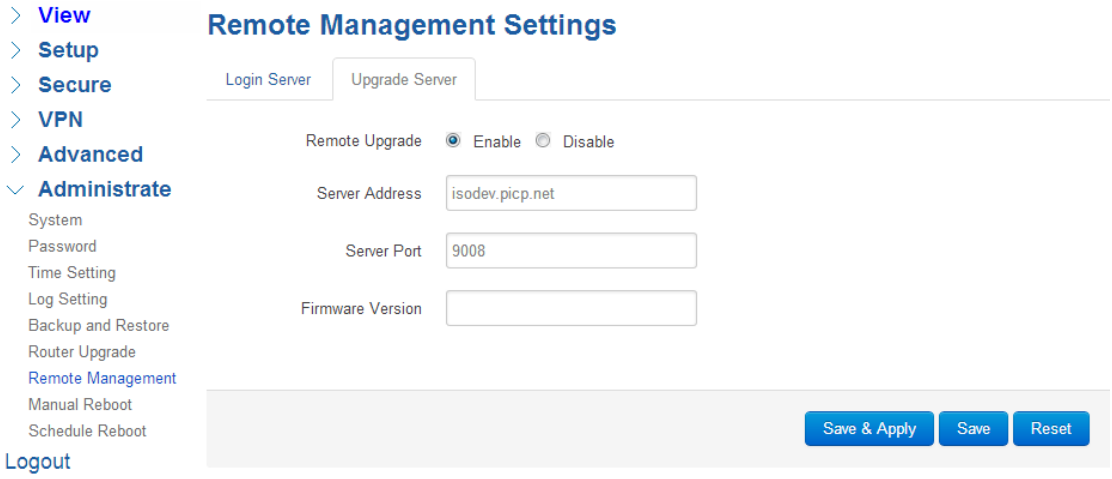
6) Device Phone Number

The phone number of SIM card insert in Gateway.

7) Device Type

Type of the device, default is router.

You can also remote upgrade the firmware for Gateway, as below.



8) Remote Upgrade

Click ‘Enable’ to enable remote firmware upgrade function.

9) Server Address

Type the server IP address or Domain Name for remote upgrade.

10) Server Port

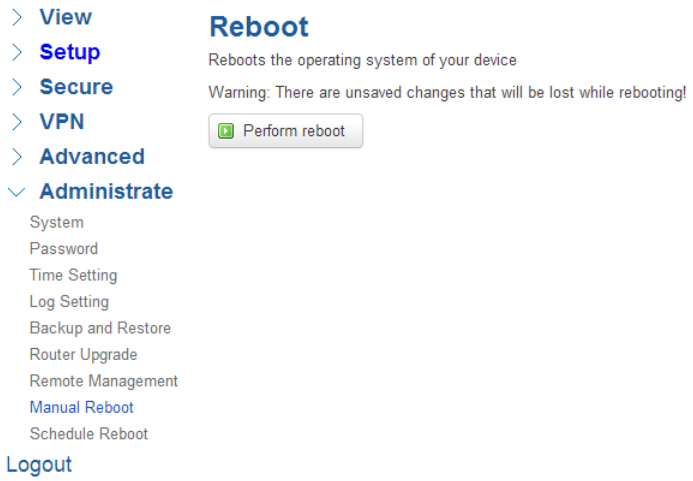
Type the server port for remote upgrade.

11) Firmware Version

Type the firmware version that you want to upgrade remotely.

3.3.8 Manual Reboot

This is to reboot your device, click ‘Perform Reboot’, and a pop-up confirmation box with ‘Really Reboot’ will display, then click ‘OK’ to reboot the Gateway.

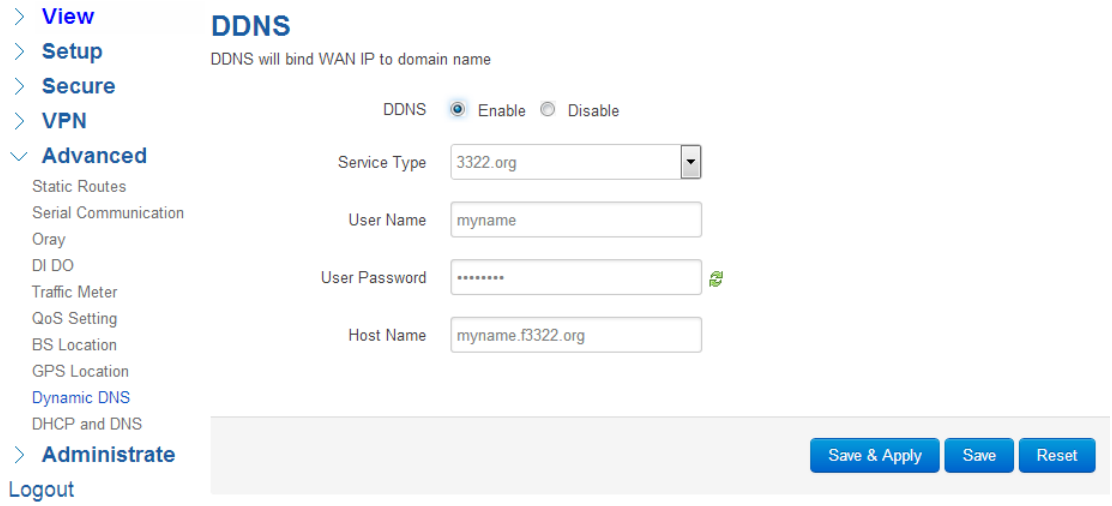


3.4 Advanced

You can set up some advanced functions here.

3.4.1 Dynamic DNS

If the assigned public IP address of Gateway is dynamic and changes frequently, you can enable DDNS function, while allows you to register a domain to bundle with the IP address, in this case, no matter what the IP address changed, it will direct to your registered domain.



