

# USR-G800V2 User Manual

File version: V1.0.1



# Content

1	Quick Start.....	4
1.1	Hardware Test.....	4
1.2	Network Connection.....	4
1.3	Webpage Login and Test.....	5
2	Product Overview.....	6
2.1	Product Introduction.....	6
2.2	Feature.....	6
2.3	Basic Parameters.....	7
2.4	Appearance and Size.....	8
3	Product Function.....	9
3.1	Configuration Process.....	9
3.2	Basic Function Introduce.....	10
3.2.1	Hostnames.....	10
3.2.2	Diagnostics.....	12
3.2.3	System.....	13
3.2.4	User Name and Password.....	14
3.2.5	Restore to Factory Settings.....	14
3.2.6	Status Light.....	15
3.2.7	FW Upgrade.....	16
3.2.8	Reboot.....	17
3.3	Advanced Function.....	18
3.3.1	DDNS.....	18
3.3.2	WIFI-dog.....	19
3.3.3	LAN.....	20
3.3.3.1	DHCP Function.....	20
3.3.4	WAN.....	21
3.3.5	WIFI.....	21
3.3.6	4G Interface.....	24
3.3.6.1	APN.....	24
3.3.7	Serial Port to Ethernet.....	26
3.3.8	VPN Client(PPTP、L2TP、IPSEC、OPENVPN、GRE、SSTP).....	27
3.3.8.1	PPTP.....	27
3.3.8.2	L2TP.....	29
3.3.8.3	IPSEC.....	31
3.3.8.4	OPENVPN.....	33
3.3.8.5	GRE.....	36
3.3.8.6	SSTP.....	39
3.3.9	Static Route.....	40
3.3.10	Firewall.....	41
3.3.10.1	NAT Function.....	41
3.3.10.2	Restricting Access.....	44

---

	3.3.10.3	Rate-Limiting.....	44
4		Setup Method.....	44
	4.1	Webpage Setting.....	44
	4.2	Web Function.....	45
5		AT Commands.....	48
6		Contact us.....	49
7		Disclaimer.....	49
8		Updated History.....	49

# 1 Quick Start

This chapter is a quick introduction. It is recommended that users read this chapter and follow the instructions to operate it again. Users will have a systematic understanding of this 4G router product.

If user has any question, please submit it back to customer center: <http://h.usriot.com>

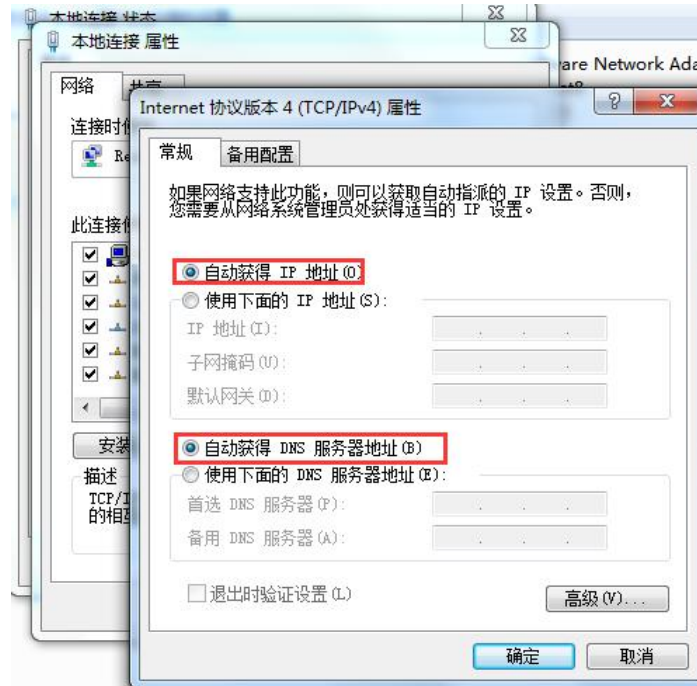
## 1.1 Hardware Test



Figure1 hardware connection

## 1.2 Network Connection

- Insert SIM card into the router card slot
- Install the WIFI antenna and 4G antenna
- Connect computer and the router LAN port (either LAN1 ~ LAN4) with network cable
- Configure computer network card, select the automatically obtain IP


**Figure2 network connection**

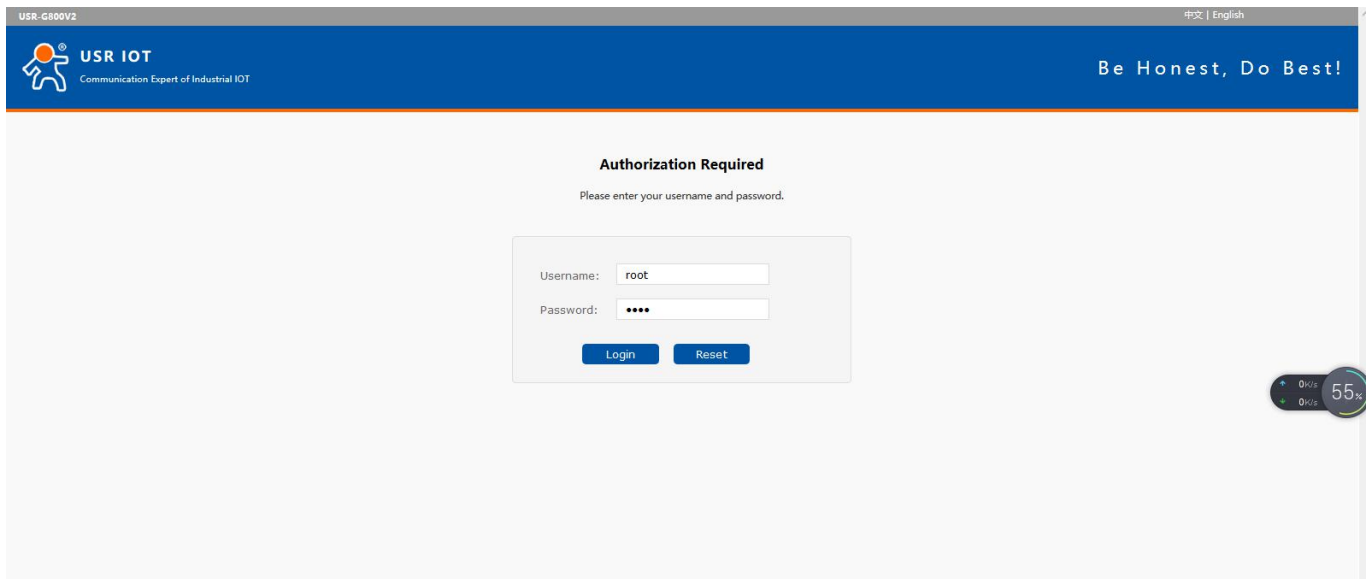
- Use standard DC12V power supply
- After waiting for about 1 minute, the 4G standard light and signal light are on, indicating the success of the router's 4G networking

### 1.3 Webpage Login and Test

The default parameters of G800V2:

Parameter	Default
Account	root
Password	root
IP	192.168.1.1

Login 192.168.1.1, the account and password are both root.

**Figure3 login webpage**

## 2 Product Overview

### 2.1 Product Introduction

USR-G800V2 support wired WAN port, LAN port, WLAN network, and 4G network interface, support serial port to network data transmission function.

### 2.2 Feature

- Support 4 wired LAN ports and 1 wired WAN port
- Support 1 WLAN
- Support Mini-PCIE interface of 4G communication module
- Support LED status monitoring (display power supply, Work, WAN, LAN, WIFI, 4G network mode and signal strength status)
- Supports transparent data transfer from RS232 to the network
- Support SSH, Telnet, Web multi-platform management configuration
- Support one-click restore factory settings
- Wired network ports all support 10/100mbps
- Support for multiple VPN Client (the PPTP, L2TP/GRE/OPENVPN/SSTP), and support the VPN encryption.
- Support APN automatic network checking, 2/3/4g standard switching, SIM information display, support APN dedicated network card
- Support wired wireless multi-network simultaneous online, multi-network intelligent switching backup function
- Support mandatory portal (WIFIDOG), this feature needs to be customized according to customer requirements
- Support dynamic domain name (DDNS), static routing, PPPOE, DHCP, static IP function.

- Support firewall, NAT, DMZ host, access control black and white list, IP speed limit, MAC speed limit
- Support QOS, traffic service, can limit speed according to the interface
- NTP support, built-in RTC
- Support external hardware watchdog design to ensure system stability

## 2.3 Basic Parameters

Operation band				
Network type		-E	-AU	-A
4G	FDD-LTE	1/3/5/7/8/20	1/2/3/4/5/6/7/8/28	1/3
	TDD-LTE	38/39/40/41	40	38/39/40/41
3G	WCDMA/HSPA/UMTS	1/8	1/2/5/8	1/8
2G	GPRS/GSM/EDGE	3/8	2/3/5/8	3/8

Item	Info	
<b>Product</b>	USR-G800V2	
<b>Ethernet</b>	WAN	WAN*1
	LAN	LAN*4
	Rate	10/100Mbps, Auto MDI/MDIX
<b>WIFI</b>	Wifi	Support 802.11b/g/n
	Antenna	Wifi antenna
	Distance	150m (open field)
<b>SIM card</b>	SIM/USIM card	3V/1.8V SIM card
<b>Antenna</b>	antenna	Full frequency chuck antenna
<b>Button</b>	Reload	Recovery to factory setting
<b>Status light</b>	Status light	Power, WIFI, signal strength, WAN, LAN
<b>Serial port</b>	RS232	*1
	Function	Transparent transmission
<b>Temperature</b>	Work temperature	-20° C~+70° C
	Storage temperature	-40° C~+125° C
<b>Humidity</b>	Work humidity	5%~95%
	Storage humidity	1%~95%
<b>Power</b>	Power	DC 9~36V
	Current	Under DC12V power supply, average 170mA, maximum 289mA

Power consumption parameters

Work style	Voltage	Average current	Max current
LAN(*4)+WAN transmission data (4G normal)	DC 12V	338mA	424mA
LAN(*1)+WAN transmission data (4G normal)		286mA	362mA
LAN(*4)+WAN transmission data (no 4G, WLAN normal)		268mA	314mA
WAN transmission data (WALN normal)		235mA	303mA

## 2.4 Appearance and Size

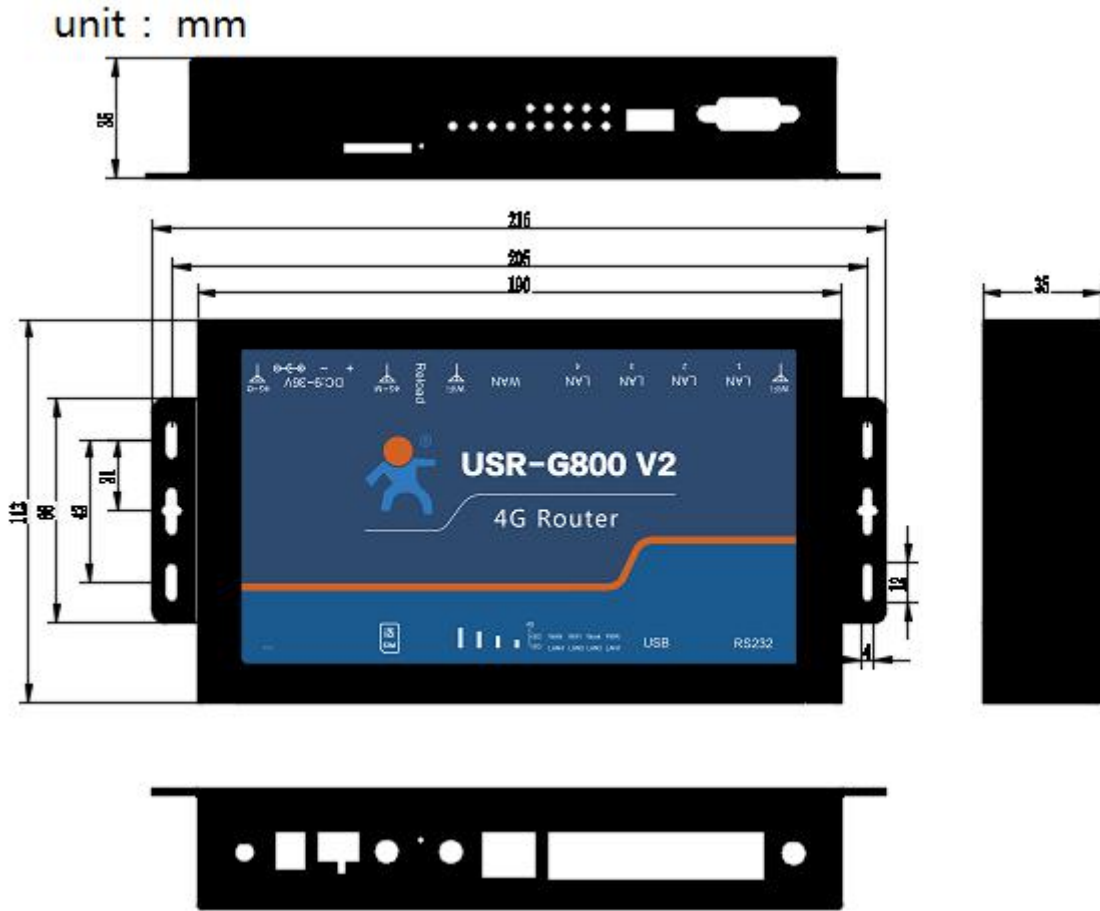


Figure4 hardware



### 3 Product Function

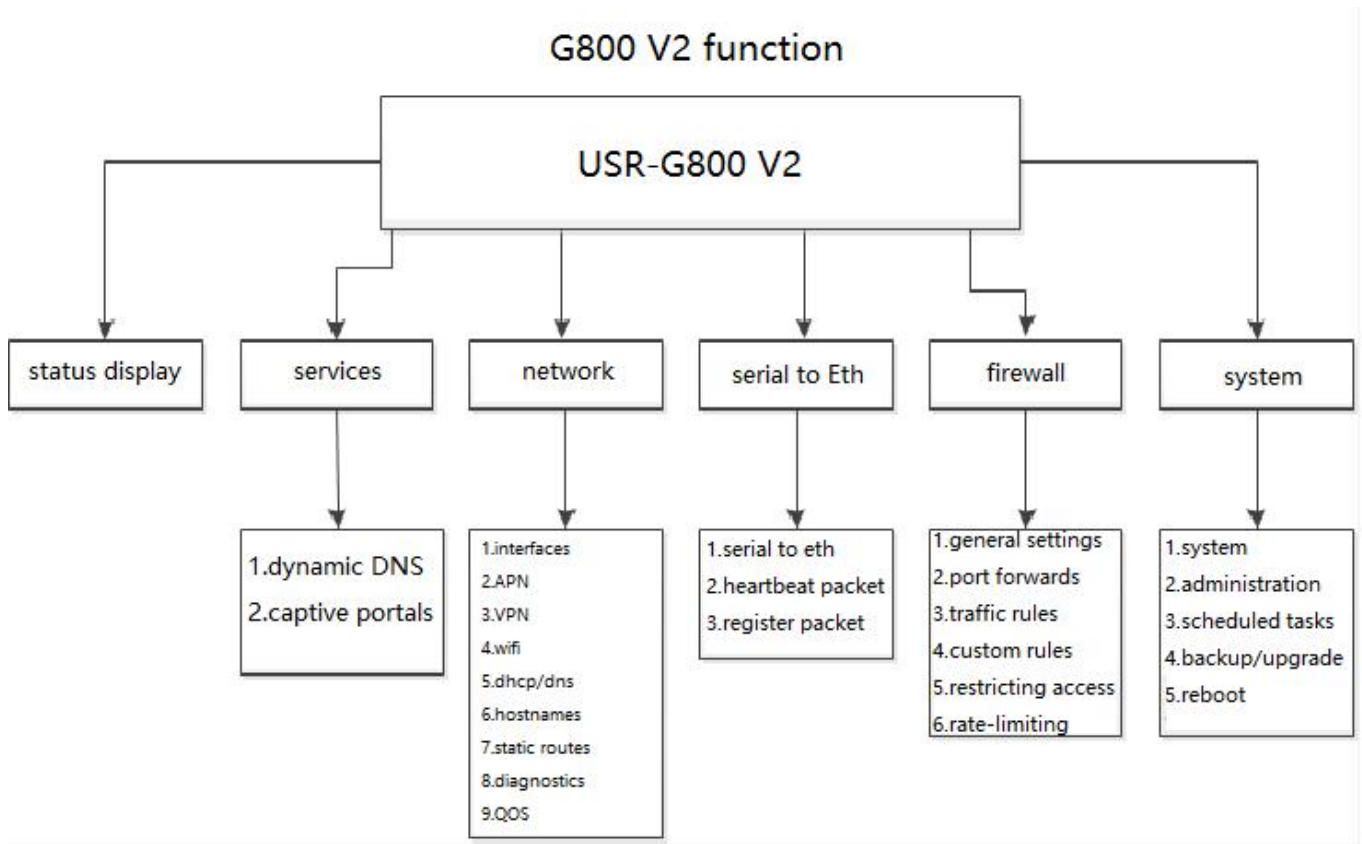


Figure5 G800V2 function

#### 3.1 Configuration Process

Steps:

- Make sure G800 V2 power off
- Put SIM card into G800 V2
- Install WIFI antenna and 4G antenna
- Power on G800 V2 with 12V power adapter
- Wait for 1 minute, when 4G and signal light on, means the success of the router's 4G networking