1) Service Type

There are several types of DDNS service supported in Gateway, as below.

2) User Name

The username you register at DDNS service provider.

3) User Password

The password you set up when registering the user name at DDNS service provider.

4) Host Name

The register domain you want to bundle.

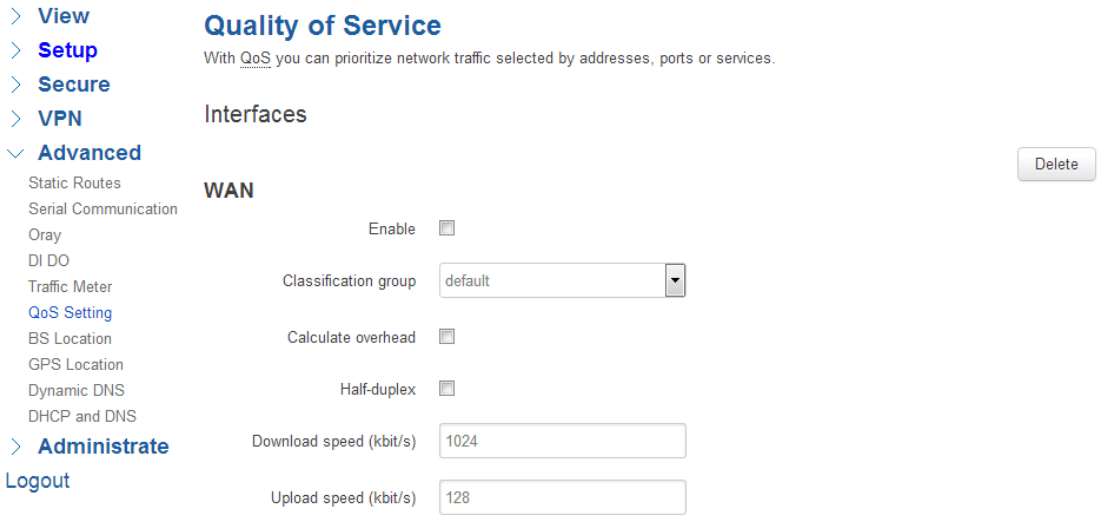
3.4.2 Oray

TG451 is embedded with intranet traversal client from Oray (http://www.oray.com/), and Oray service will help you to bundle your intranet IP address with domain, and used for intranet traversal.

Click 'Login Management' to start configure.
Click 'Reset Configure' to clear the previous configuration.

3.4.3 QoS Settings

QoS helps you to set up priority for different IP address and port. You can choose ‘Priority’, ‘Express’, ‘Normal’, ‘Low’.

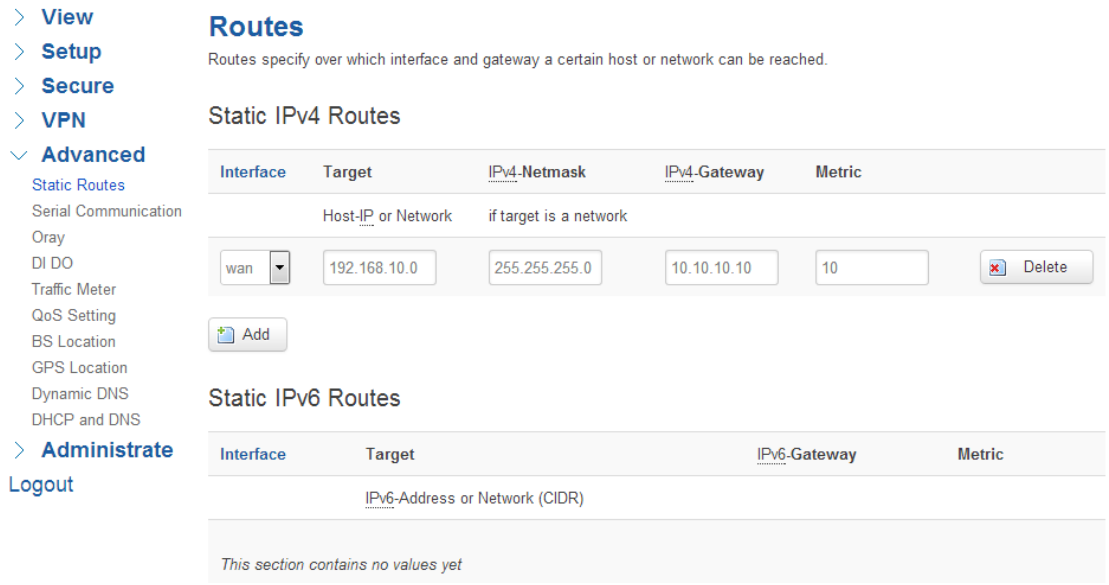


You can set up the download and upload speed and click ‘Enable’ to limit the speed.

Target: Specify the priority.
Source Host: To match the source IP of data packets.
Destination Host: To match the destination IP of data packets.
Protocol: To match the protocol of data packets.
Ports: If it is TCP/UDP, then the port can be matched.
If above-mentioned are configured, and Gateway will auto implement the related priority level.

3.4.4 Static Routing

Static routing is used to add a routing table entry.



Interface: To choose which interface you want to add routing.

Target: Can be a host IP, or subnet.

IPv4 Netmask: The netmask of subnet, if the target is host, the netmask shall be 255.255.255.255.

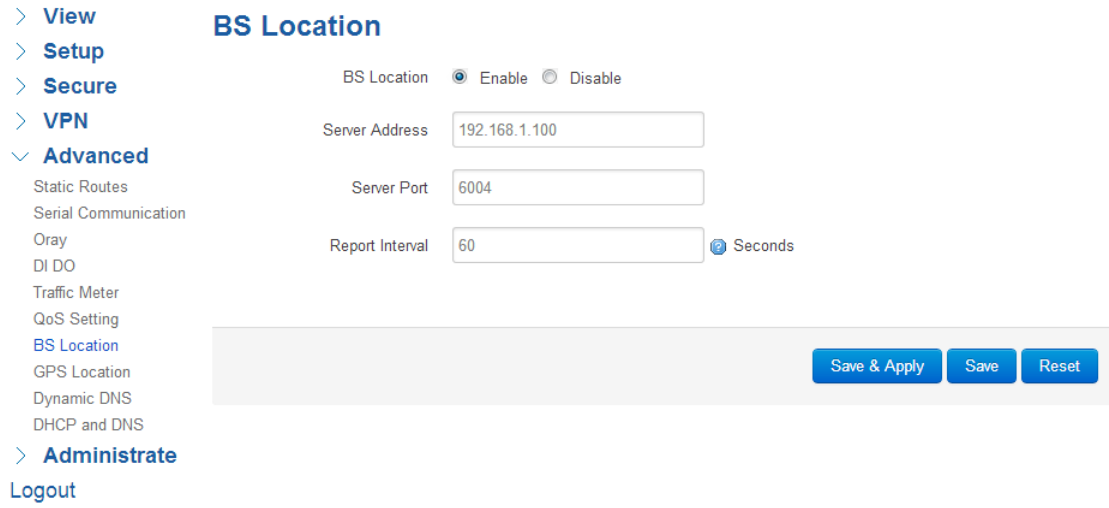
IPv4 Gateway: The address of next-hop gateway address.

Note: this address shall be achievable, or you'll fail to add static routing.

3.4.5 Base Station Location (Option)

Base station location is to locate the TG451 by obtaining the nearest base station number, this function is mainly for rough location of indoor application.

Input the server IP address and port that you want to report the location of Gateway, then Gateway will auto report its location to server regularly(within the interval time you set).



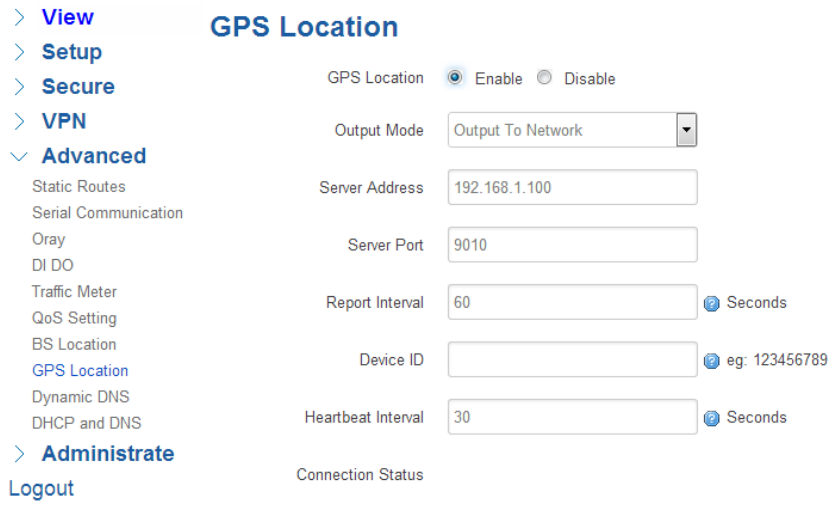
Server Address: The IP address of server that you want the Gateway to report the location, which is based on TCP connection.

Server Port: The port of server.

Report Interval: The interval time for auto report of Gateway location, default value is 60 seconds.

3.4.6 GPS (Option)

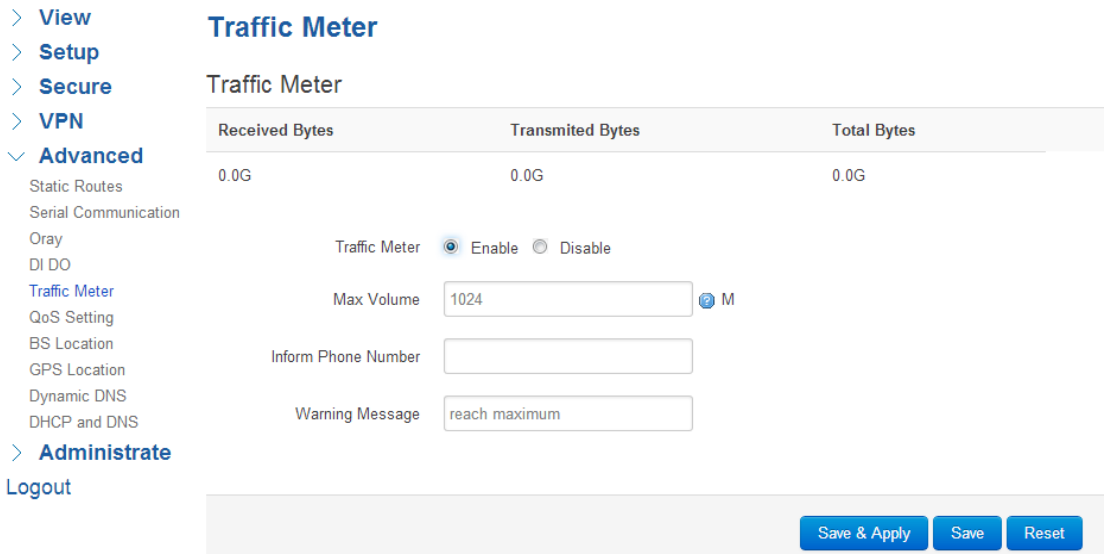
GPS location will report GPRMV information regularly, saying longitude and latitude information. And this function is used for accurate location of outdoor open area.



Server Address: The IP address of server that you want the Gateway to report the location, which is based on TCP connection.
Server Port: The port of server.
Report Interval: The interval time for auto report of Gateway location, default value is 60 seconds.