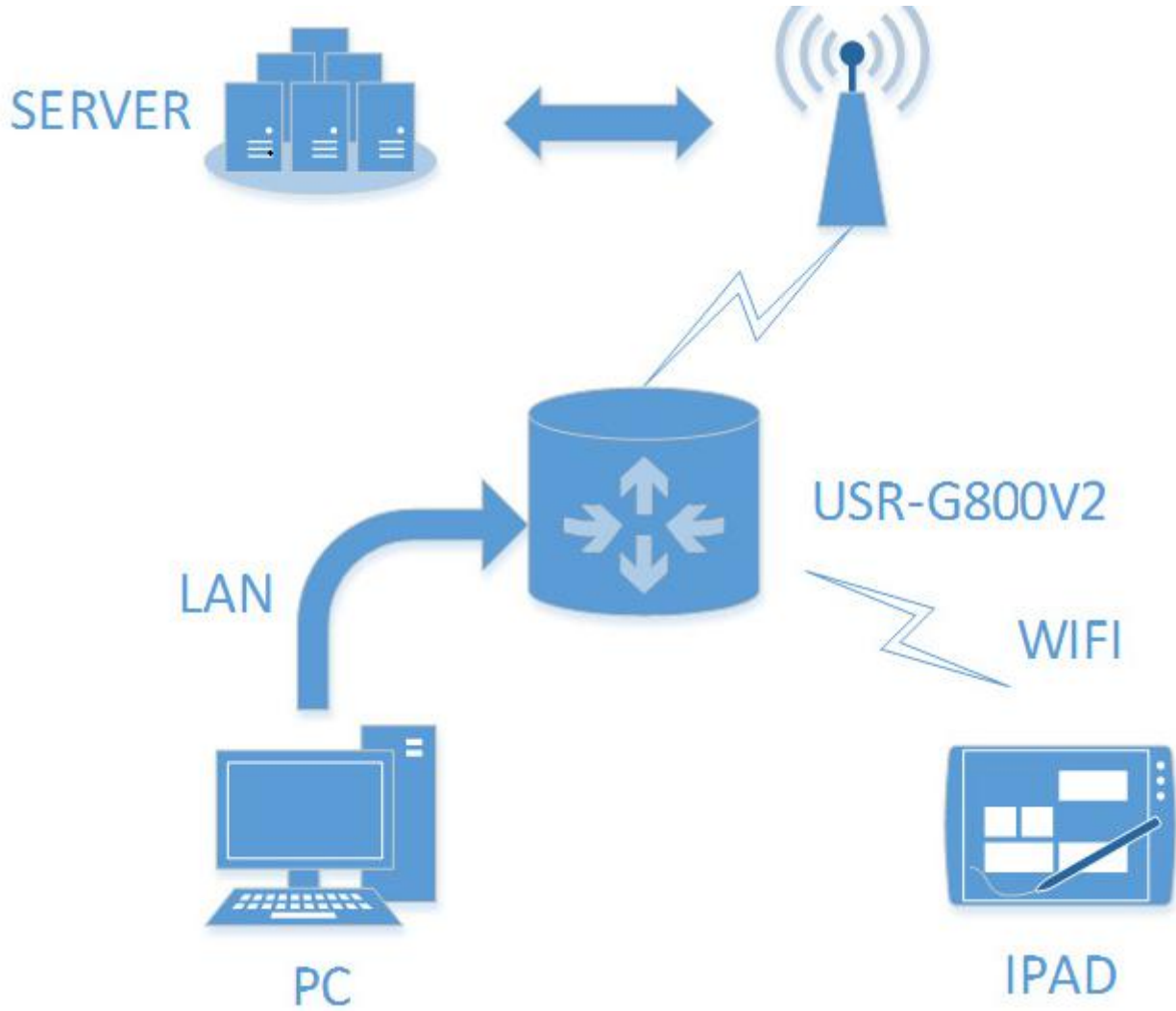


Figure6 networking

## 3.2 Basic Function Introduce

### 3.2.1 Hostnames

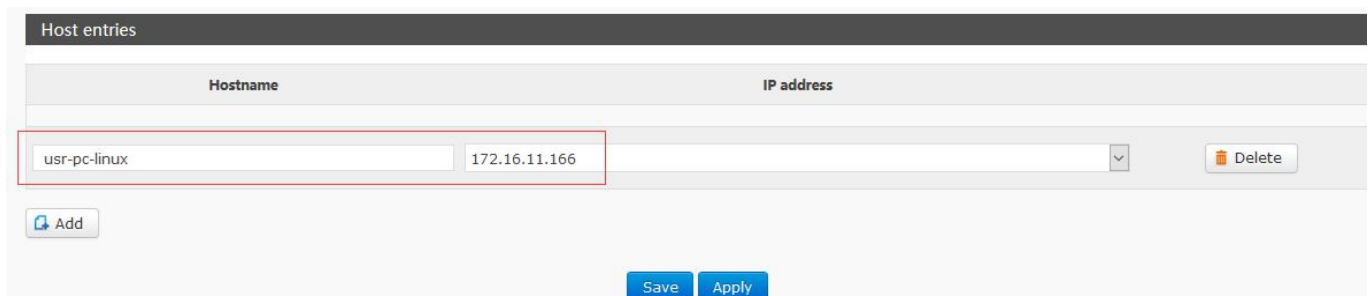
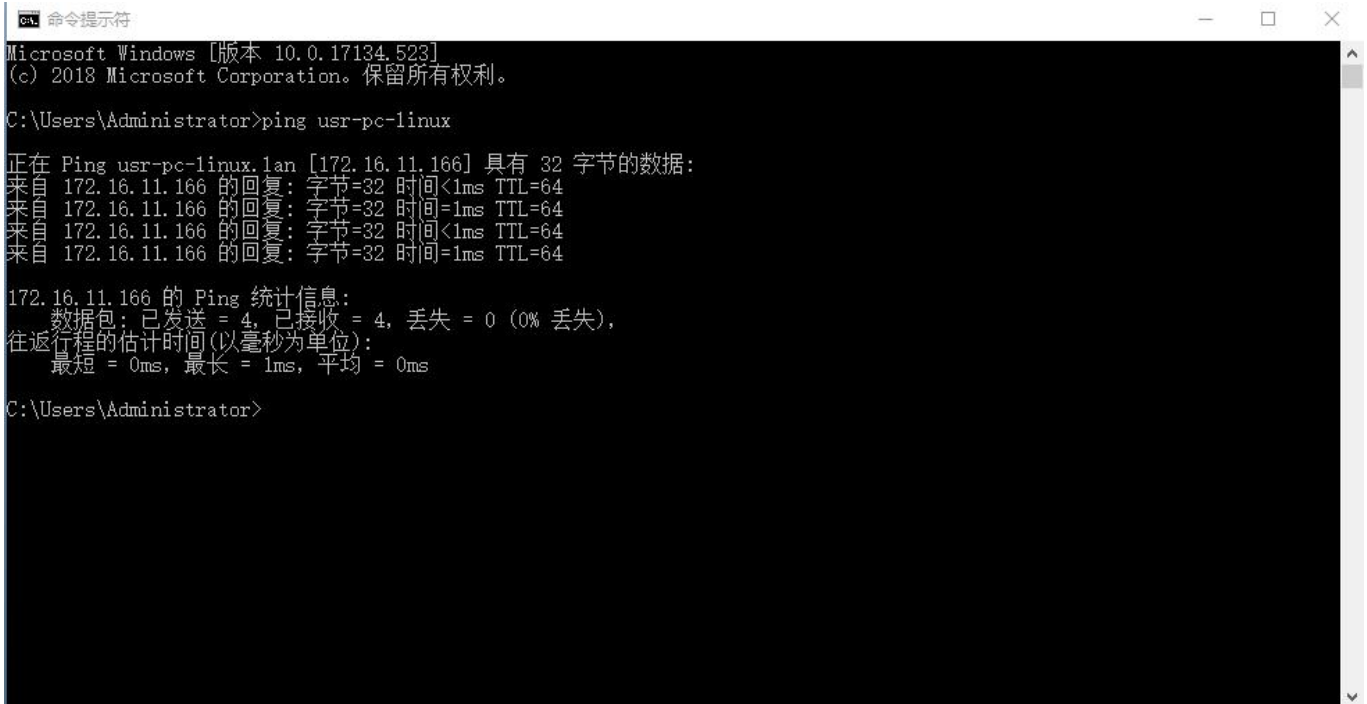


Figure7 host name page

Users can ping this host name.



```
命令提示符
Microsoft Windows [版本 10.0.17134.523]
(c) 2018 Microsoft Corporation。保留所有权利。

C:\Users\Administrator>ping usr-pc-linux

正在 Ping usr-pc-linux.lan [172.16.11.166] 具有 32 字节的数据:
来自 172.16.11.166 的回复: 字节=32 时间<1ms TTL=64
来自 172.16.11.166 的回复: 字节=32 时间=1ms TTL=64
来自 172.16.11.166 的回复: 字节=32 时间<1ms TTL=64
来自 172.16.11.166 的回复: 字节=32 时间=1ms TTL=64

172.16.11.166 的 Ping 统计信息:
    数据包: 已发送 = 4, 已接收 = 4, 丢失 = 0 (0% 丢失),
往返行程的估计时间(以毫秒为单位):
    最短 = 0ms, 最长 = 1ms, 平均 = 0ms

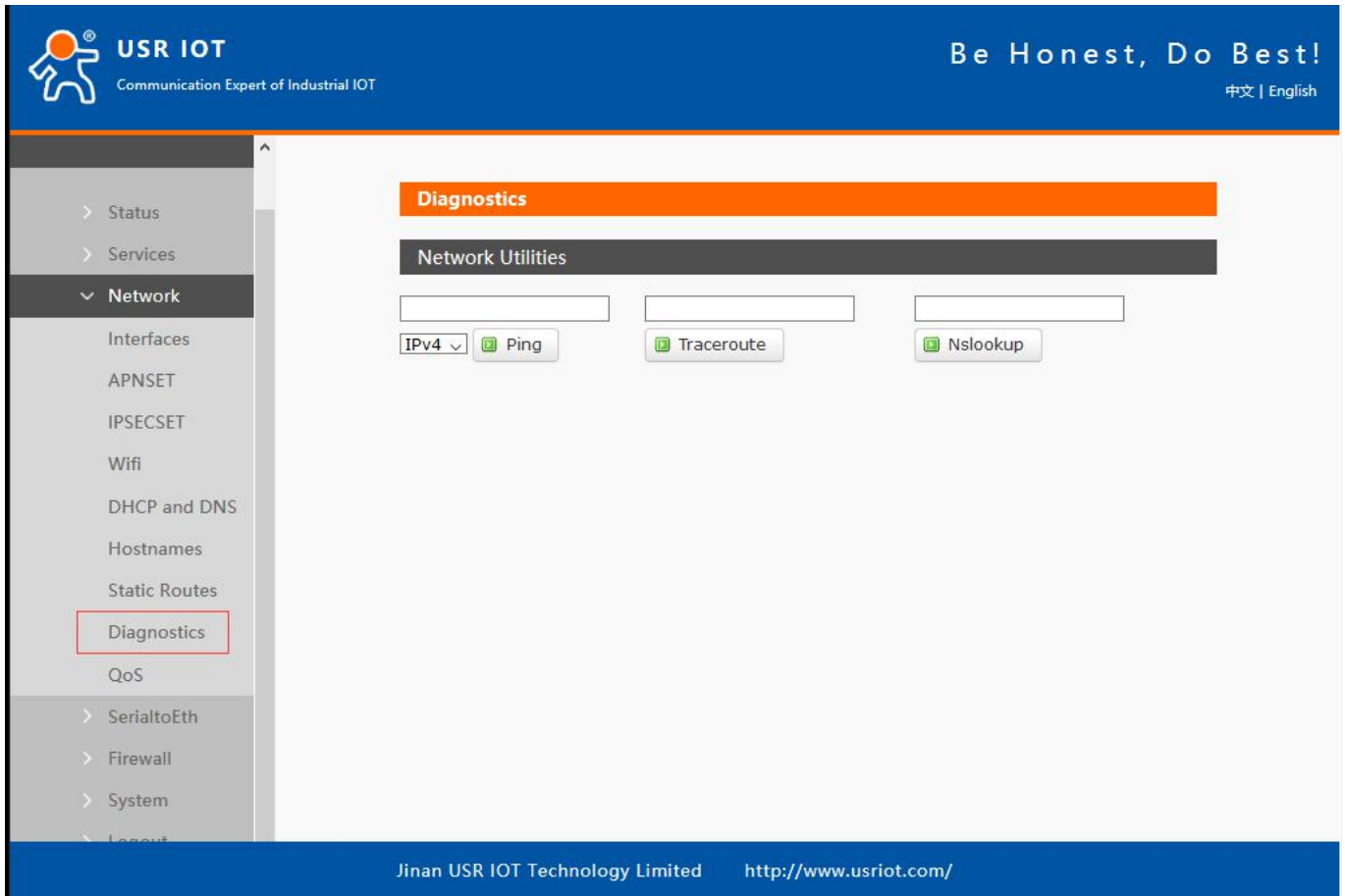
C:\Users\Administrator>
```

Figure8 hostname PING function

Note:

1. this function will effect after reboot
2. no hostname by default

### 3.2.2 Diagnostics



**Figure9 diagnostics**

Router online diagnostic functions: including Ping tools, routing parsing tools, DNS viewing tools. The Ping tool can test a specific address directly on the router side. Route parsing tool, you can get access to an address, the path through. DNS View Tool, which can resolve domain names to IP addresses.

### 3.2.3 System

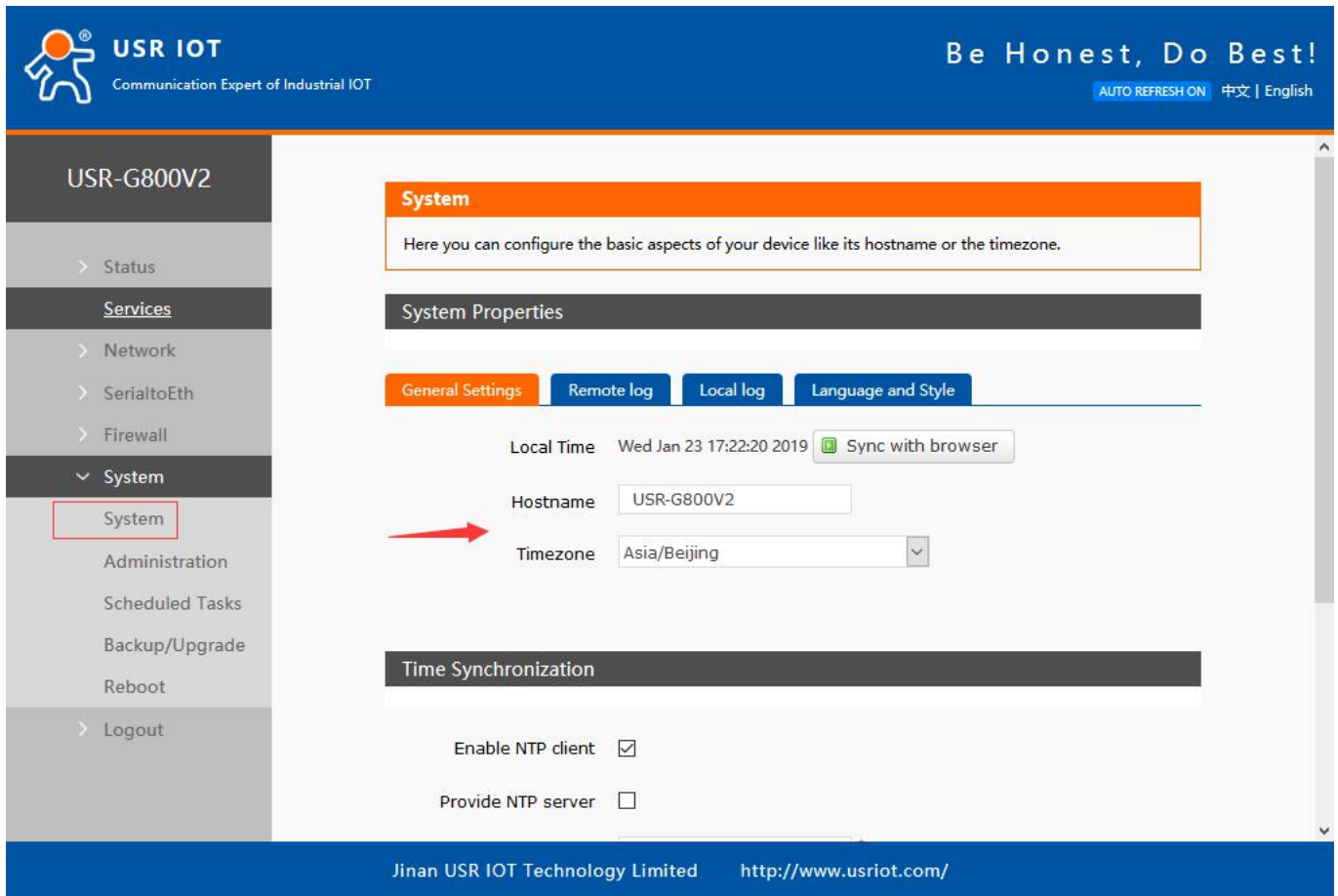
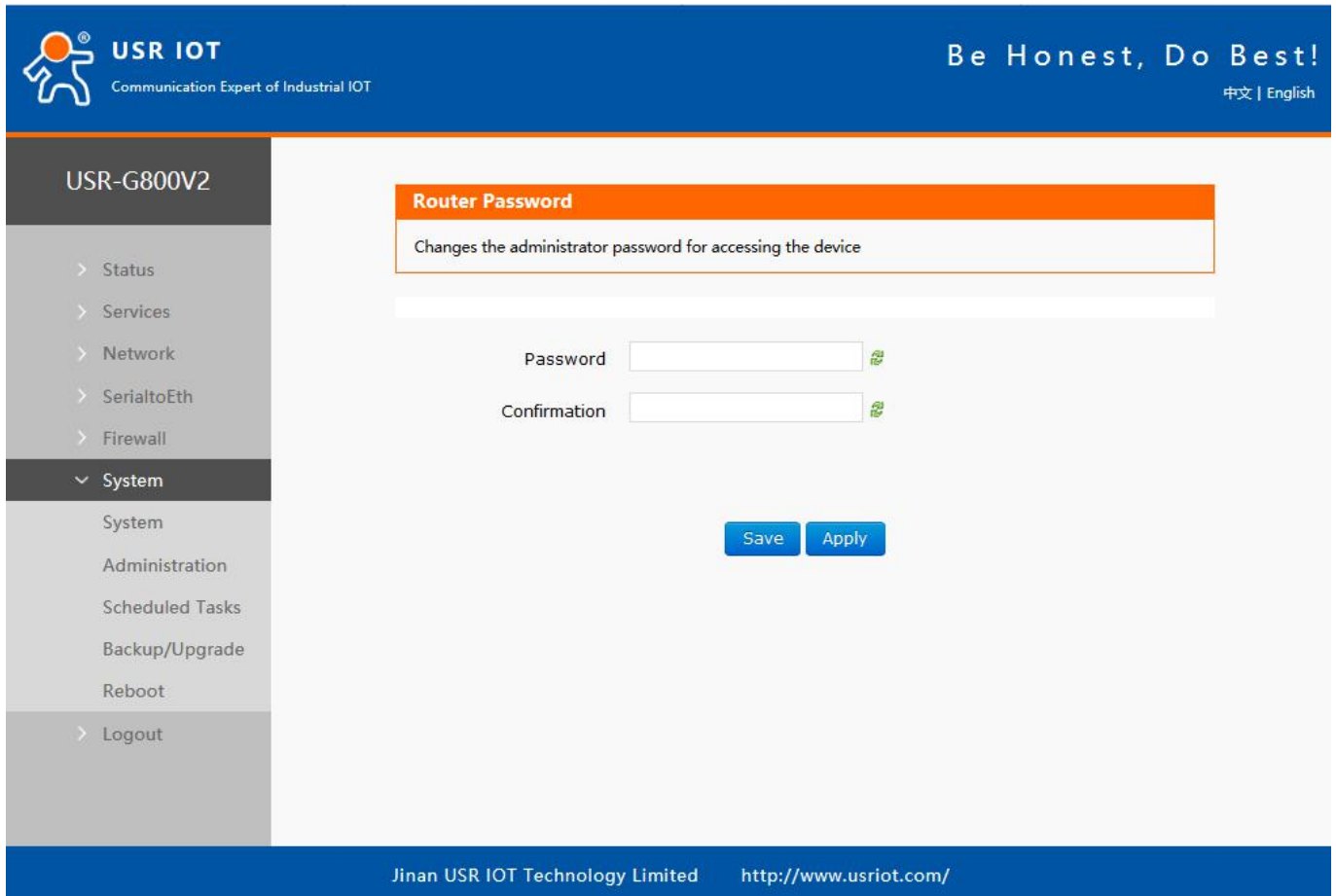


Figure10 hostname and timezone

### 3.2.4 User Name and Password



The screenshot shows the 'Router Password' configuration page in the USR IOT web interface. The page header includes the USR IOT logo and the slogan 'Be Honest, Do Best!'. The left sidebar shows the navigation menu with 'System' expanded. The main content area has a title 'Router Password' and a description: 'Changes the administrator password for accessing the device'. There are two input fields labeled 'Password' and 'Confirmation', each with a strength indicator icon. Below the fields are 'Save' and 'Apply' buttons. The footer shows 'Jinan USR IOT Technology Limited' and the website URL 'http://www.usriot.com/'.

Figure11 password

Note:

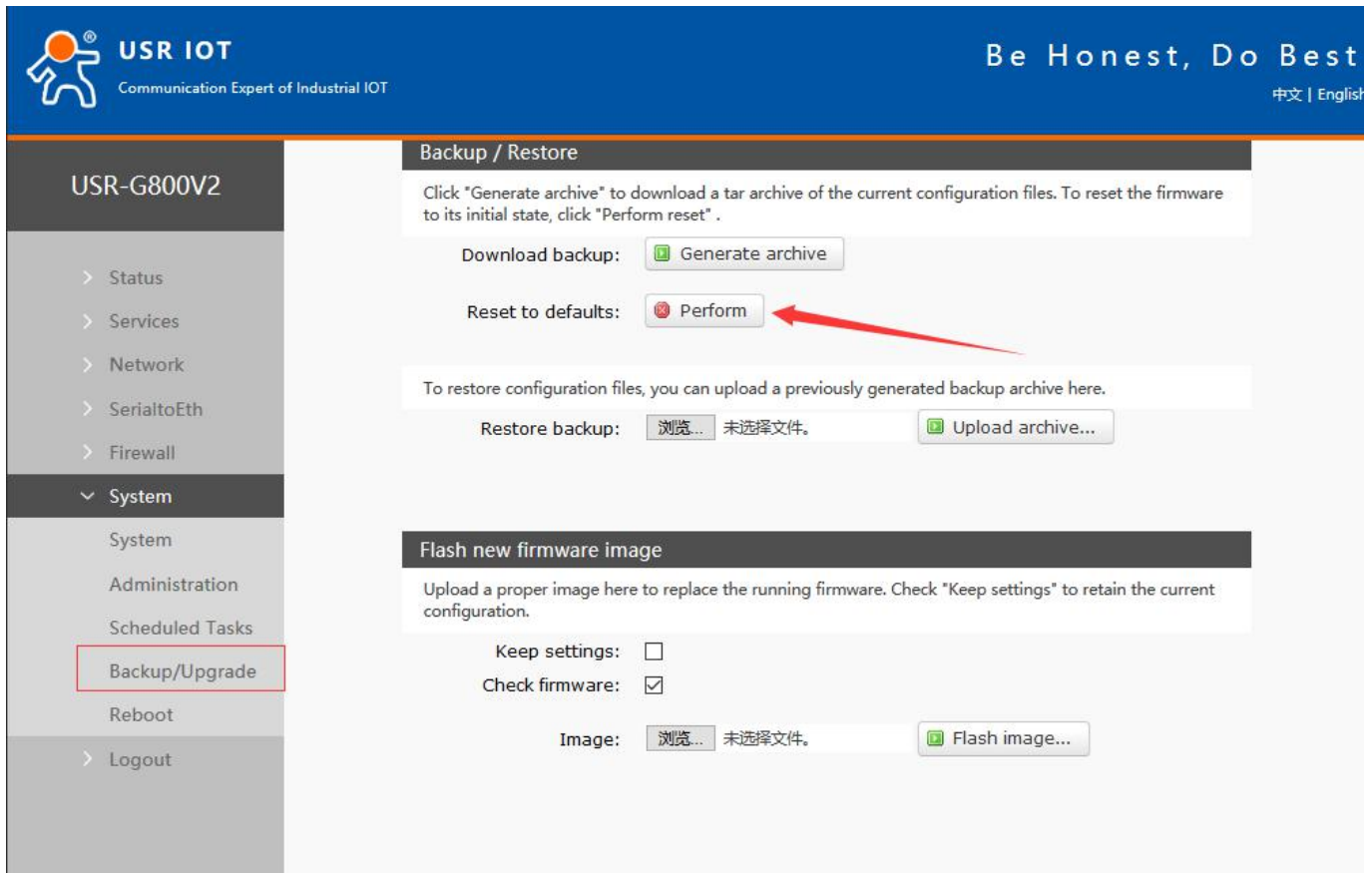
Password can be set, default password is root, user name can't be set. This password is mainly used for web server login password

### 3.2.5 Restore to Factory Settings

The G800V2 router can be restored to the factory parameters through the Reload button (restore factory Settings button).

- Long press 5s above and then release, the router will restore the factory parameter setting and restart by itself
- At the effective moment of restart, SIM card signal light and standard light, 4 lans and WAN ports will be on for 1 second and then off

Or restore to factory settings by webpage:



**Figure12 restore to factory setting**

### 3.2.6 Status Light

Name	Intro
Power	on
Work	Blink every 1S
WAN	WAN port network cable lights up when it is inserted and flashes when it is used for data communication
LAN1-4	LAN port network cable lights up when it is inserted and flashes when it is used for data communication
WLAN	When the WIFI network starts successfully, it will be on. If STA is connected or data is sent or received, it will be bright
2G	When work at 2G, it will on
3G	When work at 3G, it will on
Signal strength 1-4	The more lights the 4G signal intensity indicator lights on, the stronger the signal will be.

Note:

- When the wires are inserted and the network devices at the opposite end are working, the corresponding WAN/LAN indicator will flash; it does not mean that only the wires are plugged in will light up.
- The power lamp will always be on
- When LTE module works at 4G, 2G and 3G indicator lights are on.

### 3.2.7 FW Upgrade

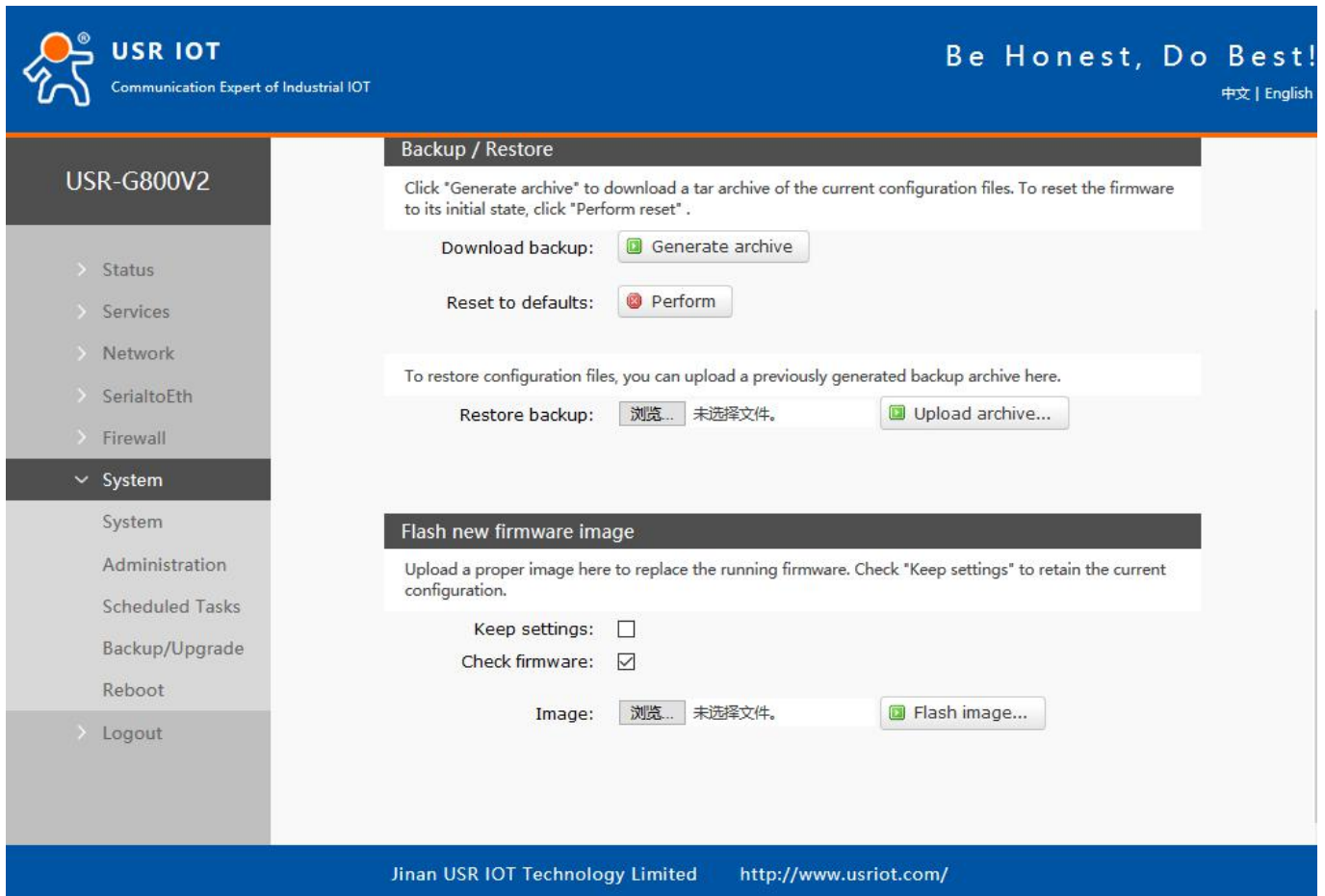


Figure13 FW upgrade

Note:

DO NOT POWER OFF WHEN UPGRADING



### 3.2.8 Reboot

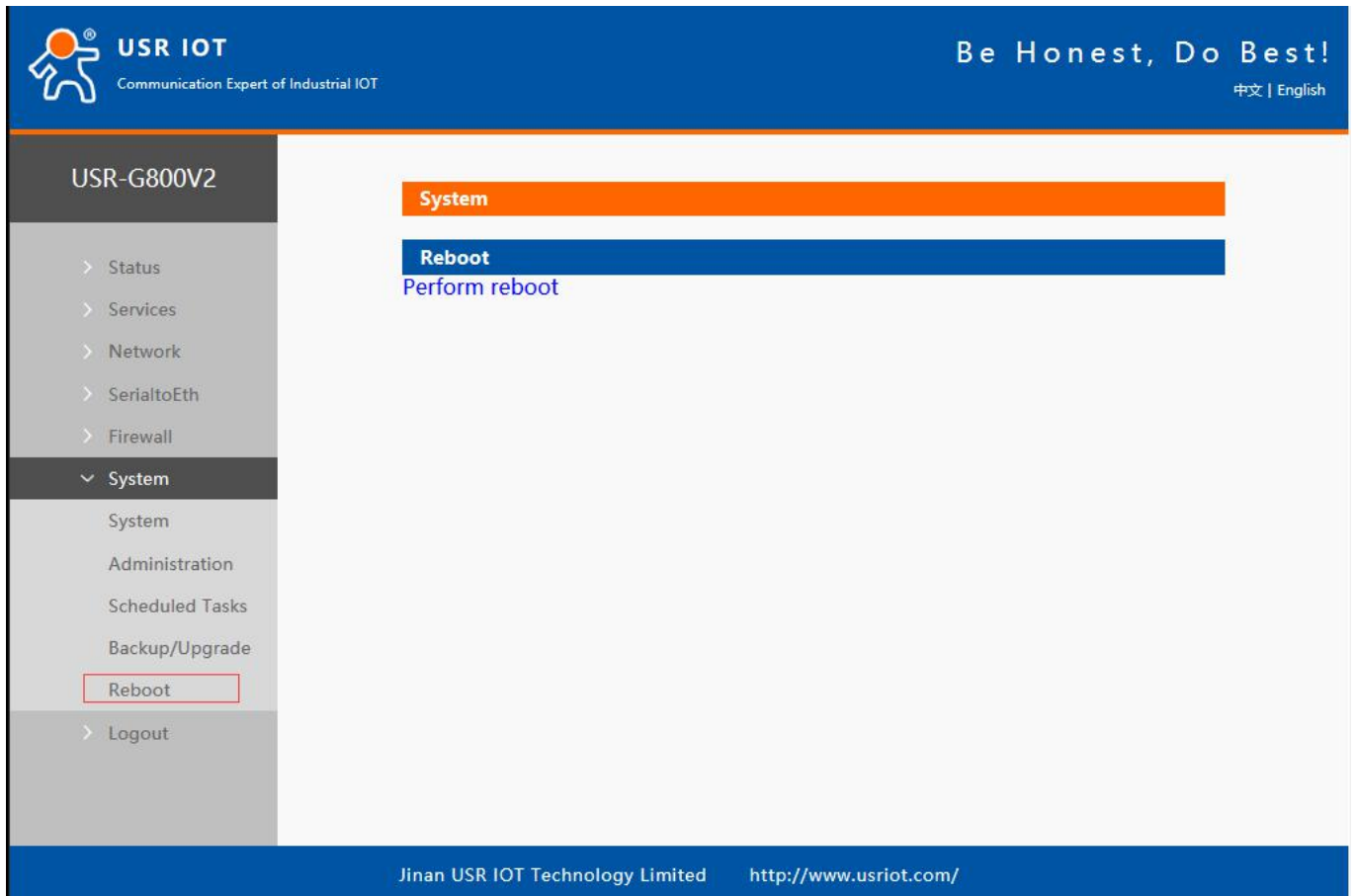
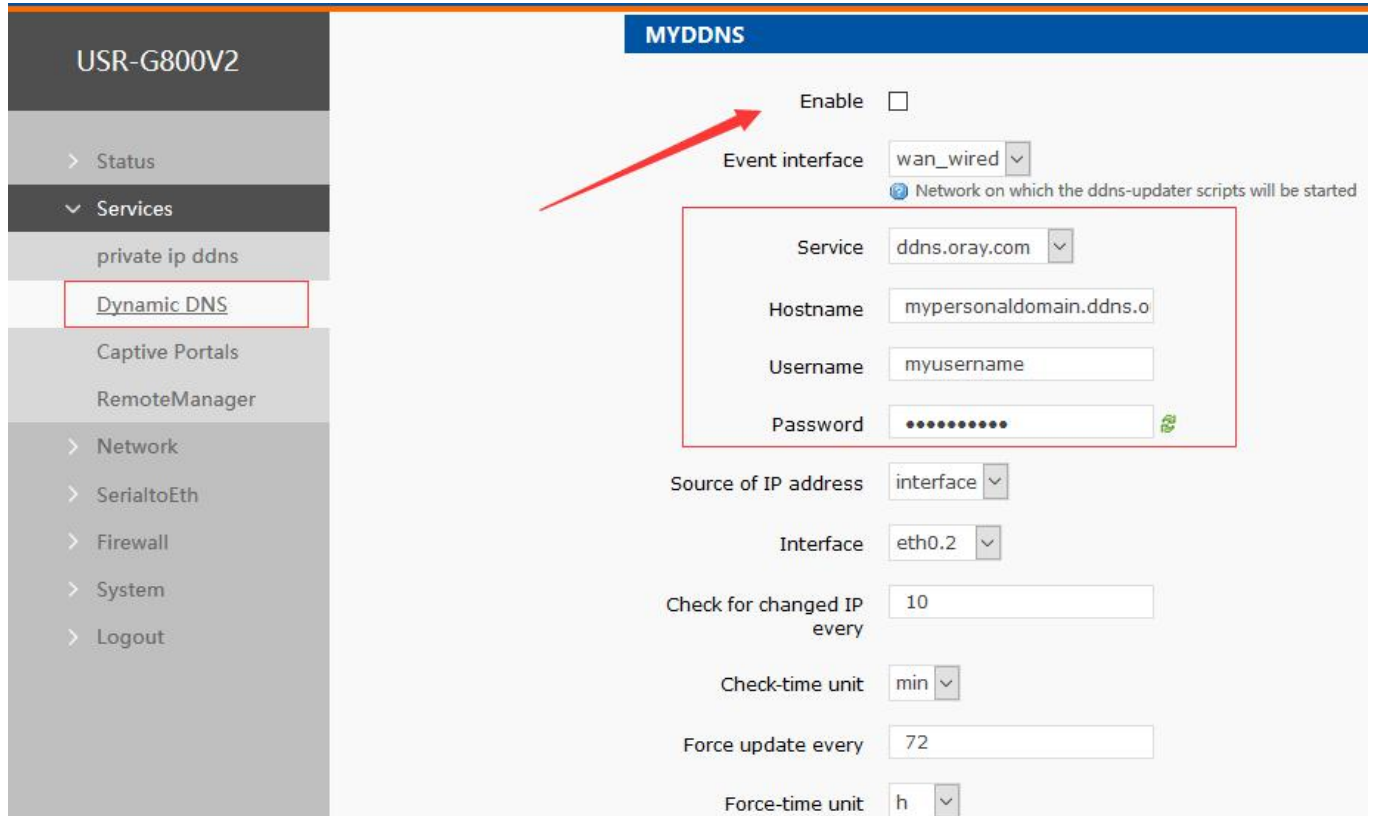


Figure14 reboot

## 3.3 Advanced Function

### 3.3.1 DDNS



**USR-G800V2**

MYDDNS

Enable

Event interface  Network on which the ddns-updater scripts will be started

Service

Hostname

Username

Password

Source of IP address

Interface

Check for changed IP every

Check-time unit

Force update every

Force-time unit

Figure15 DDNS

Note:

- Disable this function by default;
- Reboot make sure the parameters effect;
- This function cannot be used if the router is on a network that is not assigned to a separate public network IP;
- You can add more than one DDNS domain name for this router.

### 3.3.2 WIFI-dog

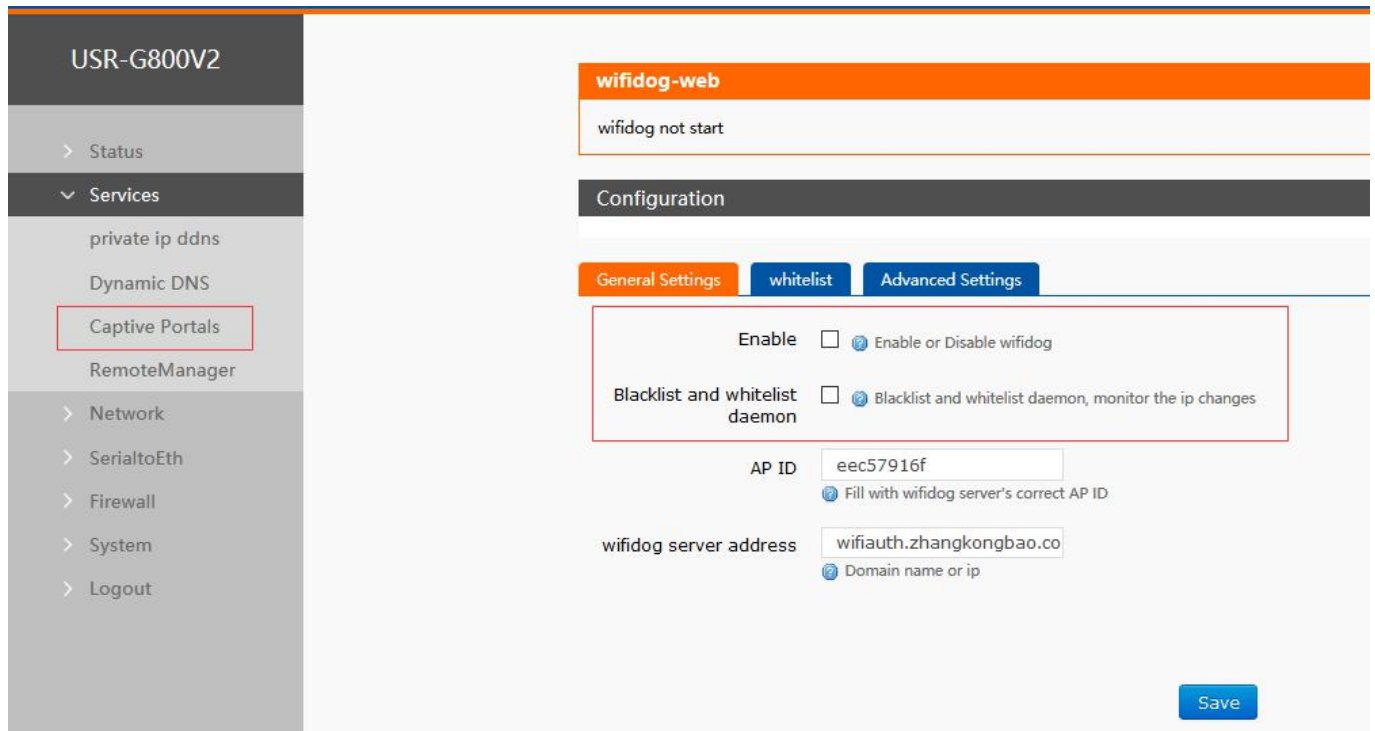
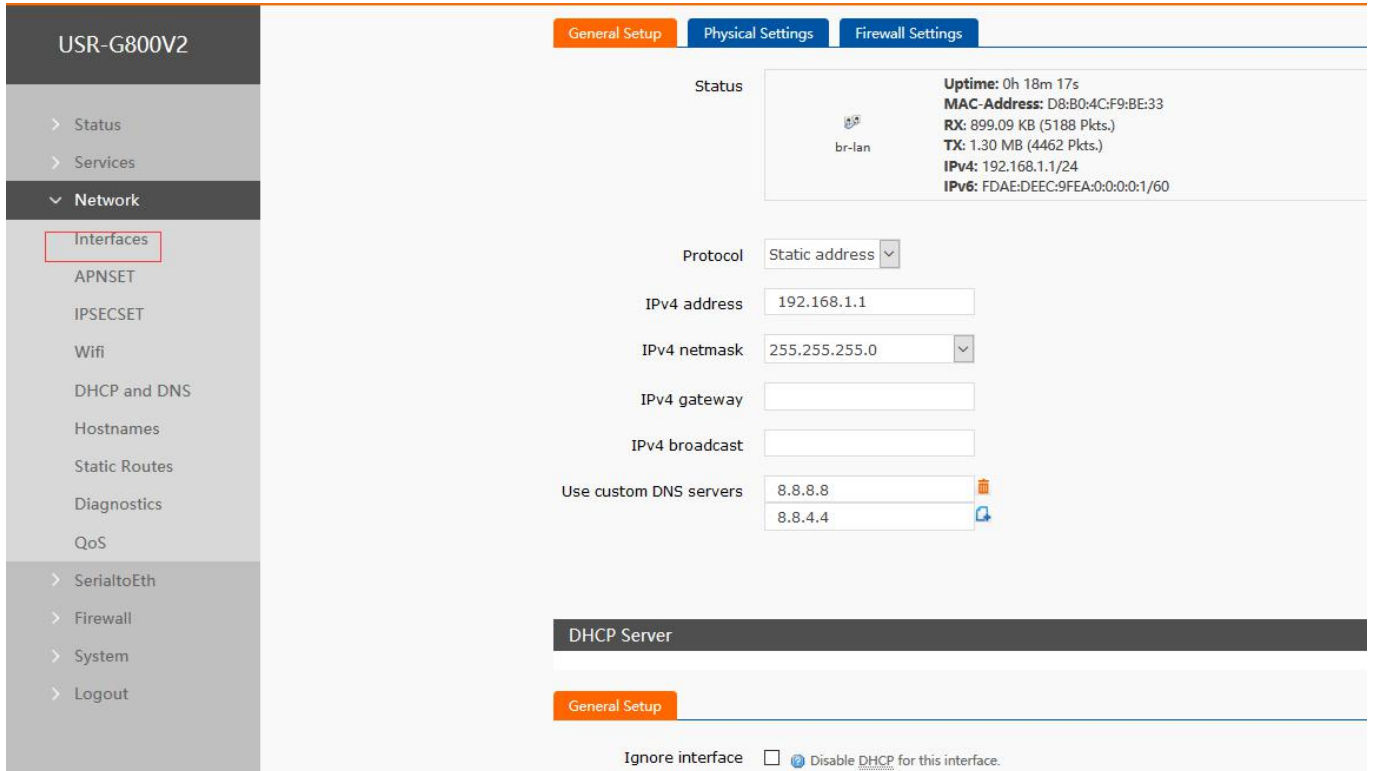


Figure16 WIFI-dog

Function	Parameter	Note
Enable		Disable by default
Daemon		Disable by default
AP ID	eec57916f	
Wifidog server address	wifiauth.zhangkongbao.com (e.g.)	
LAN interface	br-lan	
WAN interface	eth0.2	If u want use 4G, pls fill in eth1
Path of server	/apps/WIFIguanjia/	

### 3.3.3 LAN

#### 3.3.3.1 DHCP Function



The screenshot displays the web management interface for a USR-G800V2 device. The left sidebar shows a navigation menu with 'Network' expanded and 'Interfaces' selected. The main content area is divided into three tabs: 'General Setup' (active), 'Physical Settings', and 'Firewall Settings'. Under 'General Setup', the 'Status' section for the 'br-lan' interface shows the following information:

- Uptime: 0h 18m 17s
- MAC-Address: D8:80:4C:F9:BE:33
- RX: 899.09 KB (5188 Pkts.)
- TX: 1.30 MB (4462 Pkts.)
- IPv4: 192.168.1.1/24
- IPv6: FDAE:DEEC:9FEA:0:0:0:1/60

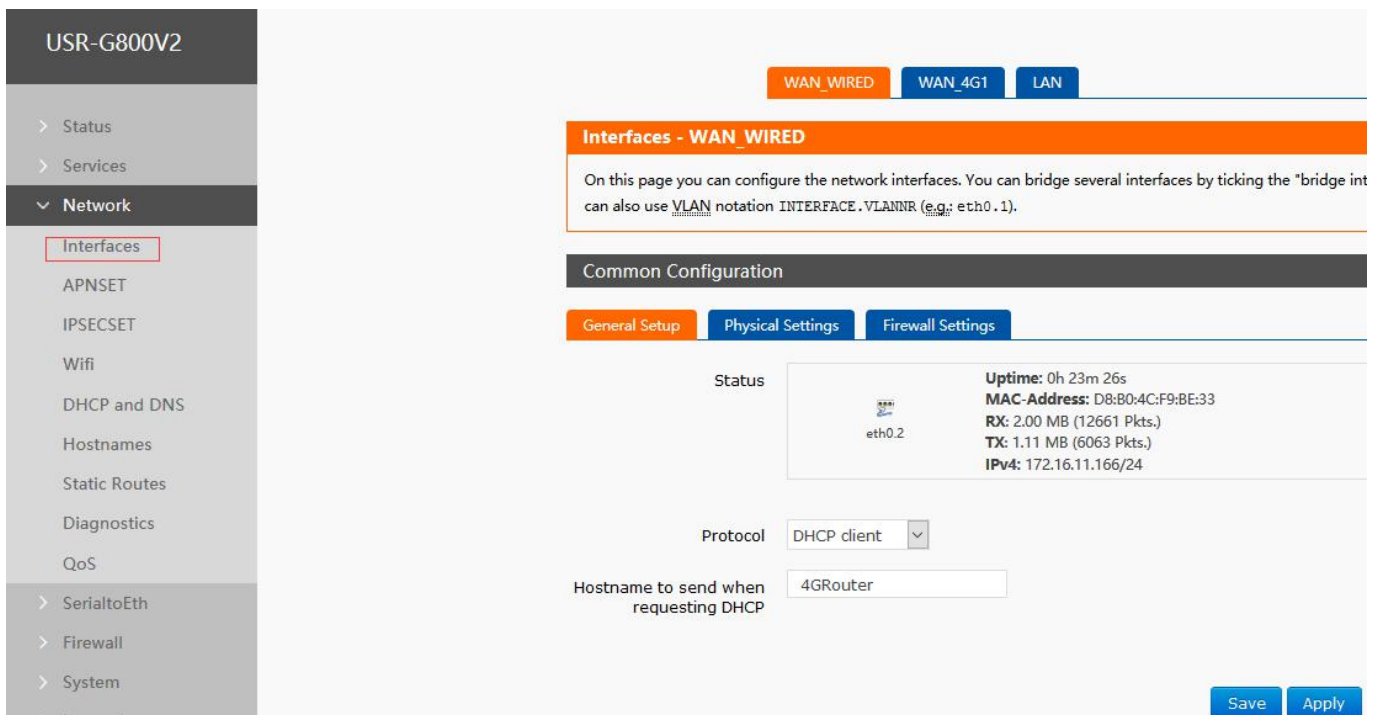
Below the status, the 'Protocol' is set to 'Static address'. The 'IPv4 address' is 192.168.1.1, and the 'IPv4 netmask' is 255.255.255.0. The 'IPv4 gateway' and 'IPv4 broadcast' fields are empty. The 'Use custom DNS servers' section shows two entries: 8.8.8.8 and 8.8.4.4. At the bottom, there is a 'DHCP Server' section with a 'General Setup' tab and a checkbox for 'Ignore interface' (unchecked) and a checkbox for 'Disable DHCP for this interface.' (checked).