3.4.7 Traffic Meter

The traffic meter function of TR314 is for traffic statistics from WAN port, meanwhile, it has traffic overflow alarm function. Even if the Gateway is powered off, the traffic statistics will be saved, and when you power on the Gateway, the traffic will be counted based on your last time traffic.



Received Bytes: Current bytes received.

Transmitted Bytes: Current bytes transmitted.

Total Bytes: The total bytes of received bytes and transmitted bytes.

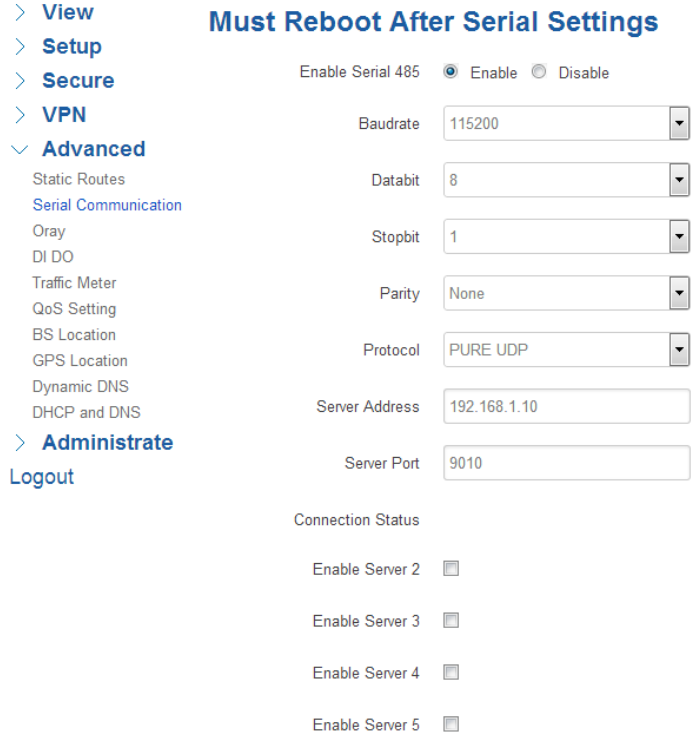
Max Volume: The max volume you set to alarm.

Inform Phone Number: The cell phone number you set for receiving warning message.

Warning Message: The warning message configured phone number will receive once the traffic exceeds the max volume you set, only support English and number input.

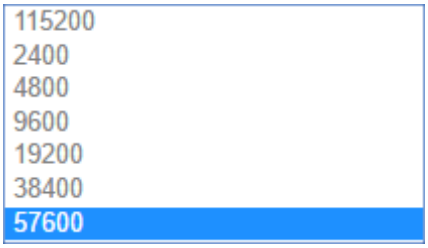
3.4.8 Serial Application

The serial port will transfer the data to server, or server will transfer the data to serial port.



1) Baud Rate

There are some baud rate supported below, and default value is 115200.



2) Databit

8 and 7, default value is 8.

3) Stopbit

2 and 1, default value is 1.

4) Parity check

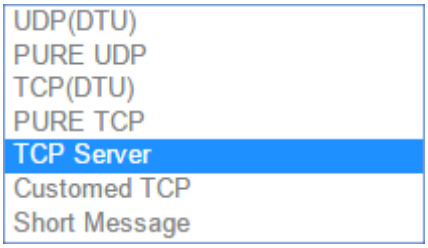
None, Odd Check and Even Check, default value is None.

5) Flow Control

None, Hardware and Firmware, default is None.

6) Protocol

There are some transmission protocols of serial port data, as below.



UDP (DTU): Configured as UDP client, which can be connected to UDP server, specified device number and heartbeat interval is required.

TCP (DTU): Configured as TCP client, which can be connected to TCP server, specified device number and heartbeat interval is required.

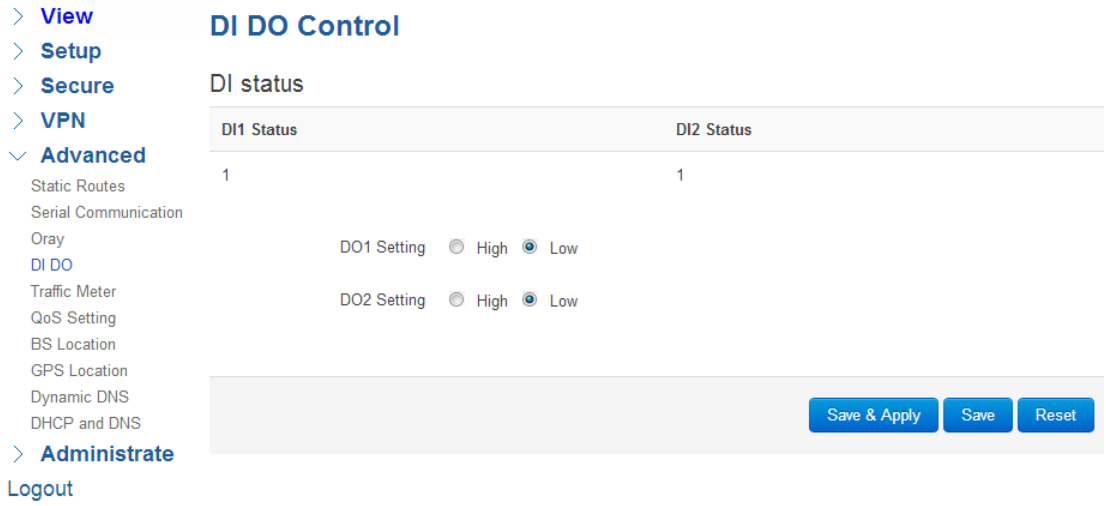
PURE UDP: Configured as pure UDP client.

PURE TCP: Configured as pure TCP client.

TCP Server: Configured as TCP server.
Customed TCP: Custom TCP client, it can be format of custom register string, heartbeat string.
Server Address: If configured as client, a specified address of server is required.
Server Port: Port of server.
Heartbeat Interval: The interval time of heartbeat string sent by client.
Custom Heartbeat String: Hexadecimal format.
Custom Register String: Hexadecimal format.