Figure17 DHCP

Note:

- DHCP range 192.168.1.100~192.168.1.250
- Leasetime 12h by default
- The start and limit can be customize

### 3.3.4 WAN



The screenshot shows the web interface for a USR-G800V2 router. On the left is a navigation menu with 'Network' expanded to 'Interfaces'. The main content area is titled 'Interfaces - WAN\_WIRED' and includes a 'Common Configuration' section with tabs for 'General Setup', 'Physical Settings', and 'Firewall Settings'. The 'General Setup' tab is active, showing the configuration for the 'eth0.2' interface. The status section displays: Uptime: 0h 23m 26s, MAC-Address: D8:B0:4C:F9:BE:33, RX: 2.00 MB (12661 Pkts.), TX: 1.11 MB (6063 Pkts.), and IPv4: 172.16.11.166/24. The protocol is set to 'DHCP client' and the hostname to send when requesting DHCP is '4GRouter'. 'Save' and 'Apply' buttons are at the bottom right.

Figure18 WAN

Note:

- DHCP Client mode by default
- Support DHCP Client, static IP, PPPOE mode

### 3.3.5 WIFI

- The G800V2 router is an AP, and other wireless terminals can access its WLAN network.
- Supports up to 24 wireless STA connections.
- WLAN and LAN port exchange
- The maximum coverage of WIFI is 150m in the open area
- The RFswitch is on by default.

**USR-G800V2**

---

Status

> Services

> **Network**

Interfaces

APNSET

IPSECSET

**Wifi**

DHCP and DNS

Hostnames

Static Routes

Diagnostics

QoS

---

> SerialtoEth

> Firewall

> System

> Logout

General Setup
Advanced Settings

Status

0% **Mode:** Master | **SSID:** USR-G800V2-BE33  
**BSSID:** D8:B0:4C:F9:BE:32 | **Encryption:** -  
**Channel:** 10 (2.457 GHz) | **Tx-Power:** 0 dBm  
**Signal:** 0 dBm | **Noise:** 0 dBm  
**Bitrate:** 300.0 Mbit/s | **Country:** 00

Radio on/off  on

Network Mode 802.11b/g/n

Channel auto

Band Width 40MHz

Interface Configuration

General Setup
Wireless Security

**ESSID** USR-G800V2-BE33

**Mode** Access Point

**Network**  lan: \*\*\*

wan\_4g1: \*\*\*

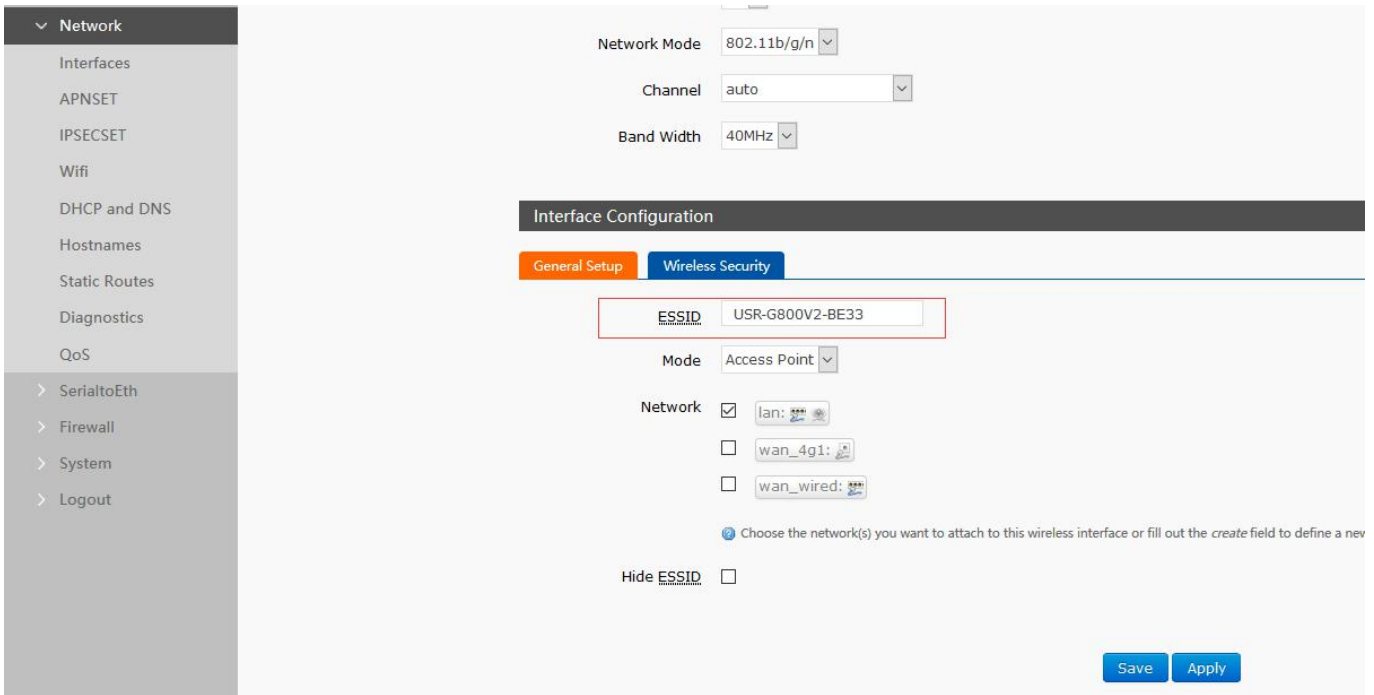
wan\_wired: \*\*\*

Choose the network(s) you want to attach to this wireless interface or fill out the create field to define a new network.

Hide **ESSID**

**Figure19 WIFI**

Name	Parameter
SSID name	USR-G800V2-XXXX (xxxx means the last 4 bits of MAC address)
Wifi password	www.usr.cn
channel	Auto
Band width	40MHz
Encryption	WPA2-PSK



Network Mode: 802.11b/g/n  
Channel: auto  
Band Width: 40MHz

**Interface Configuration**

General Setup | **Wireless Security**

ESSID: USR-G800V2-BE33  
Mode: Access Point

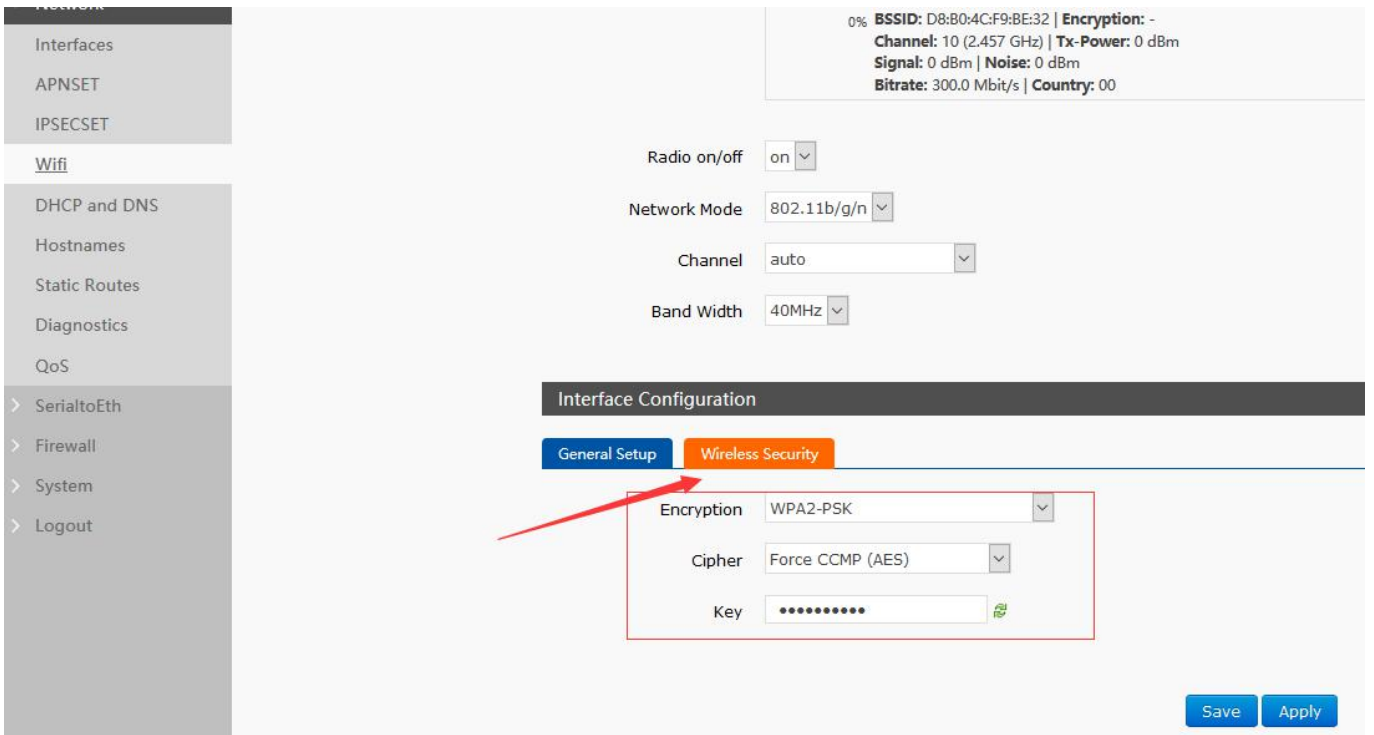
Network:  lan:  wan\_4g1:  wan\_wired:

Choose the network(s) you want to attach to this wireless interface or fill out the create field to define a new network.

Hide ESSID:

Save Apply

Figure20 change SSID



0% BSSID: D8:B0:4C:F9:BE:32 | Encryption: -  
Channel: 10 (2.457 GHz) | Tx-Power: 0 dBm  
Signal: 0 dBm | Noise: 0 dBm  
Bitrate: 300.0 Mbit/s | Country: 00

Radio on/off: on  
Network Mode: 802.11b/g/n  
Channel: auto  
Band Width: 40MHz

**Interface Configuration**

General Setup | **Wireless Security**

Encryption: WPA2-PSK  
Cipher: Force CCMP (AES)  
Key: ••••••••

Save Apply

Figure21 wireless security

Modify whether to turn on the wireless function (turn off the radio frequency, as shown below, effective immediately).

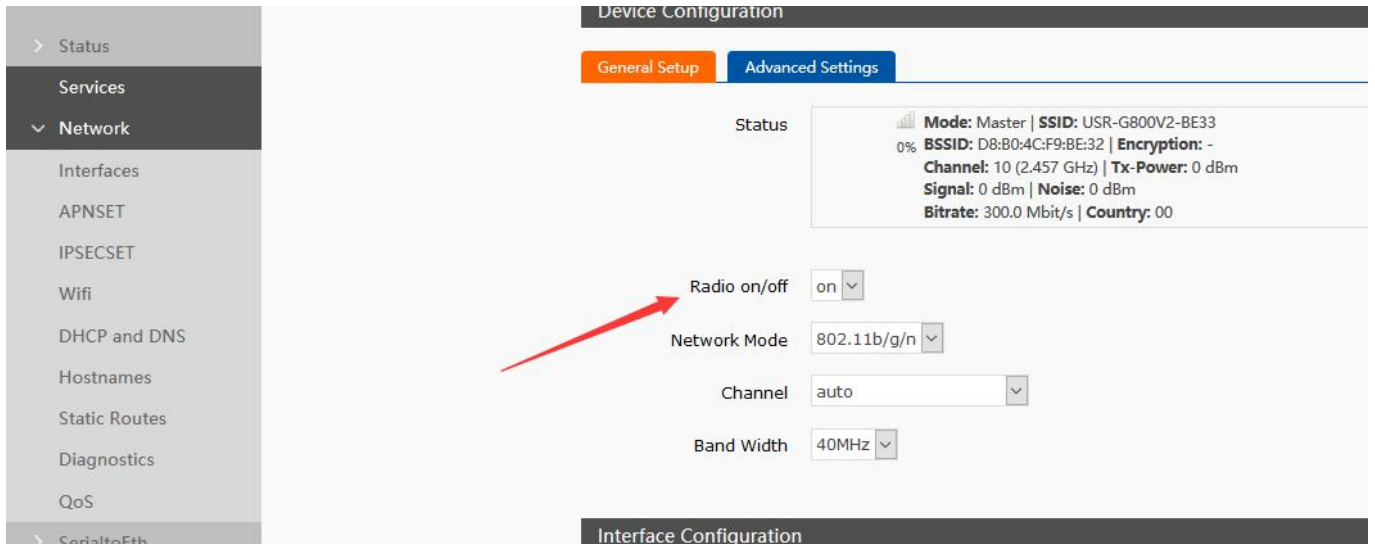


Figure22 radio on/off

### 3.3.6 4G Interface

#### 3.3.6.1 APN

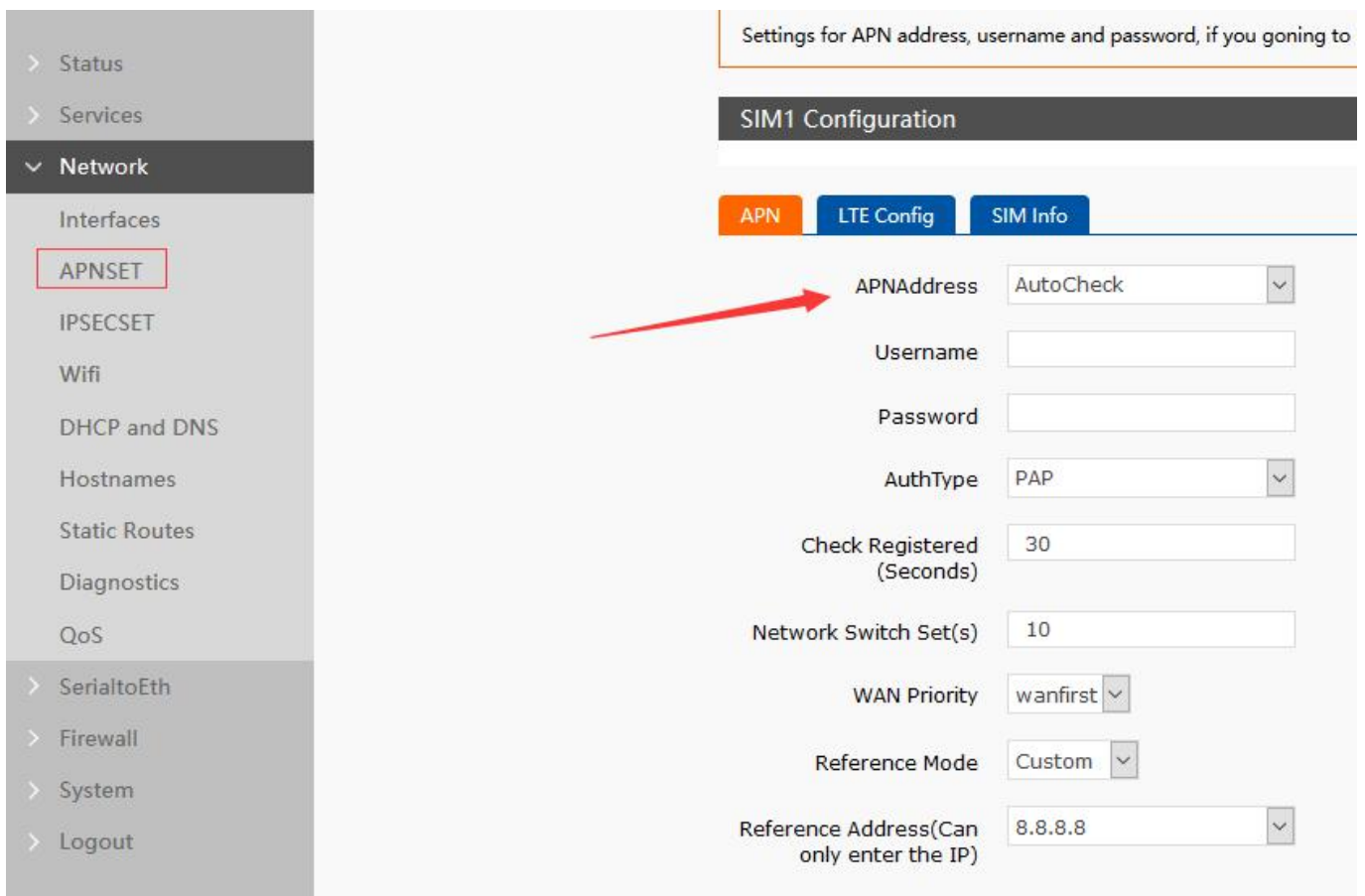
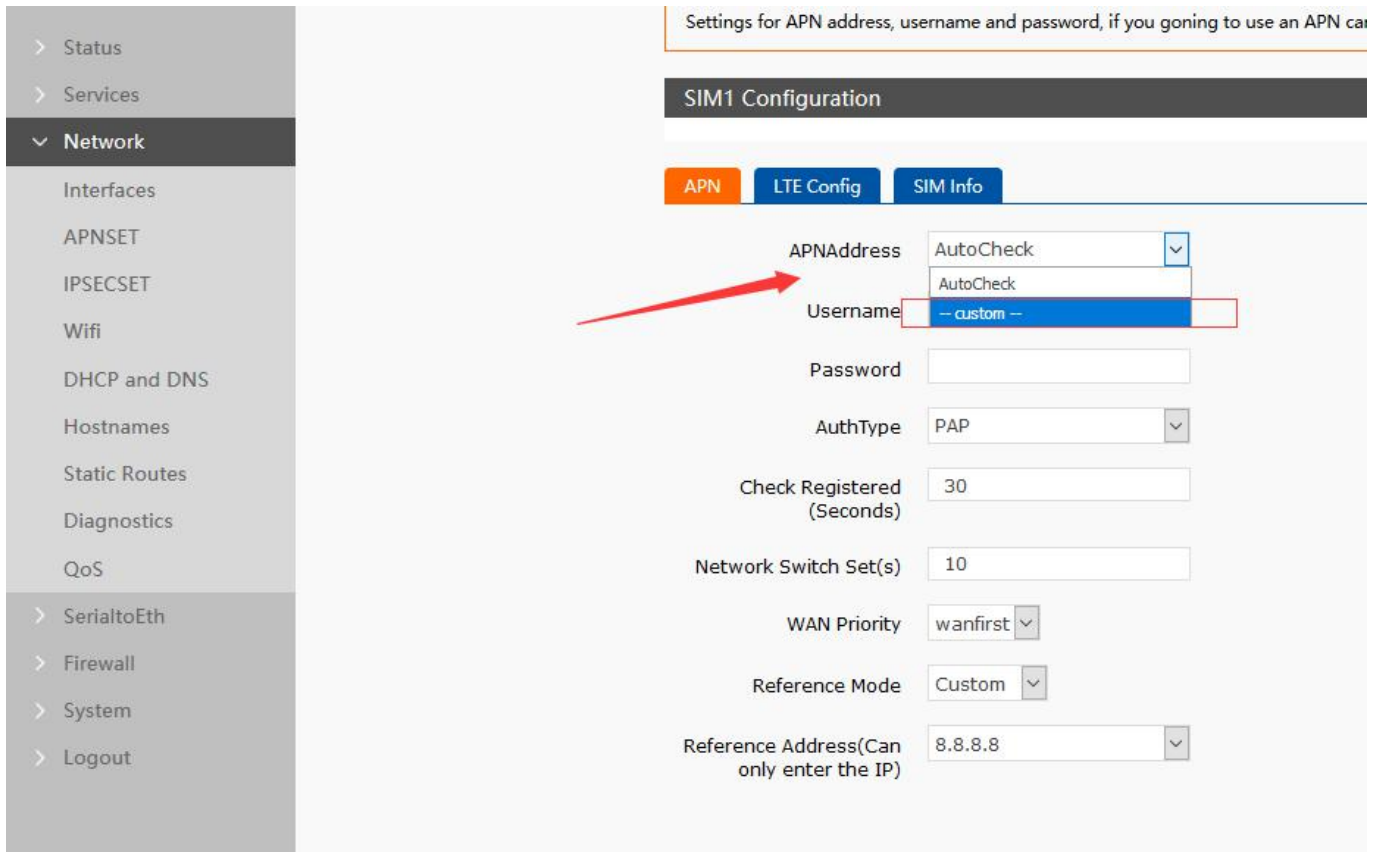


Figure23 APN

**Ask operator for SIM card APN information and fill in.**





**Figure24 APN setup page**

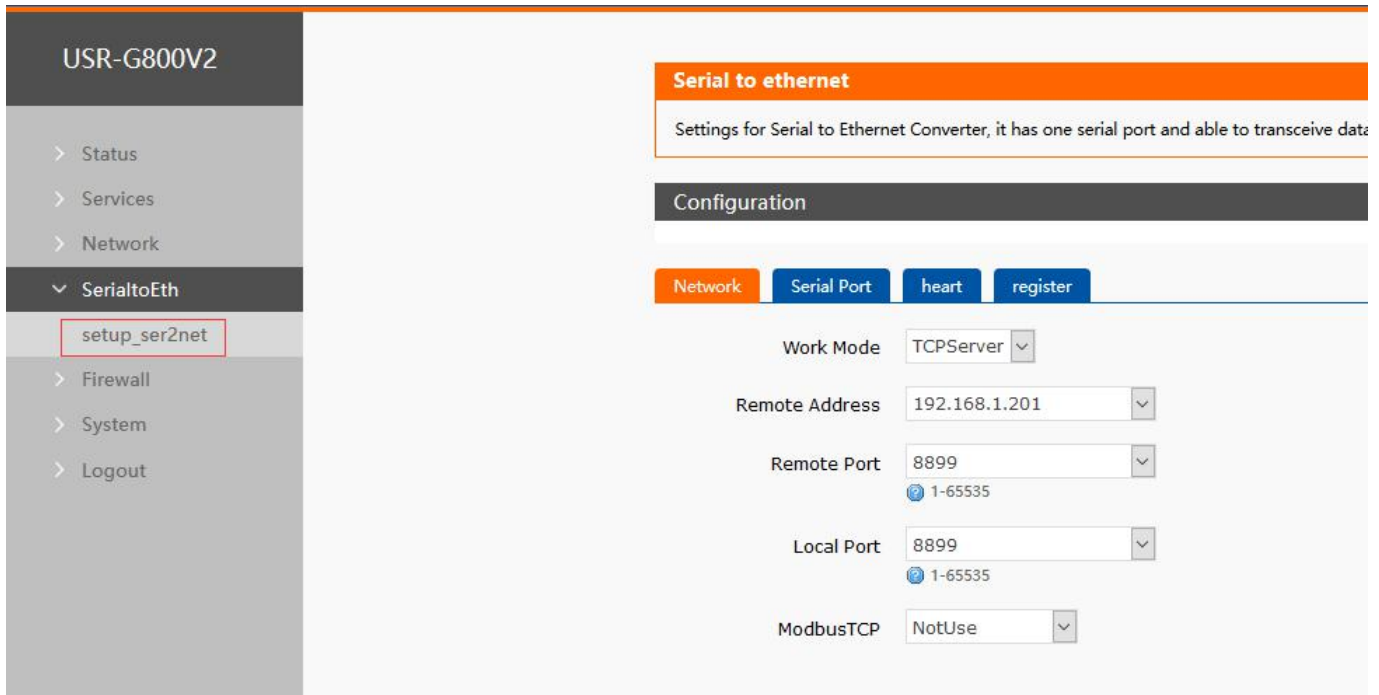
LTE configuration is as follows:

When the default is set to automatic, the priority is 4G>3G>2G. You can also manually force the switch between standard and priority.



**Figure24 LTE configuration**

### 3.3.7 Serial Port to Ethernet



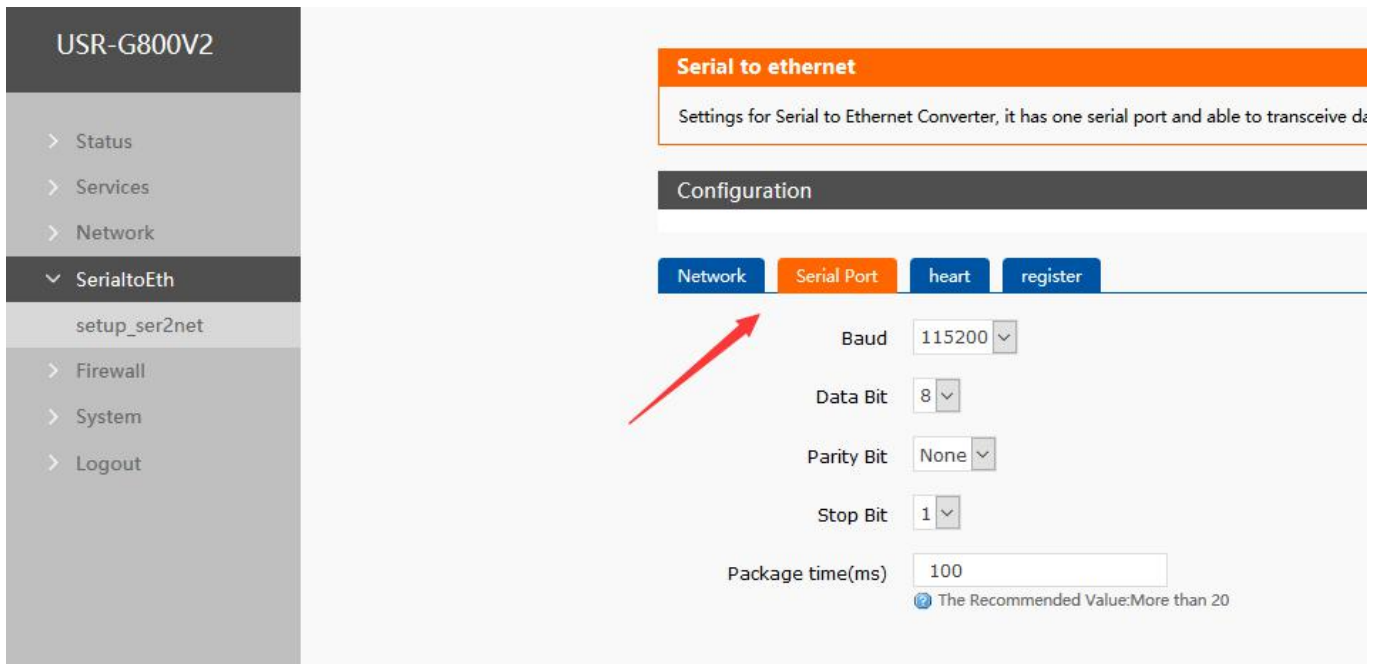
The screenshot displays the web interface for the USR-G800V2 device. On the left, a navigation sidebar is visible with the following items: Status, Services, Network, SerialtoEth (expanded), setup\_ser2net (highlighted), Firewall, System, and Logout. The main content area is titled 'Serial to ethernet' and contains a description: 'Settings for Serial to Ethernet Converter, it has one serial port and able to transceive data'. Below this is a 'Configuration' section with tabs for Network, Serial Port, heart, and register. The 'Serial Port' tab is active, showing the following settings:

- Work Mode: TCP Server
- Remote Address: 192.168.1.201
- Remote Port: 8899 (range 1-65535)
- Local Port: 8899 (range 1-65535)
- ModbusTCP: NotUse

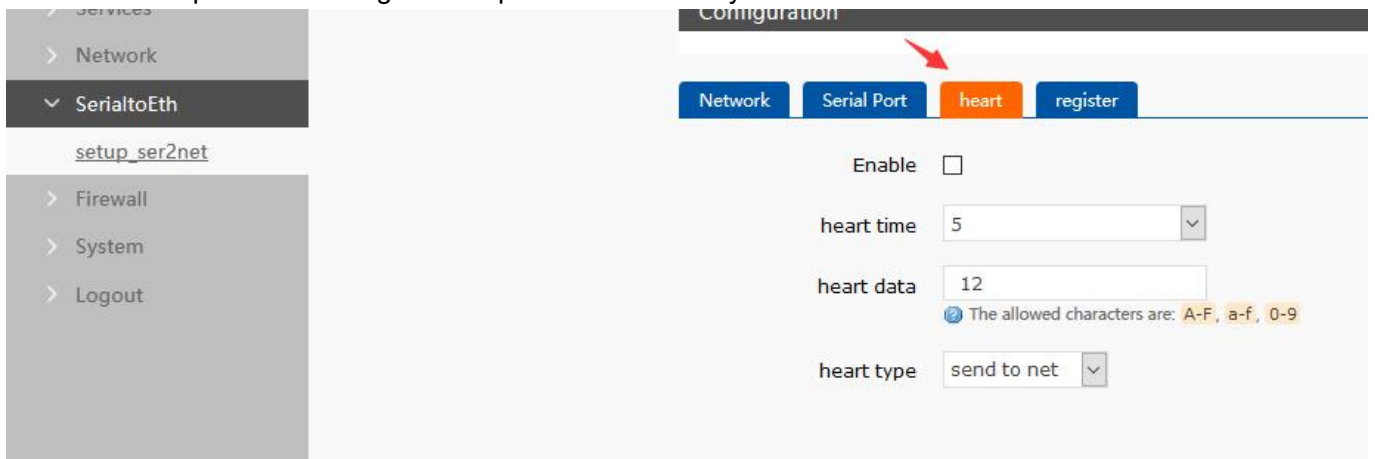
Figure25 serial port to Ethernet

Note:

- Transparent transmission work mode:
  - TCP Server
  - TCP Client
  - UDP Server
  - UDP Client
- Support MODBUS TCP
- Support setup of baudrate, data bit, parity bit, stop bit
- Can't customize baudrate
- RS232, hardware flow control is not supported
- When working with TCP Server, the maximum number of client connections is 128


**Figure25 serial port parameters**

- Package mechanism: packaged time calculated according to the baud rate, packing length of 1460 bytes, it cannot be changed.
- Support domain server and the function of the serial port to send a heartbeat and registration packet
- Heartbeat package: we choose works as TCP Client, the heartbeat time is set to be send every 5 seconds. The data content is hexadecimal data.
- Heartbeat packets and registration packet is disable by default


**Figure26 heartbeat package**

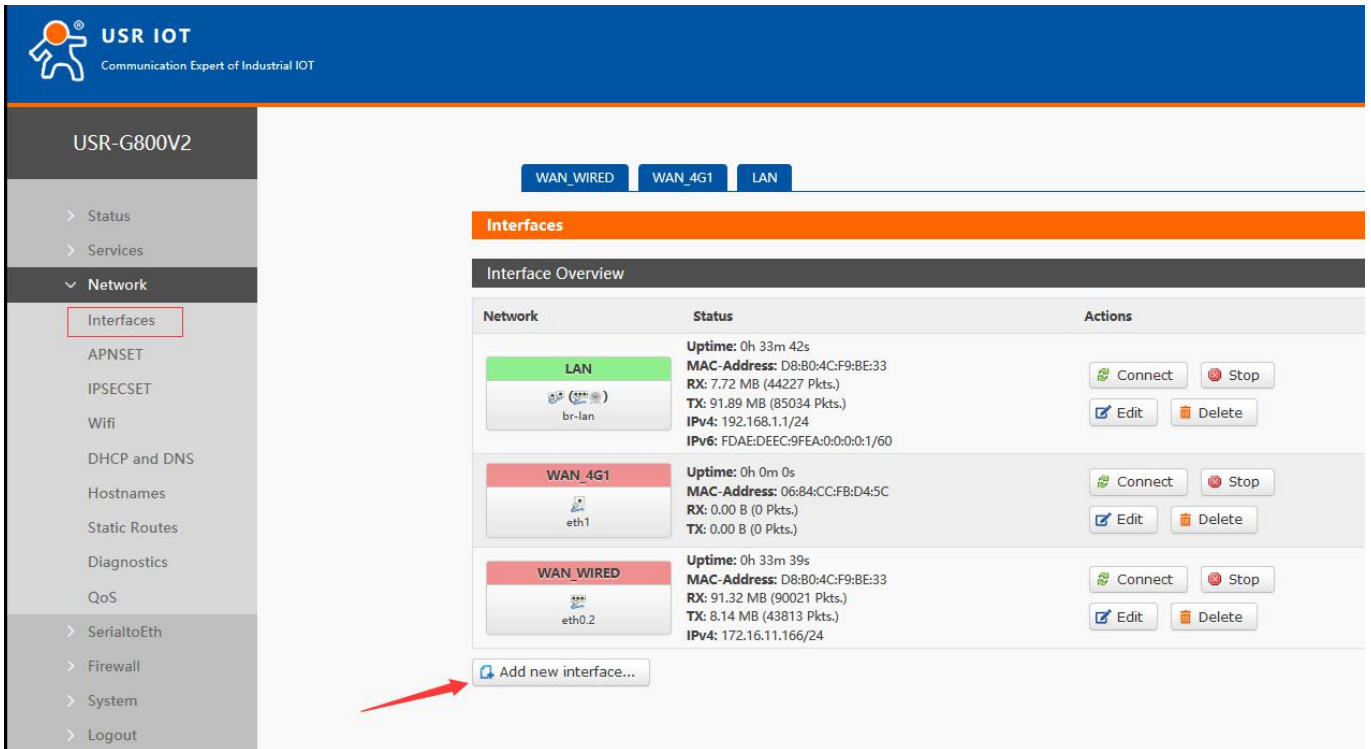
### 3.3.8 VPN Client(PPTP、L2TP、IPSEC、OPENVPN、GRE、SSTP)

#### 3.3.8.1 PPTP

PPTP is a point-to-point tunnel protocol. It uses a TCP (port 1723) connection to maintain the tunnel. It uses the general route encapsulation (GRE) technology to encapsulate the data into PPP data frames and transmit them through the tunnel. It encrypts or compresses the load data in the encapsulated PPP frames. MPPE encrypts PPP frames through encryption keys generated by MS-CHAP, MS-CHAP V2 or EAP-TLS

authentication processes.

Configuring PPTP Client:

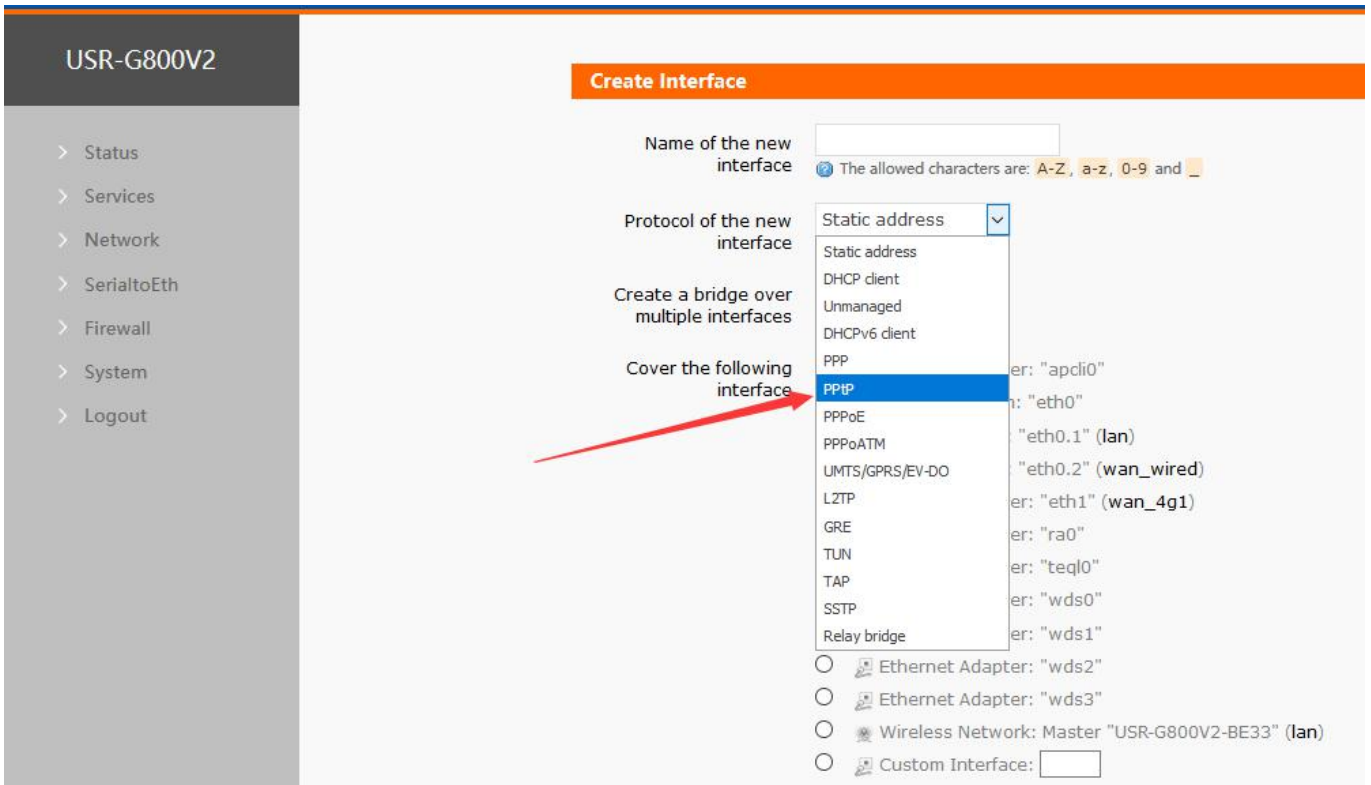


The screenshot shows the USR IOT web interface for a USR-G800V2 device. The left sidebar contains a navigation menu with 'Network' expanded and 'Interfaces' selected. The main content area shows the 'Interfaces' configuration page with tabs for WAN\_WIRED, WAN\_4G1, and LAN. Below the tabs is an 'Interface Overview' table:

Network	Status	Actions
LAN br-lan	Uptime: 0h 33m 42s MAC-Address: D8:B0:4C:F9:BE:33 RX: 7.72 MB (44227 Pkts.) TX: 91.89 MB (85034 Pkts.) IPv4: 192.168.1.1/24 IPv6: FDAE:DEEC:9FEA:0:0:0:1/60	Connect Stop Edit Delete
WAN_4G1 eth1	Uptime: 0h 0m 0s MAC-Address: 06:84:CC:FB:D4:5C RX: 0.00 B (0 Pkts.) TX: 0.00 B (0 Pkts.)	Connect Stop Edit Delete
WAN_WIRED eth0.2	Uptime: 0h 33m 39s MAC-Address: D8:B0:4C:F9:BE:33 RX: 91.32 MB (90021 Pkts.) TX: 8.14 MB (43813 Pkts.) IPv4: 172.16.11.166/24	Connect Stop Edit Delete

At the bottom of the interface overview, there is a button labeled 'Add new interface...' which is pointed to by a red arrow.

Figure27 add interface



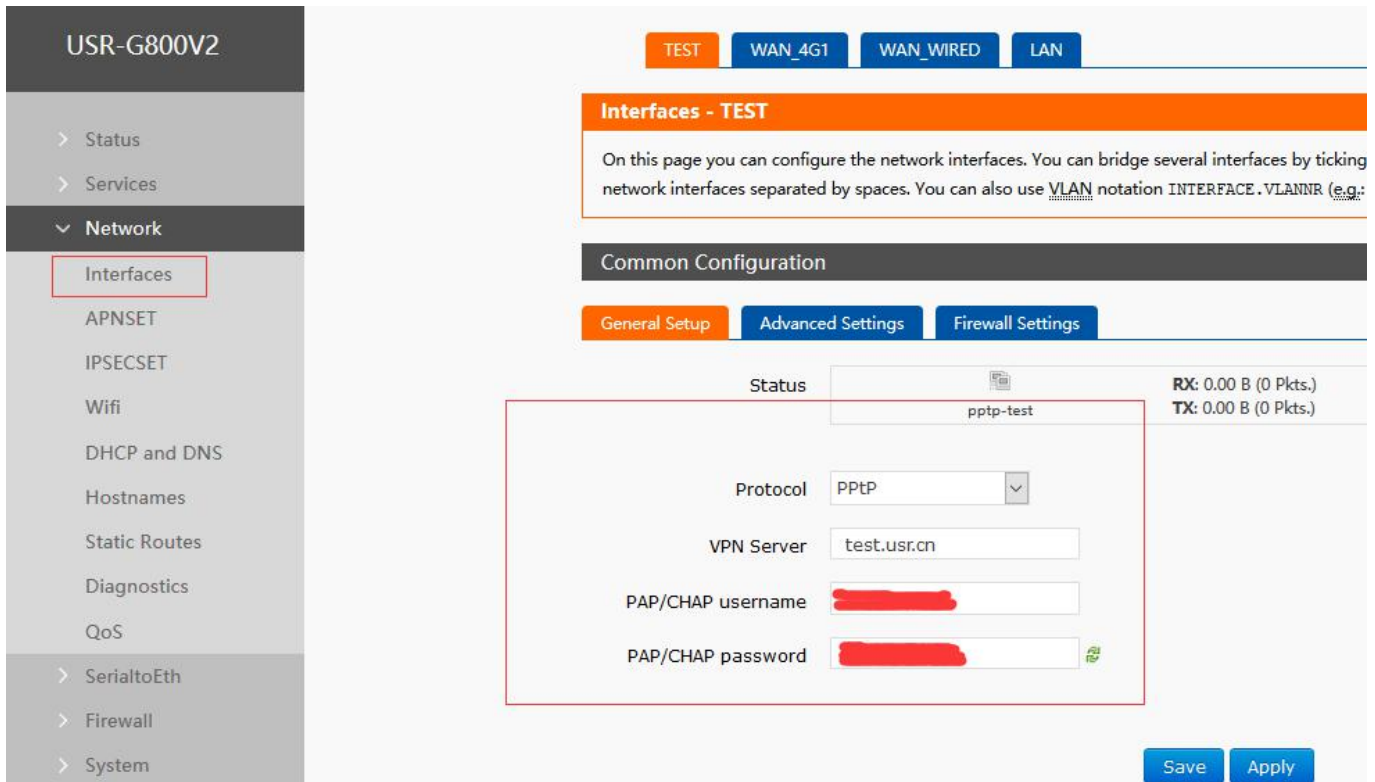
The screenshot shows the 'Create Interface' configuration page in the USR IOT web interface. The page has a form with several fields:

- Name of the new interface:** A text input field.
- Protocol of the new interface:** A dropdown menu with 'Static address' selected. A red arrow points to the 'PPP' option in the dropdown list.
- Create a bridge over multiple interfaces:** A checkbox.
- Cover the following interface:** A dropdown menu with 'eth0' selected.