3.4.9 DI, DO

TG451 series gateway has 2 channel DI(digital input) ports. The DI function is to detect the level state of the external circuit (low level is 0 and high level is 1).TG451 can automatically report DI status information and support server to query DI status information. At the same time, TG451 also has two relay ports, which enable users operate the relays to switch on/off remotely, to achieve remote control of peripheral circuit.



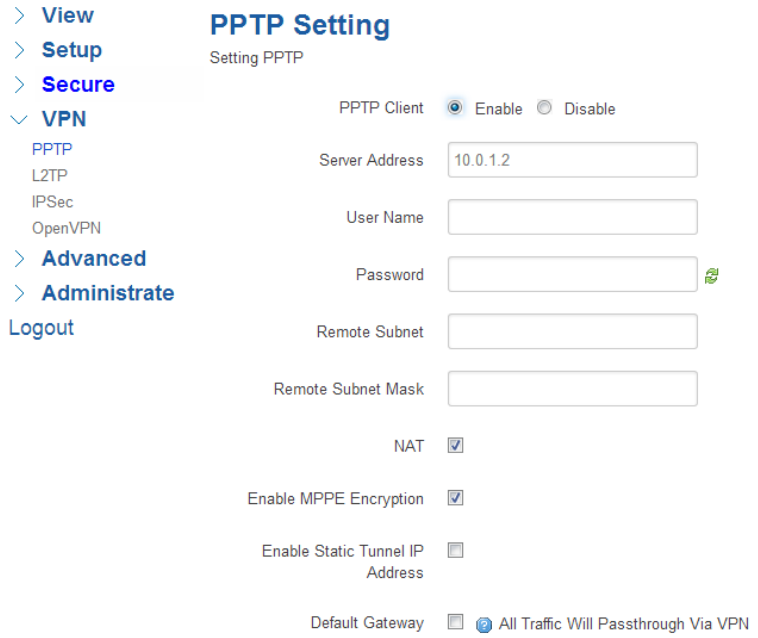
3.5 VPN

VPN is used to establish a virtual private channel, and all the data in this channel will be encrypted to ensure that data security during transmission.
TG451 support VPN: PPTP, L2TP, OpenVPN and IPSec. PPTP/L2TP are layer 2 VPN, and OpenVPN is VPN based on SSL, while IPSec layer 3 VPN. PPTP/L2TP are more convenient to use, while OpenVPN and IPSec is more complex, as they need complex certification management, meanwhile, they offer more secured encrypted data.

3.5.1 PPTP

You can configure either PPTP client or PPTP server, but not both of them at the same time, as that may cause uncertain issues.

1) PPTP Client



1. PPTP Client

You can enable or disable PPTP client.

2. Server Address

To enter the IP address or Domain Name of PPTP server.

3. User Name and Password

To enter the user name and password provided by server.

4. Remote Subnet

To enter the remote subnet, for example, if LAN of PPTP server is 192.168.2.1, then you can enter remote subnet 192.168.2.0.

5. Remote Subnet Mark

To enter the remote subnet mask, normally it is 255.255.255.0.

6. NAT

If click NAT, all packets come from ppp0, and the source IP of the packets will be replaced as IP of ppp0.

7. Enable MPPE Encryption.

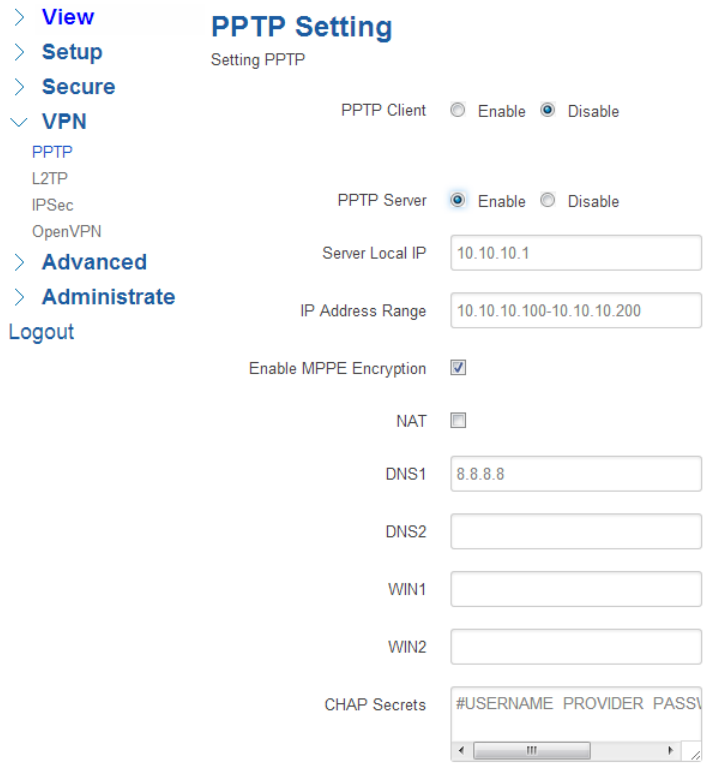
You can enable MPPE encryption here.

8. Default Gateway

Click Default Gateway, then a default route will be established under ppp0, and all the

data will go through this route.

2) PPTP Server



1. PPTP Server

You can enable or disable PPTP server.

2. Server Local IP

To enter the server local IP address.

3. IP Address Range

Type the range of assigned IP address.

4. Enable MPPE Encryption.

You can enable MPPE encryption here.

5. DNS1/DNS2

To enter the assigned DNS address.

6. WIN1/WIN2

To enter the WIN address.