Below the dropdowns, there are radio button options for interface types:

- Ethernet Adapter: "wds2"
- Ethernet Adapter: "wds3"
- Wireless Network: Master "USR-G800V2-BE33" (lan)
- Custom Interface: [input field]

Figure28 create PPTP



**Figure29 setting page**

**Note:**

1. Server is built to see if only MPPE encryption is supported. Only MSChapV2 encryption can be selected in the client advanced settings.
2. In the firewall area, we choose WAN because we dial at the WAN port and then click to save and apply.
3. When the "VPN" interface in the router page has run time (non-zero), it indicates that the current VPN has been successfully started and can access the VPN network.

**3.3.8.2 L2TP**

G800V2 supports tunnel password authentication, CHAP authentication and other authentication methods. Encryption supports MPPE encryption and L2TP OVER IPSEC pre-shared key encryption.

**USR IOT**  
Communication Expert of Industrial IOT

USR-G800V2

WAN\_WIRED | WAN\_4G1 | LAN

### Interfaces

Interface Overview

Network	Status	Actions
LAN br-lan	Uptime: 0h 33m 42s MAC-Address: D8:B0:4C:F9:BE:33 RX: 7.72 MB (44227 Pkts.) TX: 91.89 MB (85034 Pkts.) IPv4: 192.168.1.1/24 IPv6: FDAE:DEEC:9FEA:0:0:0:0:1/60	Connect Stop Edit Delete
WAN_4G1 eth1	Uptime: 0h 0m 0s MAC-Address: 06:84:CC:FB:D4:5C RX: 0.00 B (0 Pkts.) TX: 0.00 B (0 Pkts.)	Connect Stop Edit Delete
WAN_WIRED eth0.2	Uptime: 0h 33m 39s MAC-Address: D8:B0:4C:F9:BE:33 RX: 91.32 MB (90021 Pkts.) TX: 8.14 MB (43813 Pkts.) IPv4: 172.16.11.166/24	Connect Stop Edit Delete

[Add new interface...](#)

Figure30 add interface

USR-G800V2

### Create Interface

Name of the new interface:   
The allowed characters are: A-Z, a-z, 0-9 and \_

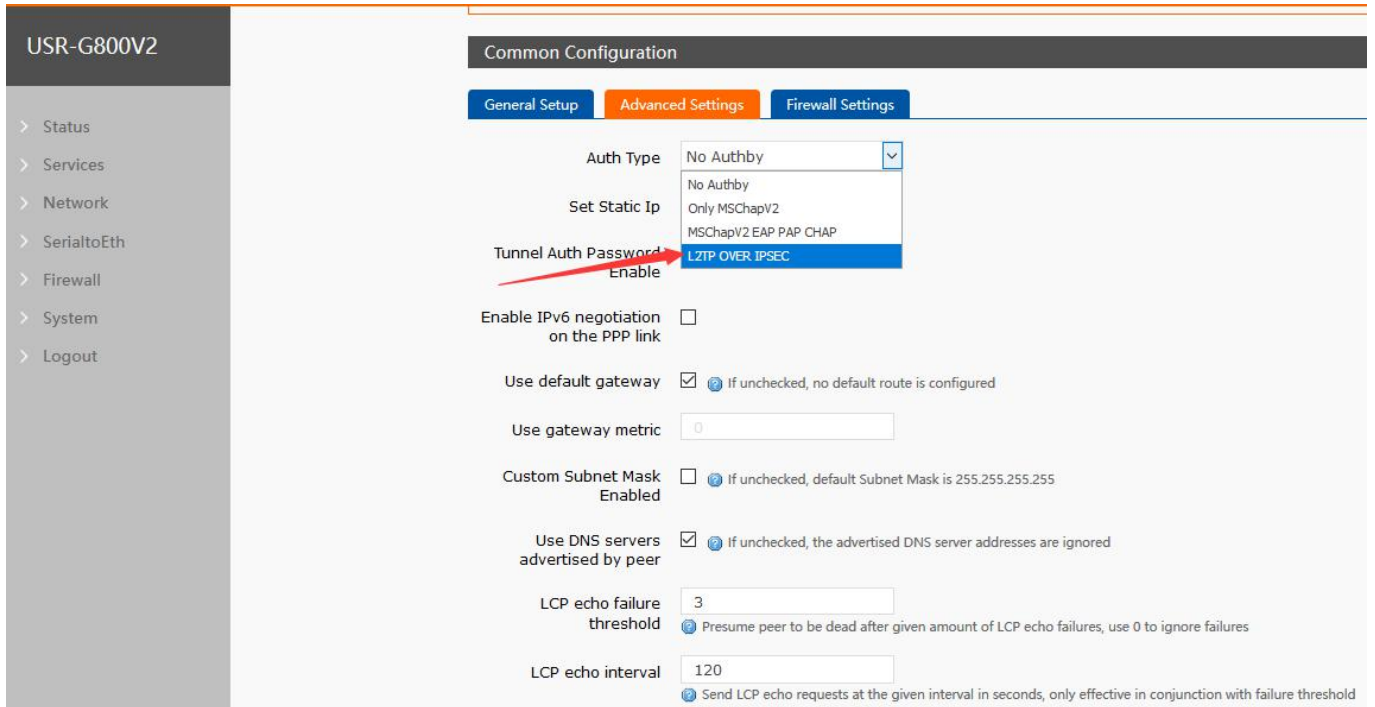
Protocol of the new interface:

- Static address
- DHCP client
- Unmanaged
- DHCPv6 client
- PPP
- PPtP
- PPPoE
- PPPoATM
- UMTS/GPRS/EV-DO
- L2TP**
- GRE
- TUN
- TAP
- SSTP
- Relay bridge

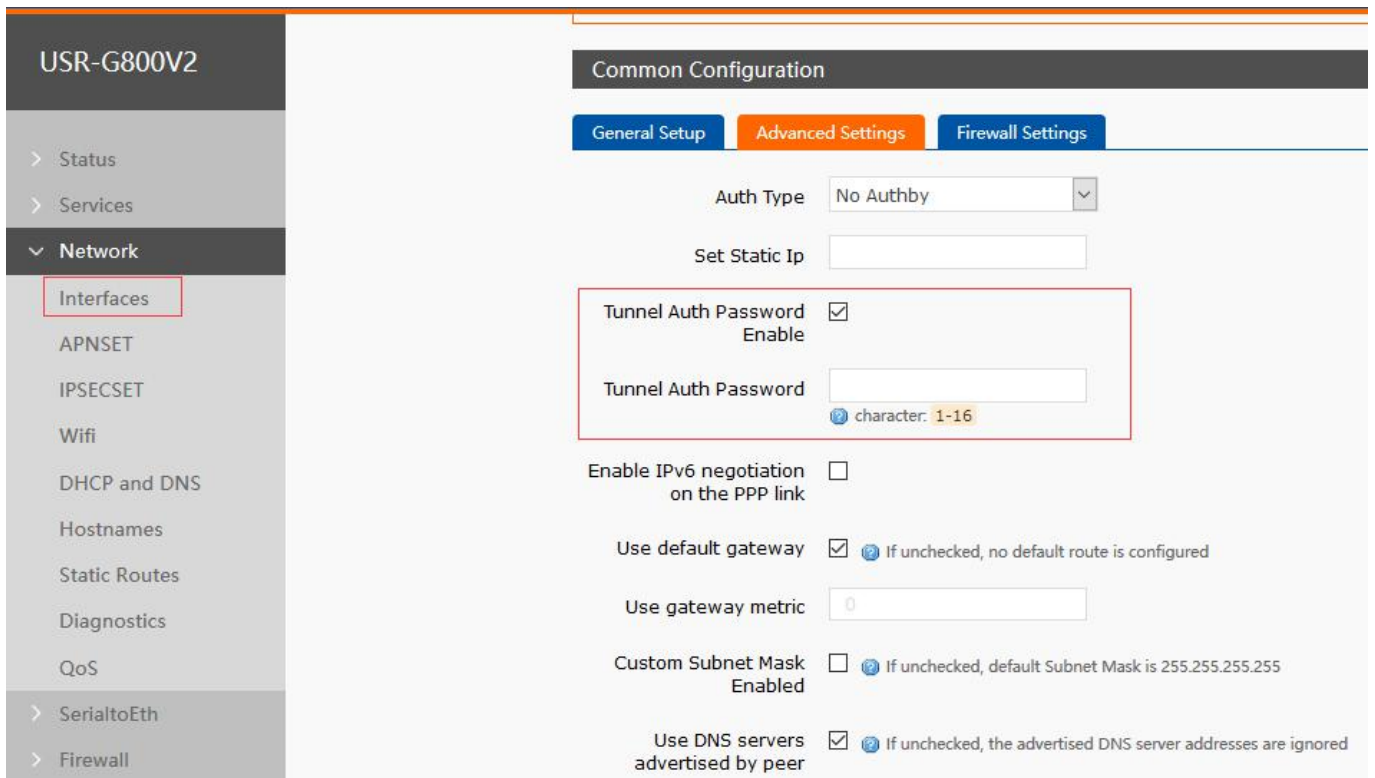
[Back to Overview](#) [Submit](#)

Figure31 L2TP





**Figure32 auth type**



**Figure33 setting page**

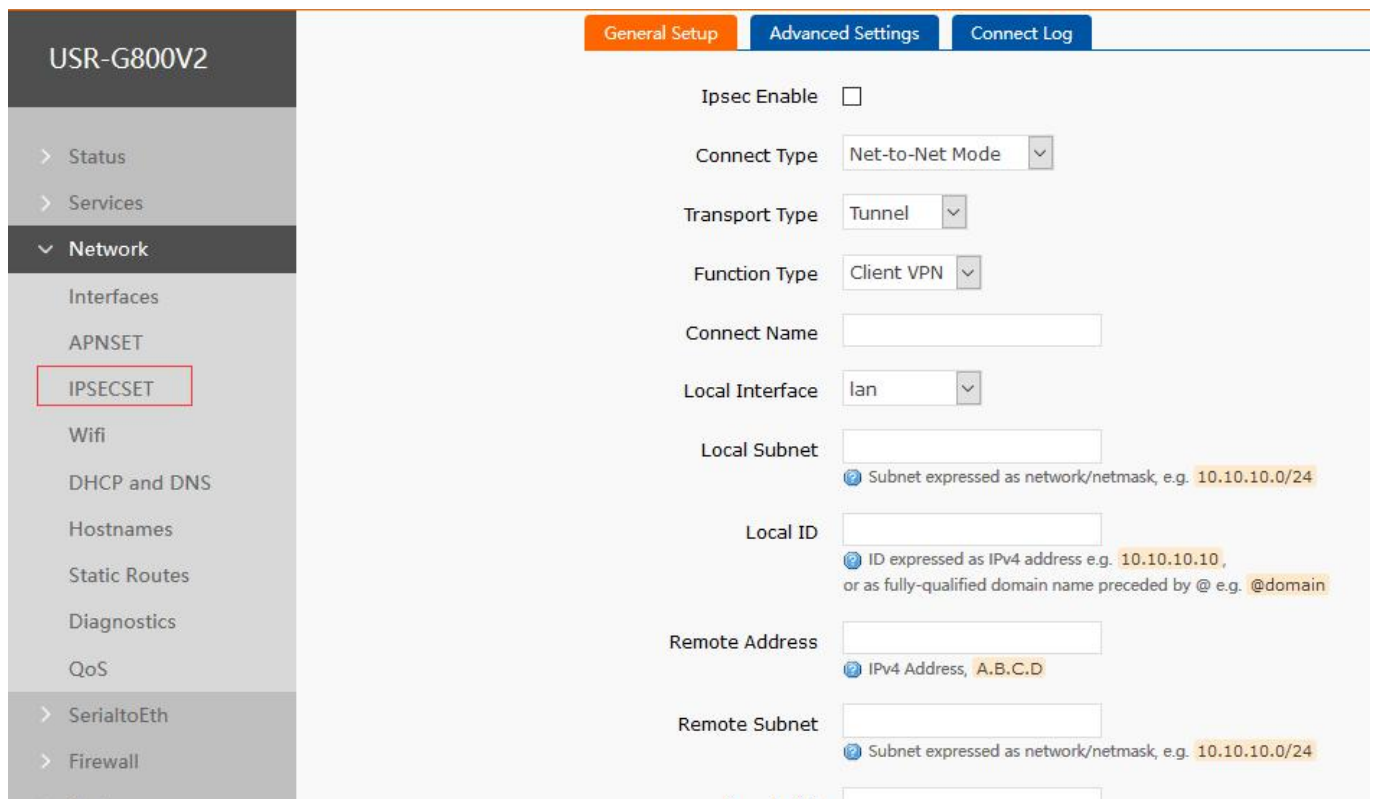
Note:

When selecting L2TP OVER IPSEC encryption, IPSEC configuration can refer to IPSEC configuration.

### 3.3.8.3 IPSEC

IPSEC protocol is not a single protocol. It provides a set of architecture for data security between application

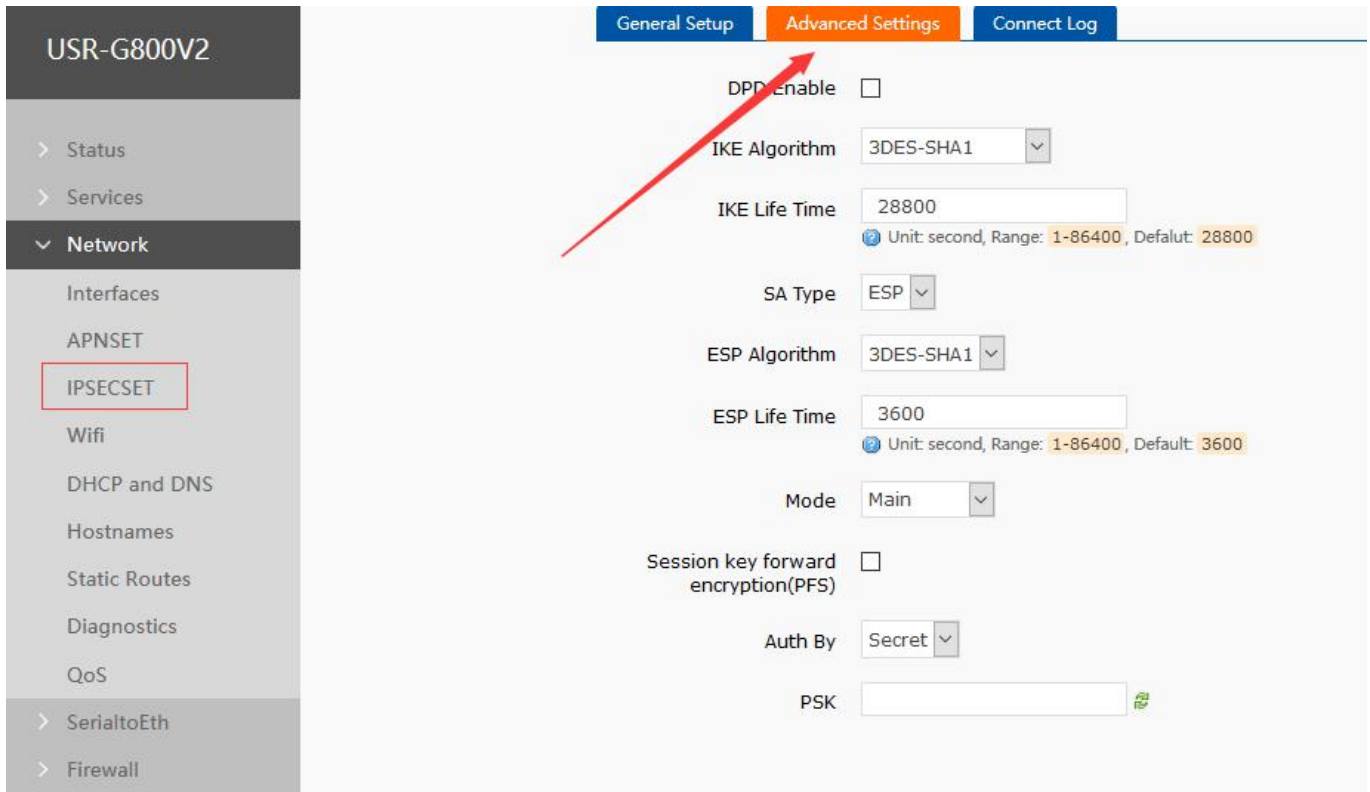
and IP layer, including network authentication protocols AH, ESP, IKE and some algorithms for network authentication and encryption. AH protocol and ESP protocol are used to provide security services, IKE protocol is used for key exchange.



**Figure34 setting page**

- Application mode selection: Net-to-Net mode (site-to-site or gateway-to-gateway), Road Warrior mode (end-to-site or PC-to-gateway)
- Transport mode selection: It can be divided into tunnel mode and transmission mode. You can choose from the transport type.
- Functional types: can be divided into VPN client and VPN server.
- Connection name: The name used to indicate the connection must be unique.
- Local interface: The local address through which you can choose wan\_wired, wan\_4g
- Remote address: IP/domain name on the other end.
- Local Terminals: IPSEC protects subnets and subnet masks. If you choose the client of Road Warrior mode, you do not need to fill in.
- Remote Terminals: IPSEC end-to-end protection subnet and subnet mask.
- Local identifier: Channel local identifier, which can be IP or domain name. Note that when you customize a domain name, add @
- Remote identifier: Channel-to-end identifier, which can be IP or domain name. Note that when you customize a domain name, add @





**Figure35 setting page**

- Start DPD Detection: Whether to Enable this Function
- DPD time interval: Set the time interval of connection detection (DPD).
- DPD timeout: Set the connection detection (DPD) timeout.
- DPD operation: Set up the operation of connection detection.
- IKE encryption: The first stage includes IKE encryption mode, integrity scheme and DH switching algorithm.
- IKE life cycle: Set IKE life cycle in seconds, default: 28800.
- SA type: ESP and AH can be selected in the second stage.
- ESP Encryption: Select the corresponding encryption mode and integrity scheme.
- ESP Life Cycle: Set ESP Life Cycle, Unit: s, Default: 3600
- Mode: The negotiation mode defaults to the main mode, and the barbaric mode can be chosen.
- Session Key Forward Encryption (PFS): Whether PFS is enabled
- Authentication method: At present, it supports the authentication method of pre-shared key.

Note:

After the configuration is successful, ISAKMP SA established flag in the connection log indicates that IPSEC VPN was created successfully.

### 3.3.8.4 OPENVPN

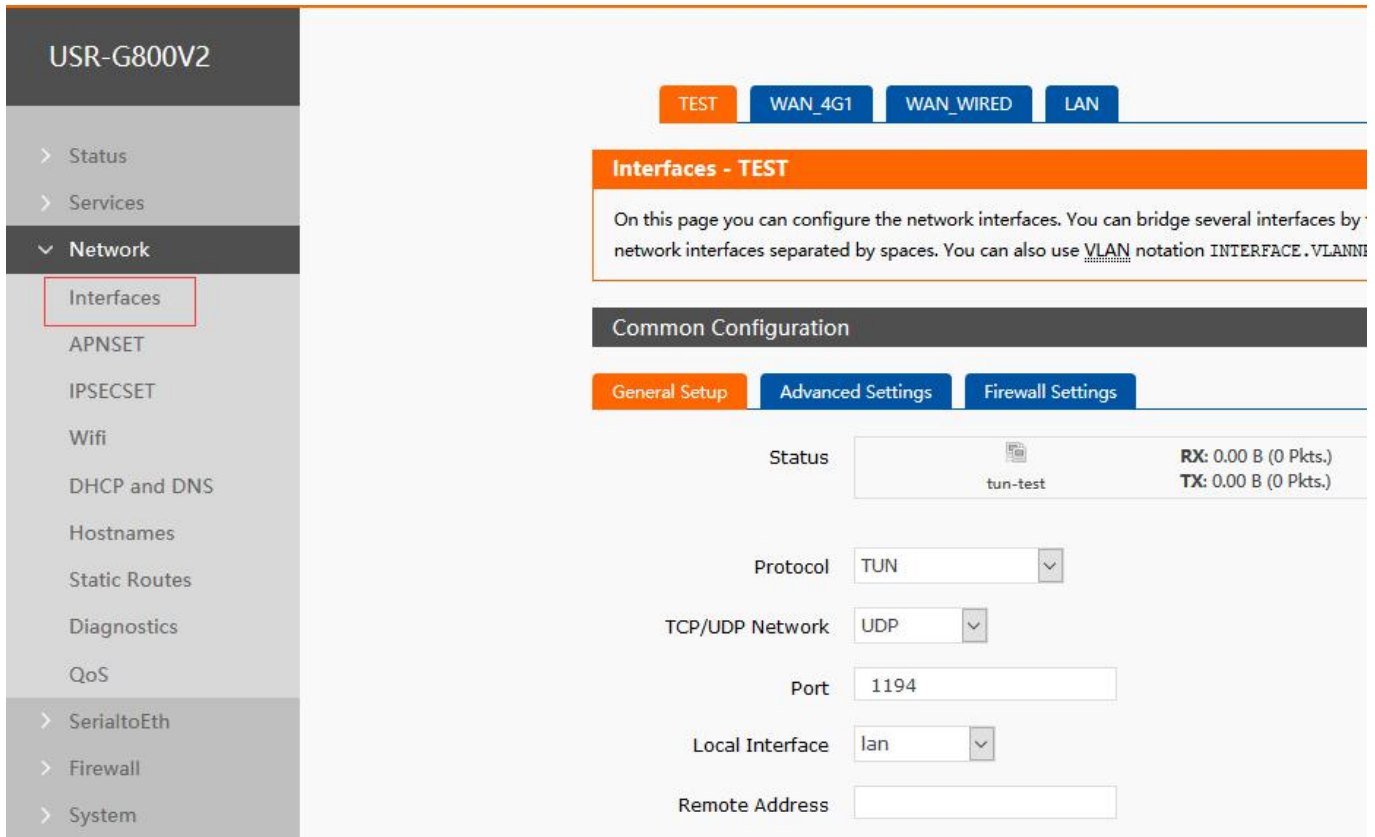
OPEN VPN is an application layer VPN implementation based on Openssl library. It supports certificate-based two-way authentication, that is, the client needs to authenticate the server, and the server also needs to authenticate the client.

The screenshot shows the 'Interfaces' page in the USR-G800V2 web interface. The left sidebar contains a navigation menu with 'Interfaces' selected. The main content area has tabs for 'WAN\_WIRED', 'WAN\_4G1', and 'LAN'. Below these is a table titled 'Interface Overview' with columns for Network, Status, and Actions. Three interfaces are listed: LAN (br-lan), WAN\_4G1 (eth1), and WAN\_WIRED (eth0.2). At the bottom, a red arrow points to the 'Add new interface...' button.

Figure36 add interface

The screenshot shows the 'Create Interface' page. It features a form with several fields: 'Name of the new interface' (text input), 'Protocol of the new interface' (dropdown menu), 'Create a bridge over multiple interfaces' (checkbox), and 'Cover the following interface' (checkbox). The 'Protocol of the new interface' dropdown is open, showing a list of options including Static address, DHCP client, Unmanaged, DHCPv6 client, PPP, PPPoE, PPPoATM, UMTS/GPRS/EV-DO, L2TP, GRE, TUN (highlighted with a red arrow), TAP, SSTP, and Relay bridge. Below the dropdown are radio button options for Ethernet Adapters, Wireless Network, and Custom Interface.

Figure37 setting page

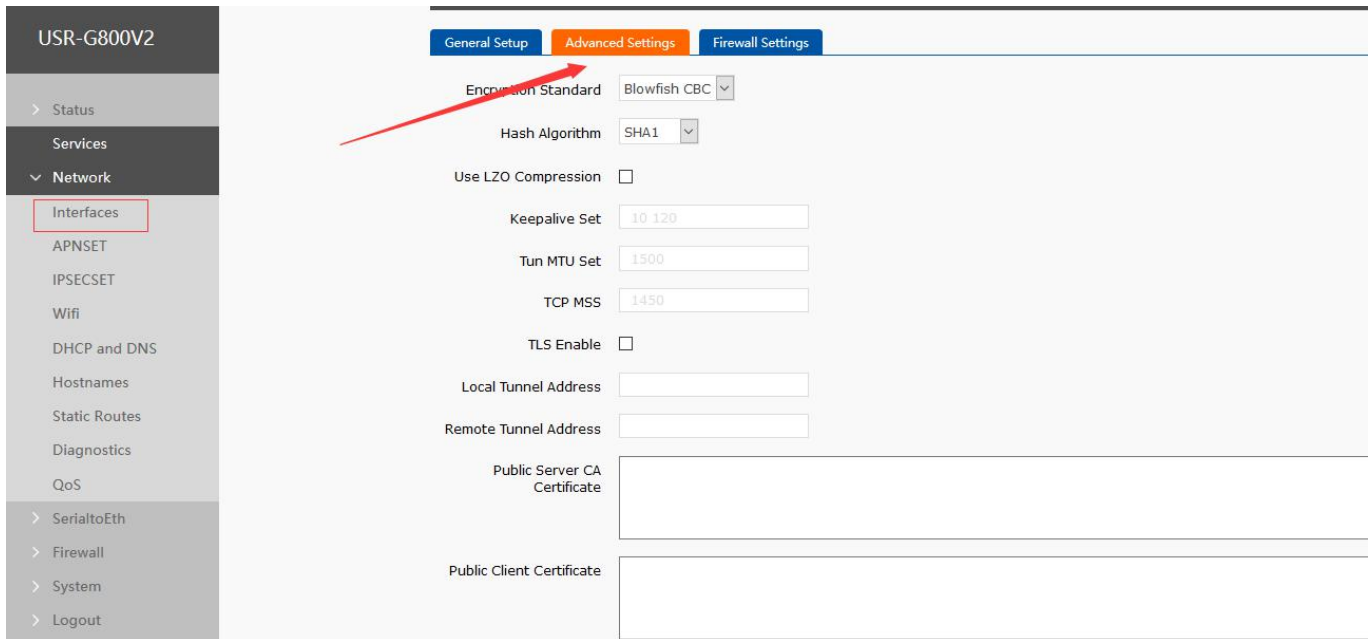


The screenshot displays the web management interface for the USR-G800V2 device. On the left, a navigation menu is visible with 'Network' expanded and 'Interfaces' selected. The main area shows the configuration for the 'TEST' interface. At the top, there are tabs for 'TEST', 'WAN\_4G1', 'WAN\_WIRED', and 'LAN'. Below this is a section titled 'Interfaces - TEST' with a brief instruction: 'On this page you can configure the network interfaces. You can bridge several interfaces by network interfaces separated by spaces. You can also use VLAN notation INTERFACE.VLANID'. Underneath is a 'Common Configuration' section with three sub-tabs: 'General Setup', 'Advanced Settings', and 'Firewall Settings'. The 'General Setup' tab is active, showing the following configuration options:

- Status:** tun-test (with a refresh icon) | RX: 0.00 B (0 Pkts.) | TX: 0.00 B (0 Pkts.)
- Protocol:** TUN (dropdown menu)
- TCP/UDP Network:** UDP (dropdown menu)
- Port:** 1194 (text input field)
- Local Interface:** lan (dropdown menu)
- Remote Address:** (empty text input field)

**Figure38 setting page**

- Protocol: TUN (Routing Mode) or TAP (Bridge Mode) .
- Channel protocol: UDP or TCP
- Port: The listening port of OPENVPN client.
- Home interface: wan\_wrid or wan\_4g.
- Remote address: IP/domain name of the server.
- Local Tunnel Address: You can set the local tunnel address, such as 192.168.10.1, if not fill in, default server automatic allocation.
- Remote Tunnel Address: You can set the opposite tunnel address, such as 192.168.10.1, if not fill in, default server automatic allocation.



**Figure39 setting page**

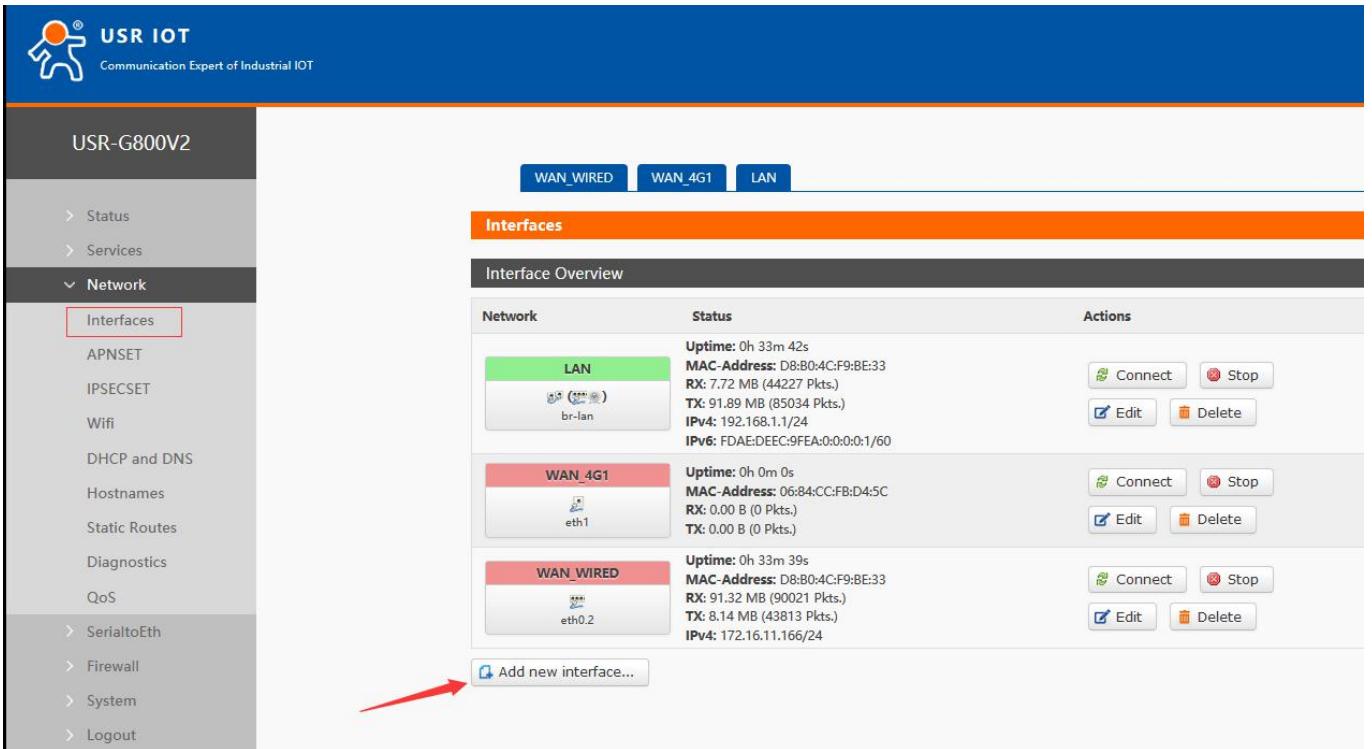
- Encryption Standards: Channel Encryption Standards include Blowfish CBC, AES-128 CBC, AES-192 CBC, AES-256 CBC and AES-512 CBC.
- Use LZO compression: Enable or disable transmission data using LZO compression.
- Keep-alive settings: default is 10 120
- TUN MTU Settings: Set MTU Values for Channels
- TCP MSS: Maximum Segmentation Size of TCP Data
- TLS Authentication Key: Authentication Key for Secure Transport Layer
- Public Service CA Certificate: A Certificate Common to Server and Client
- Public Client Certificate: Client Certificate
- Client Private Key: Client Key

**Note:**

Before the connection between client and server, Ca certificate, client certificate, client key, TLS authentication key, which need to be provided by server.

### 3.3.8.5 GRE

GRE (Generic Routing Encapsulation) protocol is for some network layer protocol (such as IP and IPX) datagram Encapsulation, make the datagram is encapsulated to in another transmission in the network layer protocol (IP). The GRE uses Tunnel technology, which is the third-tier Tunnel protocol of the Virtual Private Network.



**USR IOT**  
Communication Expert of Industrial IOT

USR-G800V2

WAN\_WIRED | WAN\_4G1 | LAN

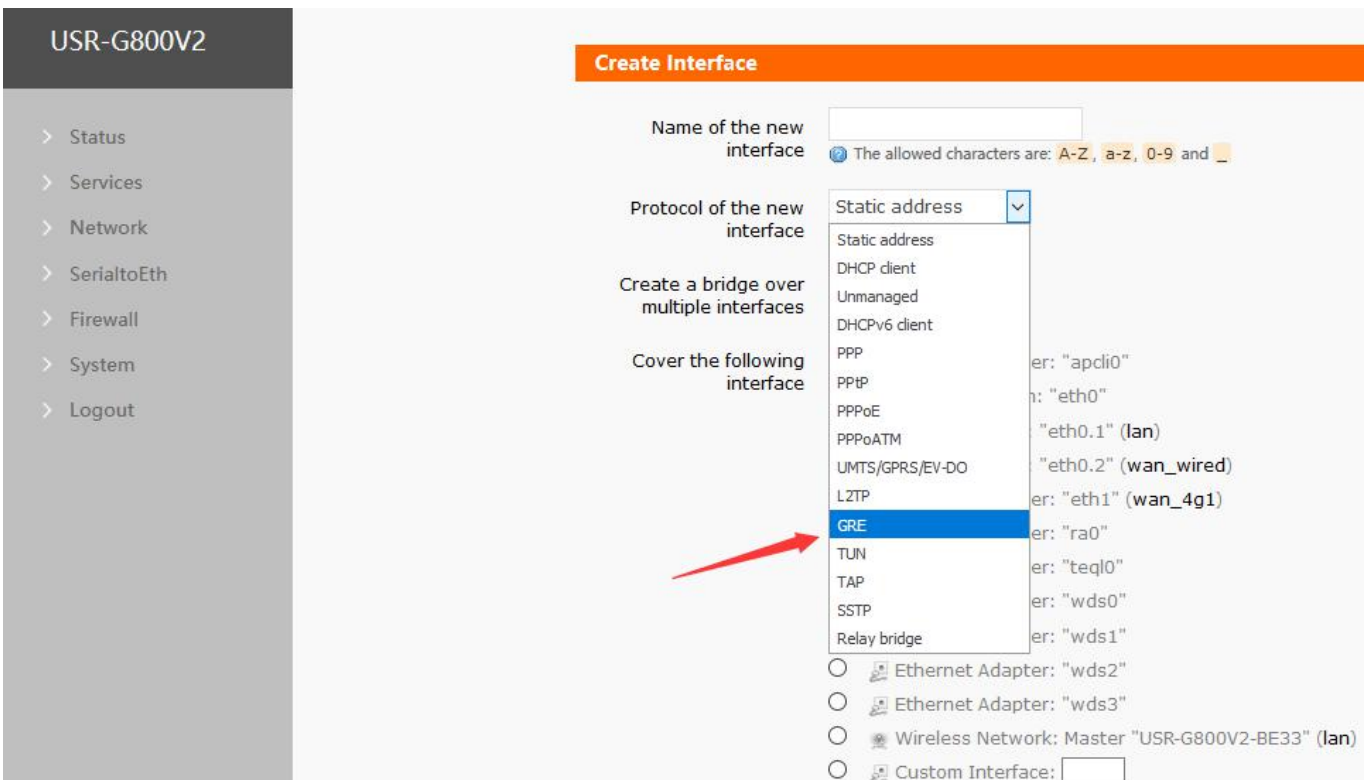
### Interfaces

#### Interface Overview

Network	Status	Actions
LAN br-lan	Uptime: 0h 33m 42s MAC-Address: D8:B0:4C:F9:BE:33 RX: 7.72 MB (44227 Pkts.) TX: 91.89 MB (85034 Pkts.) IPv4: 192.168.1.1/24 IPv6: FDAE:DEEC:9FEA:0:0:0:1/60	Connect Stop Edit Delete
WAN_4G1 eth1	Uptime: 0h 0m 0s MAC-Address: 06:84:CC:FB:D4:5C RX: 0.00 B (0 Pkts.) TX: 0.00 B (0 Pkts.)	Connect Stop Edit Delete
WAN_WIRED eth0.2	Uptime: 0h 33m 39s MAC-Address: D8:B0:4C:F9:BE:33 RX: 91.32 MB (90021 Pkts.) TX: 8.14 MB (43813 Pkts.) IPv4: 172.16.11.166/24	Connect Stop Edit Delete

[Add new interface...](#)

Figure40 setting page



### Create Interface

Name of the new interface:

Protocol of the new interface: Static address

Create a bridge over multiple interfaces:

Cover the following interface:

- Ethernet Adapter: "wds2"
- Ethernet Adapter: "wds3"
- Wireless Network: Master "USR-G800V2-BE33" (lan)
- Custom Interface:

Figure41 setting page

The screenshot shows the 'Interfaces - TEST' configuration page in the USR-G800V2 web interface. The left sidebar contains a navigation menu with 'Network' expanded and 'Interfaces' selected. The main content area has tabs for 'TEST', 'WAN\_4G1', 'WAN\_WIRED', and 'LAN'. Below the tabs is a header 'Interfaces - TEST' and a descriptive paragraph. A 'Common Configuration' section contains three sub-tabs: 'General Setup' (selected), 'Advanced Settings', and 'Firewall Settings'. The 'General Setup' tab shows a 'Status' section with a 'gre-test' icon and traffic statistics (RX: 0.00 B (0 Pkts.), TX: 0.00 B (0 Pkts.)). Below this is a 'Protocol' dropdown menu set to 'GRE'. There are four input fields: 'Remote Address', 'Local Address', 'Remote Tunnel Address', and 'Local Tunnel Address'. At the bottom right are 'Save' and 'Apply' buttons.

Figure42 setting page

The screenshot shows the 'Interfaces - TEST' configuration page in the USR-G800V2 web interface, specifically the 'Advanced Settings' tab. The left sidebar is the same as in Figure 42. The main content area has the same tabs, but 'Advanced Settings' is selected. Below the tabs is a 'Common Configuration' section with three sub-tabs: 'General Setup', 'Advanced Settings' (selected), and 'Firewall Settings'. The 'Advanced Settings' tab shows two input fields: 'TTL Set' with a value of 255 and 'Override MTU' with a value of 1400. A red arrow points from the left towards the 'Advanced Settings' tab. At the bottom right are 'Save' and 'Apply' buttons.

Figure43 setting page

- TTL Settings: set the TTL of the GRE channel, default 255
- Set MTU: set the MTU of GRE channel, default 1400



### 3.3.8.6 SSTP

SSTP, also known as secure sockets tunnel protocol, is an Internet protocol that creates a VPN tunnel for traffic over HTTPS.