7. CHAP Secrets

To create an username and password under CHAP Secrets, format as below,

Username<space>*<space>password<space>*

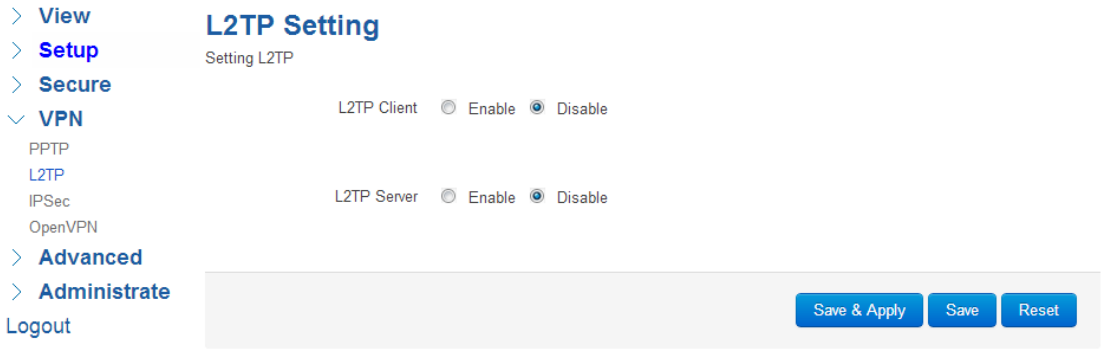
For example, if you want to create a username: test, password: test, it is as below,

Test * testing *

3.5.2 L2TP

You can also configure either L2TP client or L2TP server, but not both of them at the same time, as that may cause uncertain issues.

1) L2TP Client



1. L2TP Client

You can enable or disable L2TP client.

2. Server Address

To enter the IP address or Domain Name of L2TP server.

3. User Name and Password

To enter the user name and password provided by server.

4. Remote Subnet

To enter the remote subnet, for example, if LAN of L2TP server is 192.168.2.1, then you can enter remote subnet 192.168.2.0.

5. Remote Subnet Mark

To enter the remote subnet mask, normally it is 255.255.255.0.

6. NAT

If click NAT, all packets come from ppp0, and the source IP of the packets will be replaced as IP of ppp0.

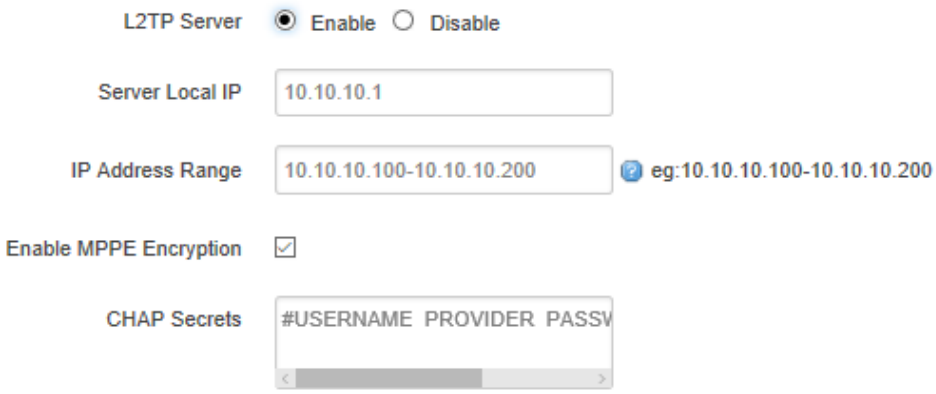
7. Enable MPPE Encryption.

You can enable MPPE encryption here.

8. Default Gateway

Click Default Gateway, then a default route will be established under ppp0, and all the data will go through this route.

2) L2TP Server



1. L2TP Server

You can enable or disable L2TP server.

2. Server Local IP

To enter the server local IP address.

3. IP Address Range

Type the range of assigned IP address.

4. Enable MPPE Encryption.

You can enable MPPE encryption here.

5. CHAP Secrets

To create an username and password under CHAP Secrets, format as below,

Username<space>*<space>password<space>*

For example, if you want to create a username: test, password: test, it is as below,

Test * test *

3.5.3 OpenVPN

1) OpenVPN

You can enable or disable OpenVPN.

2) Topology

Choose the topology, it can be point to point or subnet

Note: For point to point, a tunnel will be established between 2 devices.

While for subnet, multi devices will be connected to one server.

3) Role

When topology is subnet, you need to choose you want it be a server or client.

4) Protocol

Choose the protocol, it can be UDP or TCP, default is UDP.

5) Port

Enter the port you want to assign to OpenVPN, default port is 1194.

6) Device Type

Choose device type, there are 2 types to choose, TUN and TAP. TUN is layer 3 data encapsulation, while TAP is layer 2 data encapsulation.

7) OpenVPN Server

When you choose server in 角色, you need to enter an IP address or domain name of server.

8) Authentication Type

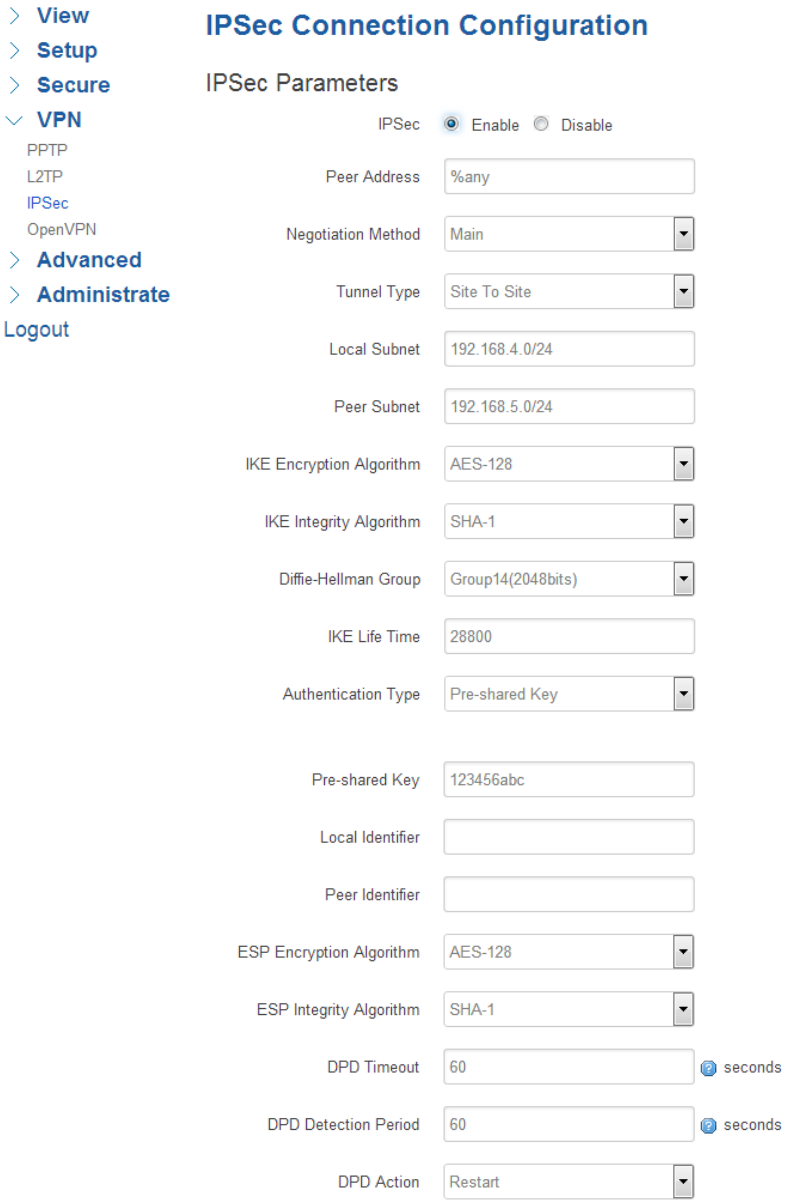
If topology is subnet, authentication type is certification. If it is point to point, you can choose none, certificate or static secret.

9) TLS Role

When topology is point to point, and authentication type is certification, you need to choose if it is server or client.

3.5.4 IPSec

On IPSEC page, system will display the IPSEC connection and status.



1) Peer Address

To enter peer IP address or Domain Name, if choose as a server, you don't need to enter it.

2) Negotiation Method

You can choose 'Main' or 'Aggressive'.

3) Tunnel Type

You can choose ‘Site to Site, ‘Site to Host’, ‘Host to Host’, ‘Host to Site’.

4) Local Subnet

Local subnet and mask, like 192.168.10.0/24.

5) Peer Subnet

Peer subnet and mask, like 192.168.20.0/24.

6) IKE Encryption Algorithm

IKE phase encryption method

7) IKE Lifetime

To set up IKE lifttime.

8) Local Identifier

Local identifier of channel, can be an IP address or domain name.

9) Peer Identifier

Peer identifier of channel, can be an IP address or domain name.

10) ESP Encryption Algorithm

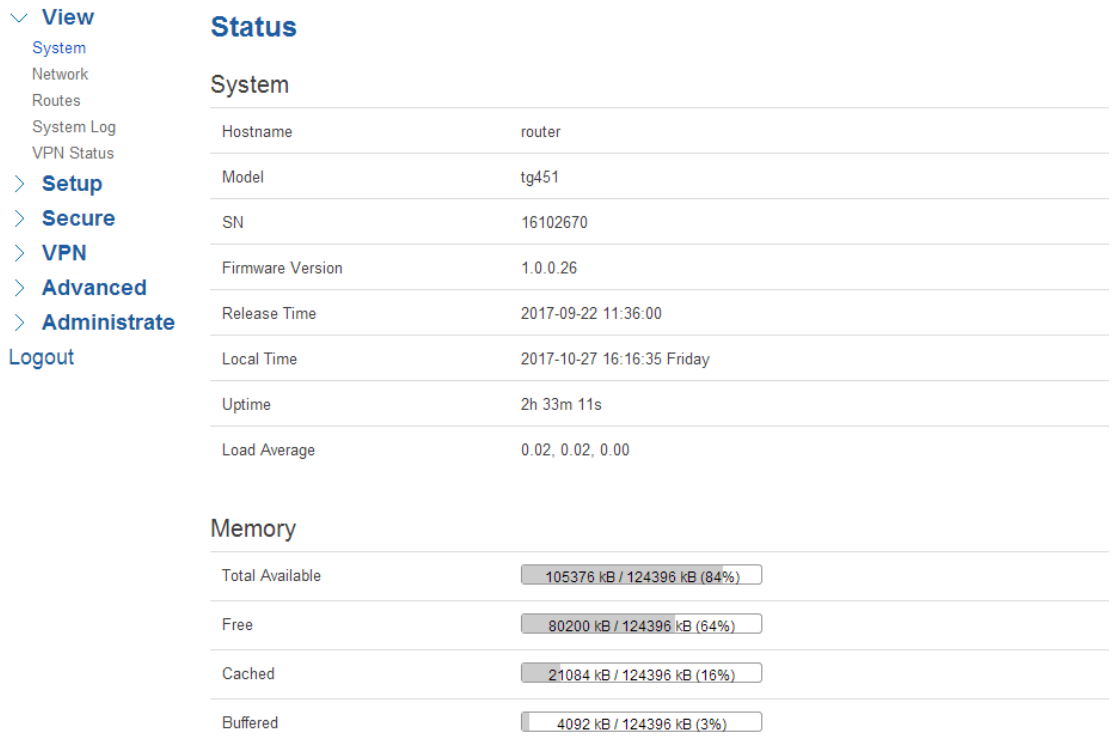
The encryption method of ESP.

3.6 View

To check the following system information.

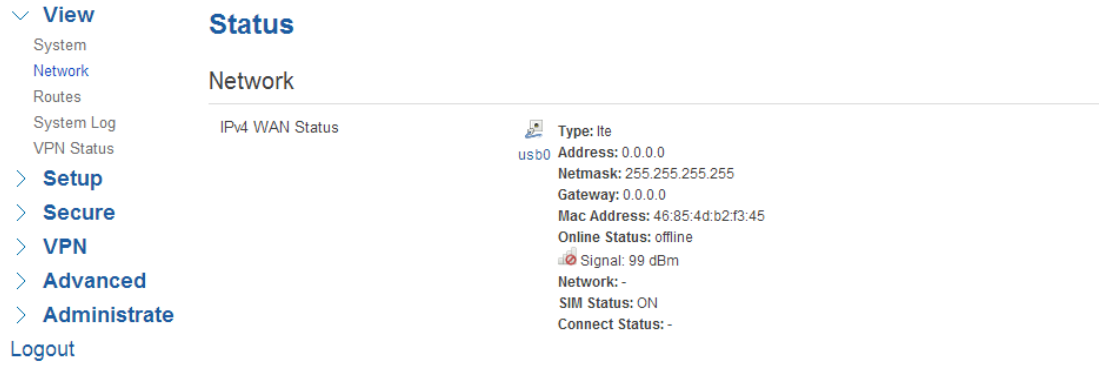
3.6.1 System

To display system information.



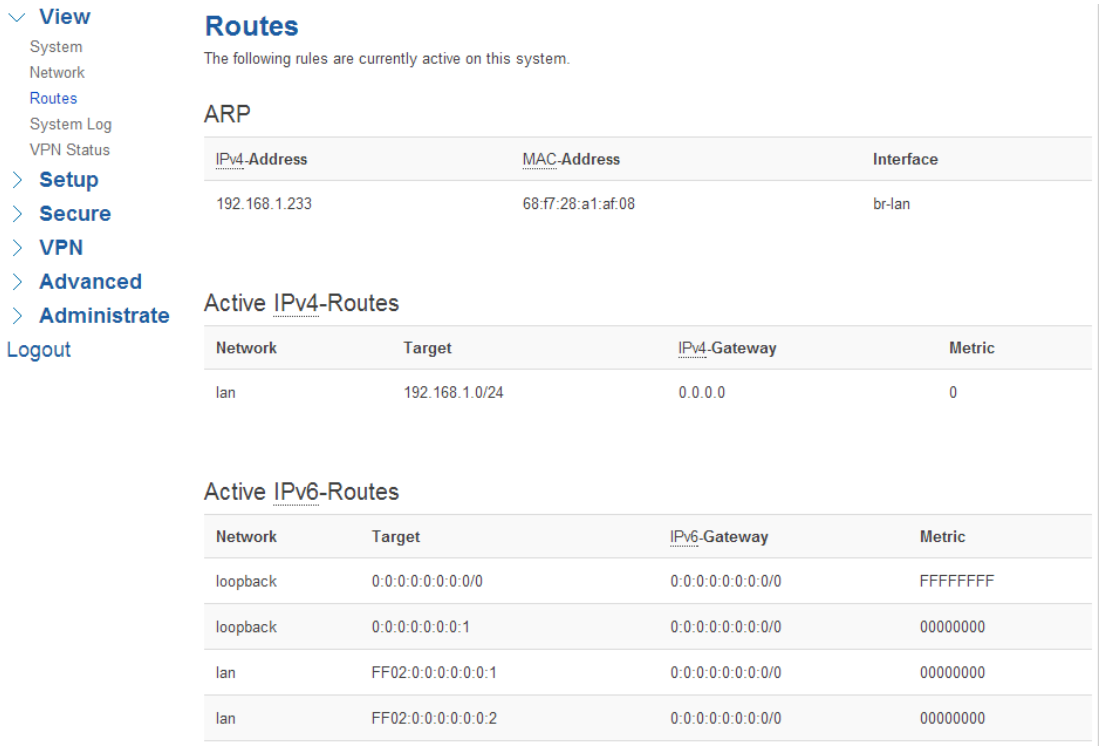
3.6.2 Network

Display network information.



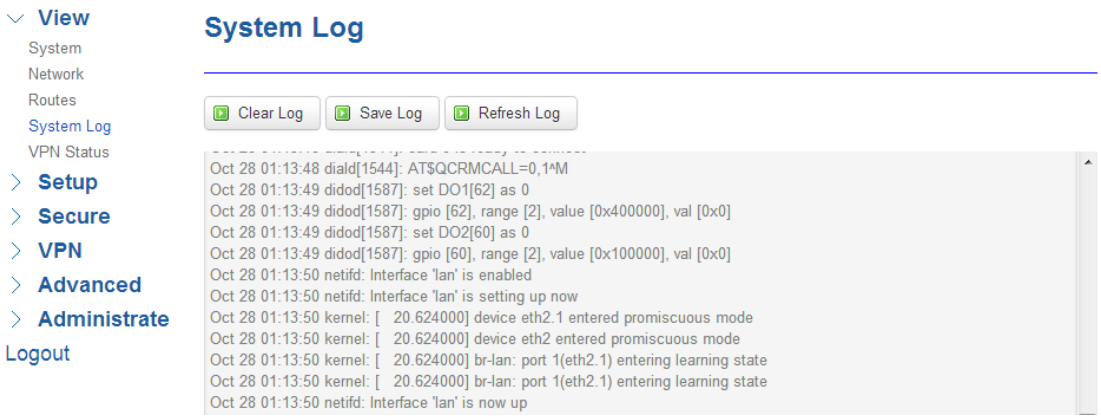
3.6.3 Routing Tables

Display routing tables.



3.6.4 System Log

Display system log.



3.6.5 VPN Status

Display VPN status.