SSTP is only available for remote access and does not support VPN tunnels between sites

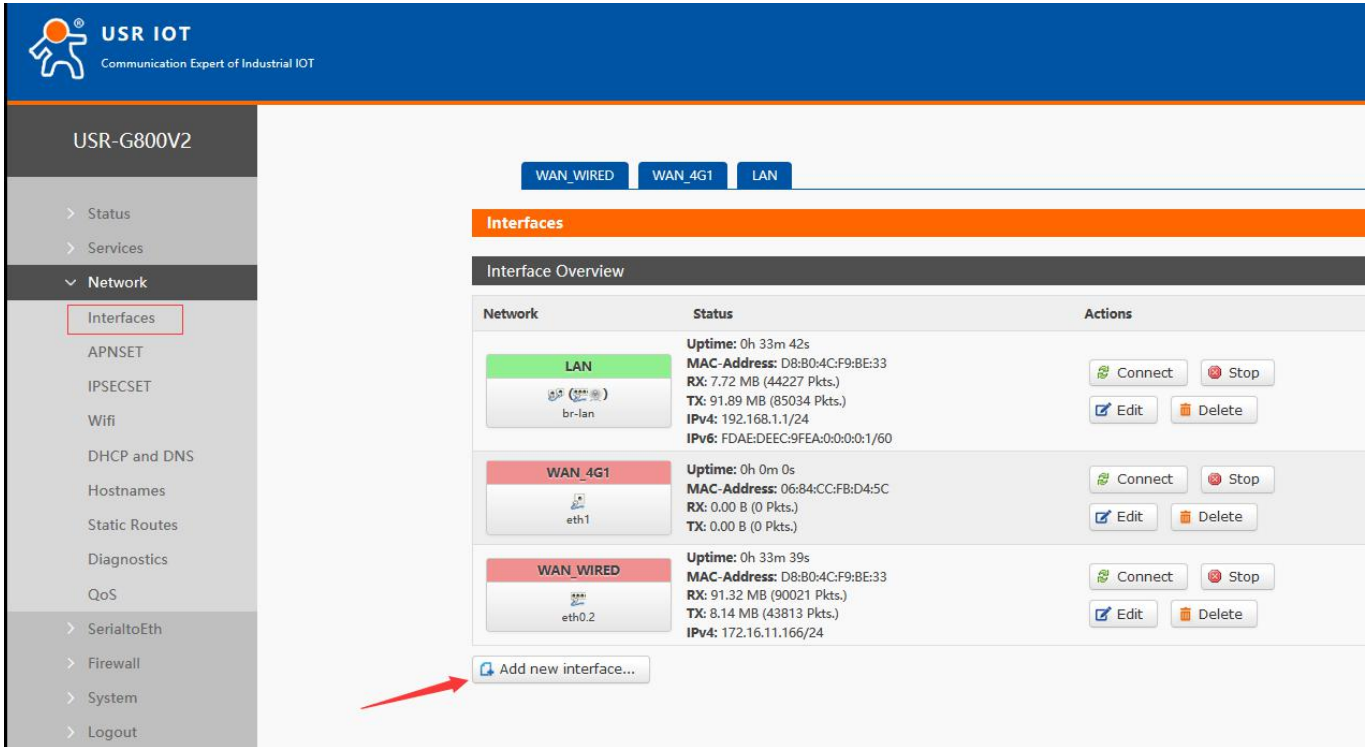


Figure44 setting page

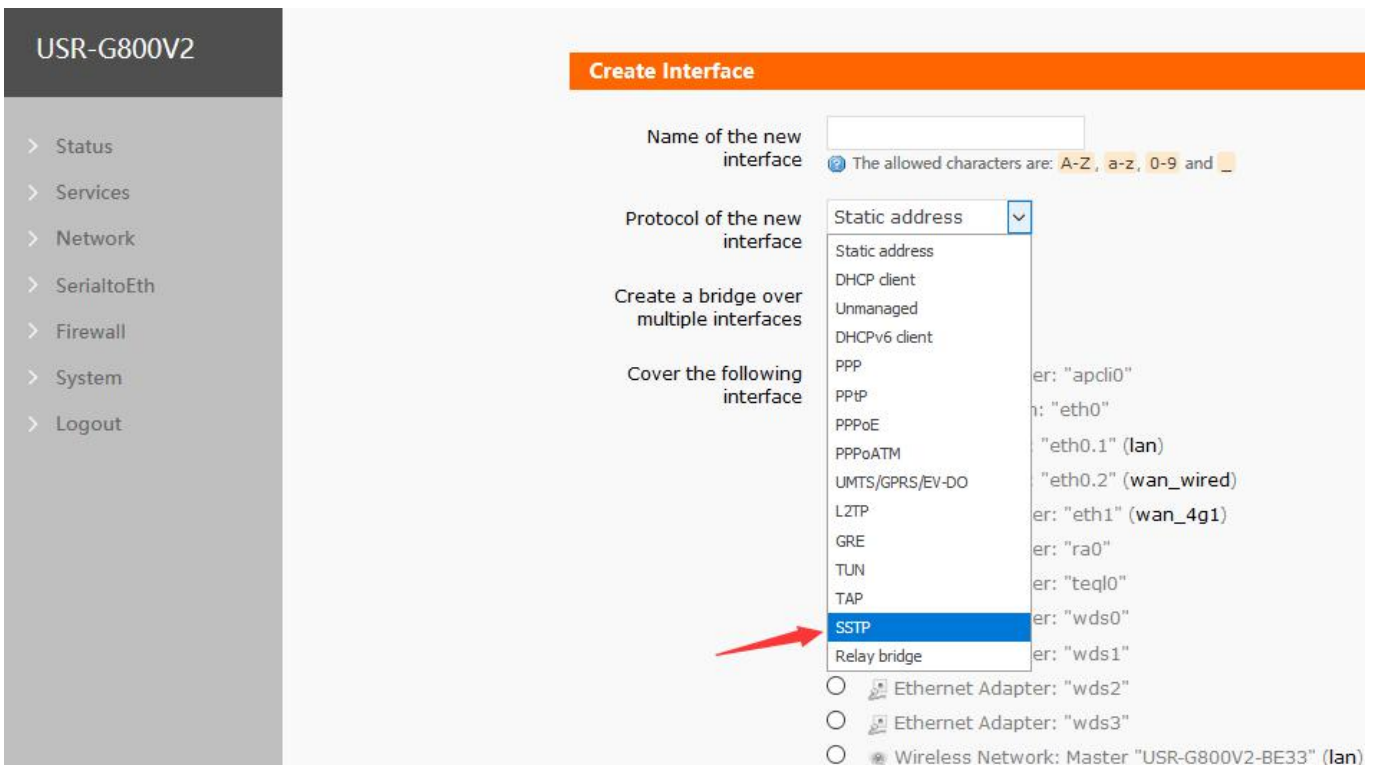
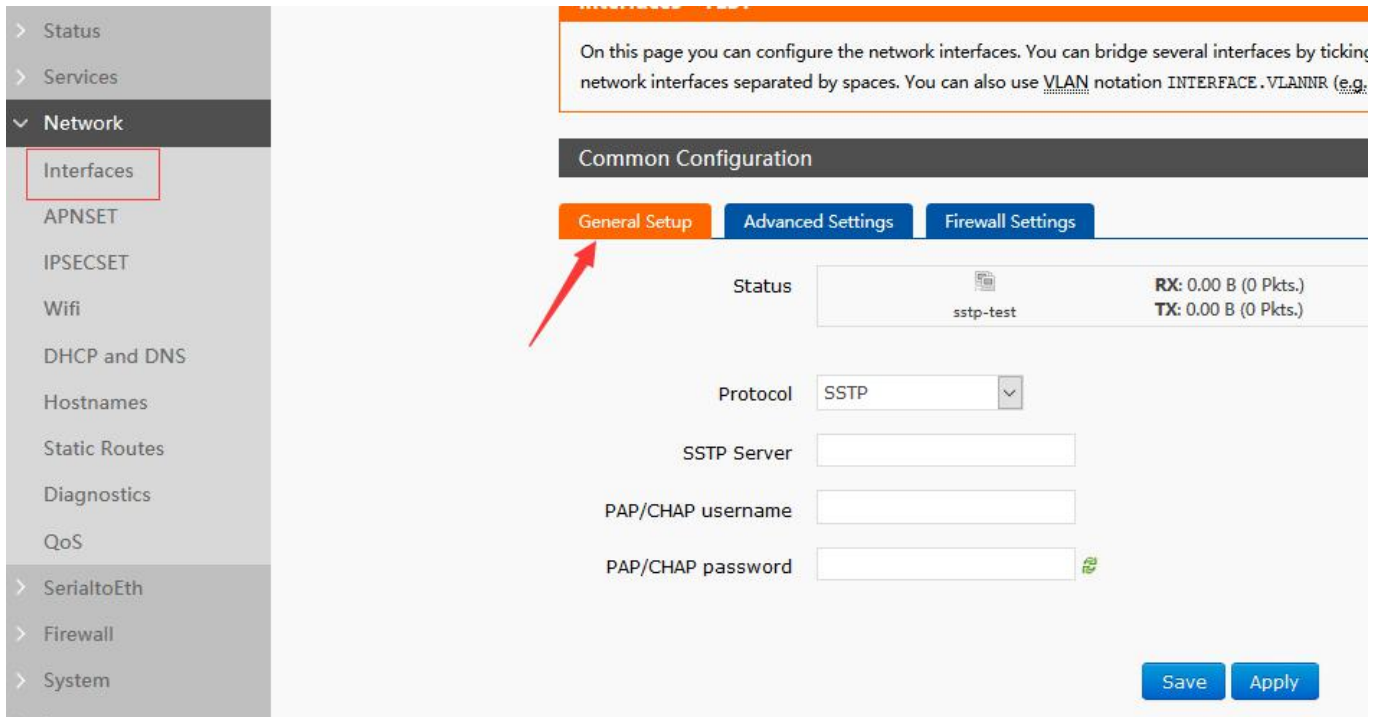


Figure45 setting page



On this page you can configure the network interfaces. You can bridge several interfaces by ticking network interfaces separated by spaces. You can also use VLAN notation INTERFACE.VLANNR (e.g.,

**Common Configuration**

**General Setup** | Advanced Settings | Firewall Settings

Status: sstp-test RX: 0.00 B (0 Pkts.) TX: 0.00 B (0 Pkts.)

Protocol: SSTP

SSTP Server:

PAP/CHAP username:

PAP/CHAP password:

**Figure46 setting page**

- SSTP Server: IP or Domain Name of SSTP Server
- PAP/CHAP User Name: SSTP User Name
- PAP/CHAP password: SSTP password

Note:

Advanced settings can refer to advanced settings of PPTP.

### 3.3.9 Static Route

Static routing can achieve setup communication between two different intranet segments, such as the following configuration:

The Wan port of G800V2 is 192.168.13.167, and the LAN port is 192.168.20.1.

The Wan port of G806 is 192.168.13.165, and the LAN port is 192.168.1.1.

If users want to realize that the PC under G800V2 LAN port accesses the PC under G806 LAN port, users can add a static routing to G800V2.

Set up static routing on G800V2 first. (Refer to G800V2 setting principle for setting up G806)



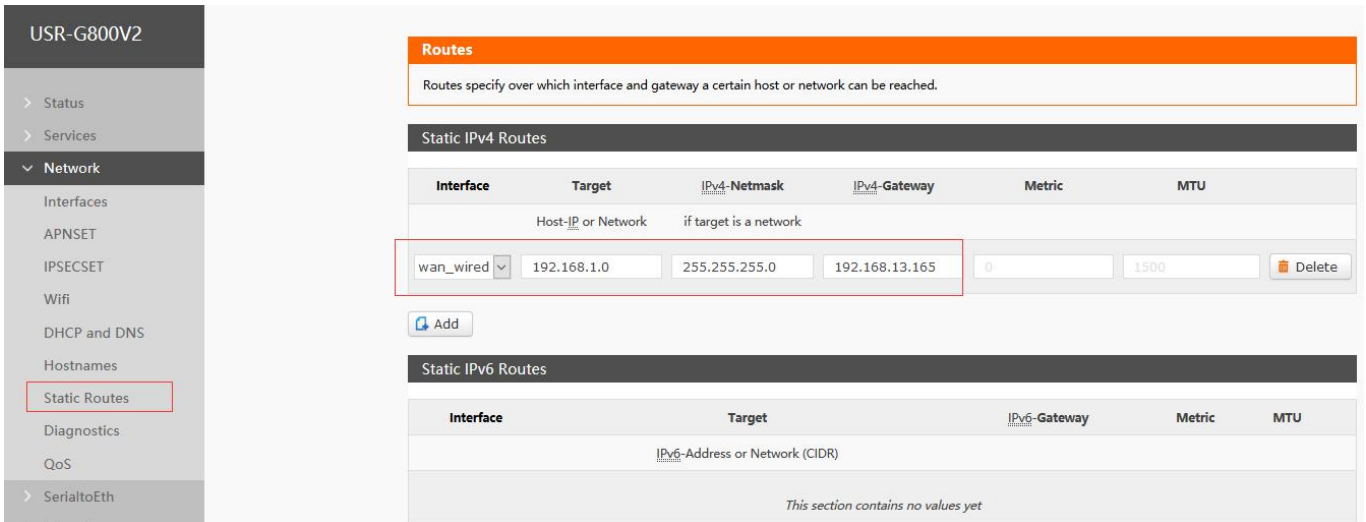


Figure47 setting page

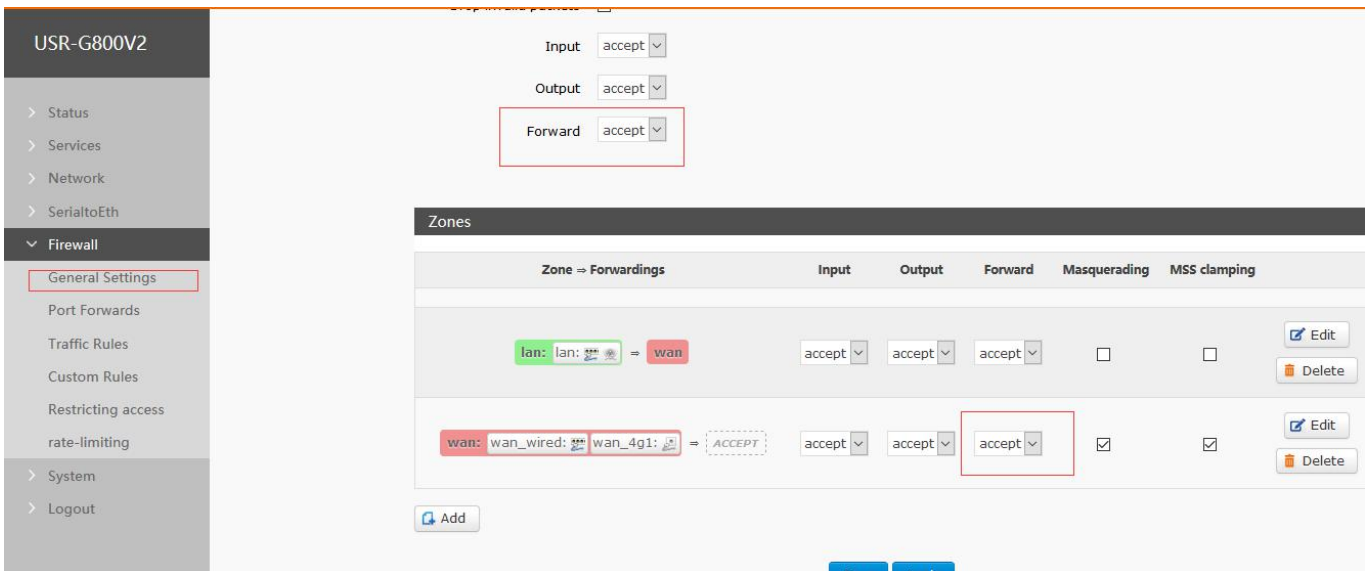


Figure48 setting page

Note:

1. Static routing is not added by default. When using this function, please configure it according to specific requirements.
2. After adding, please enable the forwarding of Firewall -> basic settings.

### 3.3.10 Firewall

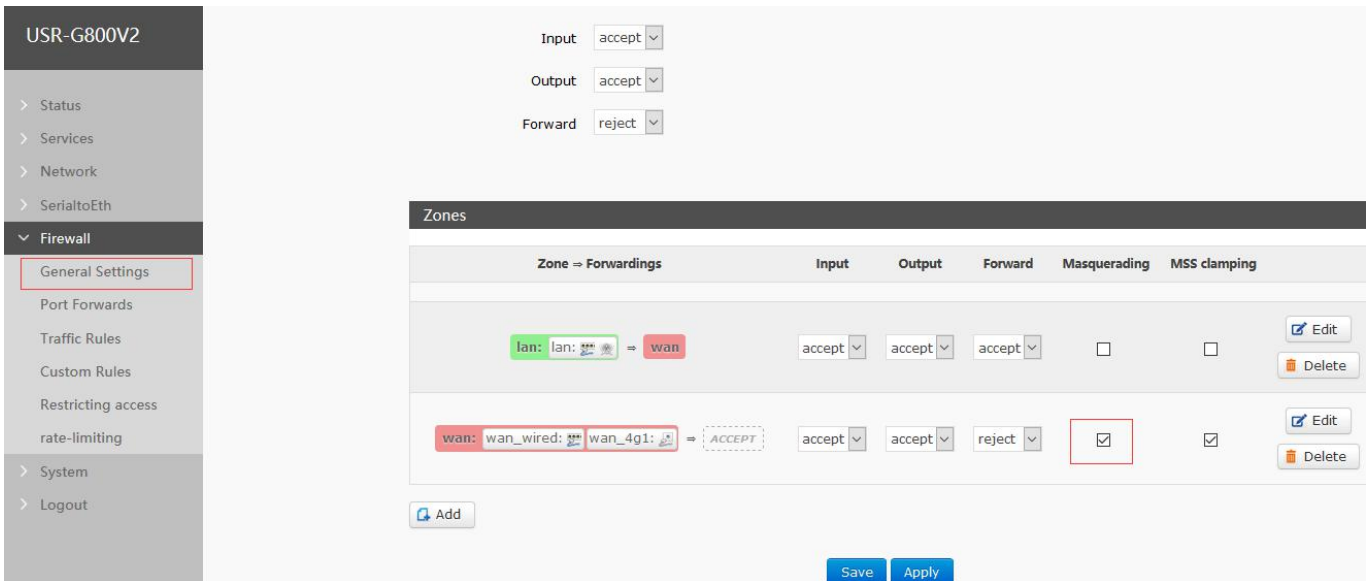
#### 3.3.10.1 NAT Function

##### 3.3.10.1.1 MASQ

MASQ, also known as MASQUREADE, converts the source IP leaving the packet into the IP address of an interface of the router. If the IP dynamic camouflage is checked in the figure, the system will change the source IP address of the packet leaving the router to the IP address of the WAN port.

Note:

Enable by default.



Input: accept

Output: accept

Forward: reject

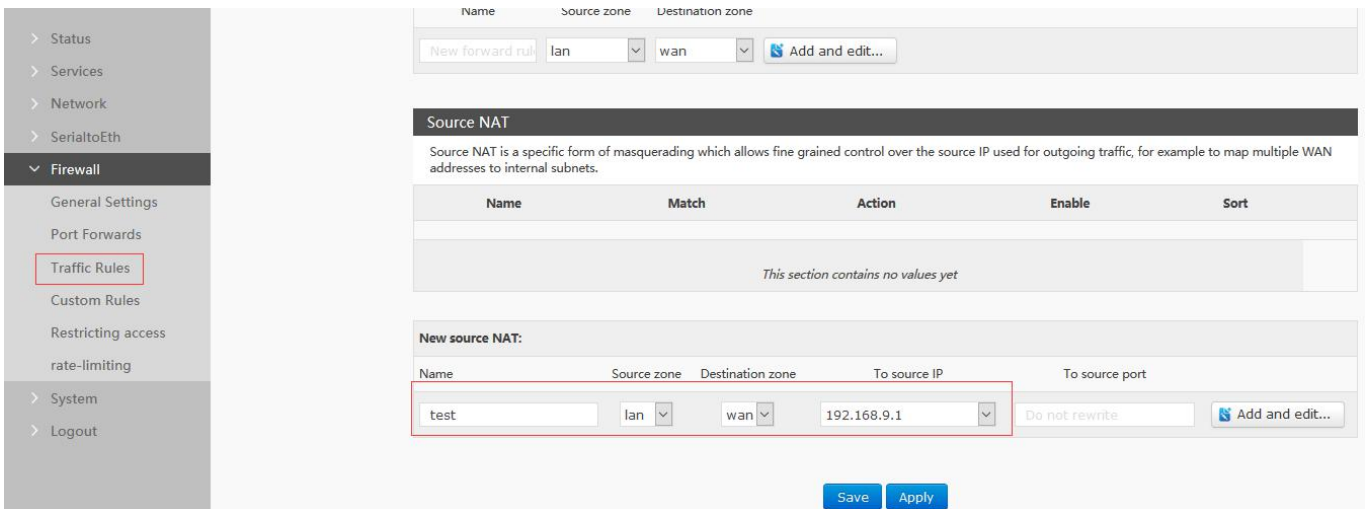
Zone → Forwardings	Input	Output	Forward	Masquerading	MSS clamping	
lan: lan: wan	accept	accept	accept	<input type="checkbox"/>	<input type="checkbox"/>	Edit Delete
wan: wan_wired: wan_4g1: ACCEPT	accept	accept	reject	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Edit Delete

Save Apply

**Figure49 MASQ setting page**

### 3.3.10.1.2 SNAT

Source NAT is a special form of packet camouflage. By changing the source address of the packet leaving the router, the source IP address of the packet leaving the router is fixed to 192.168.9.1.



New forward rule: lan wan Add and edit...

**Source NAT**

Source NAT is a specific form of masquerading which allows fine grained control over the source IP used for outgoing traffic, for example to map multiple WAN addresses to internal subnets.

Name	Match	Action	Enable	Sort
This section contains no values yet				

**New source NAT:**

Name	Source zone	Destination zone	To source IP	To source port	
test	lan	wan	192.168.9.1	Do not rewrite	Add and edit...

Save Apply

**Figure50 setting page**

### 3.3.10.1.3 DNAT

#### 3.3.10.1.1.1 Port Forward

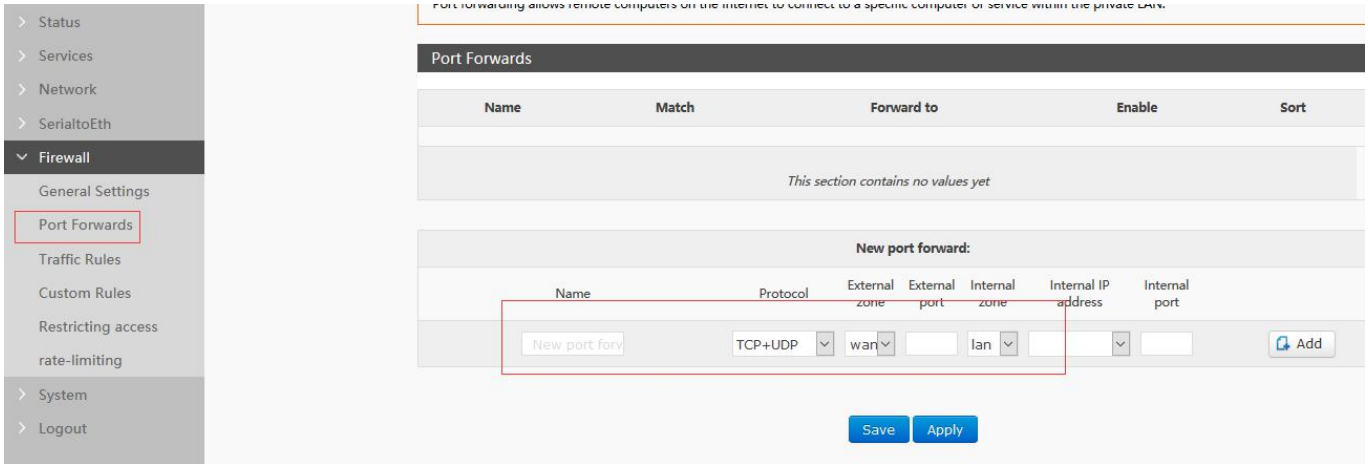


Figure51 port forward

#### 3.3.10.1.1.2 NAT/DMZ

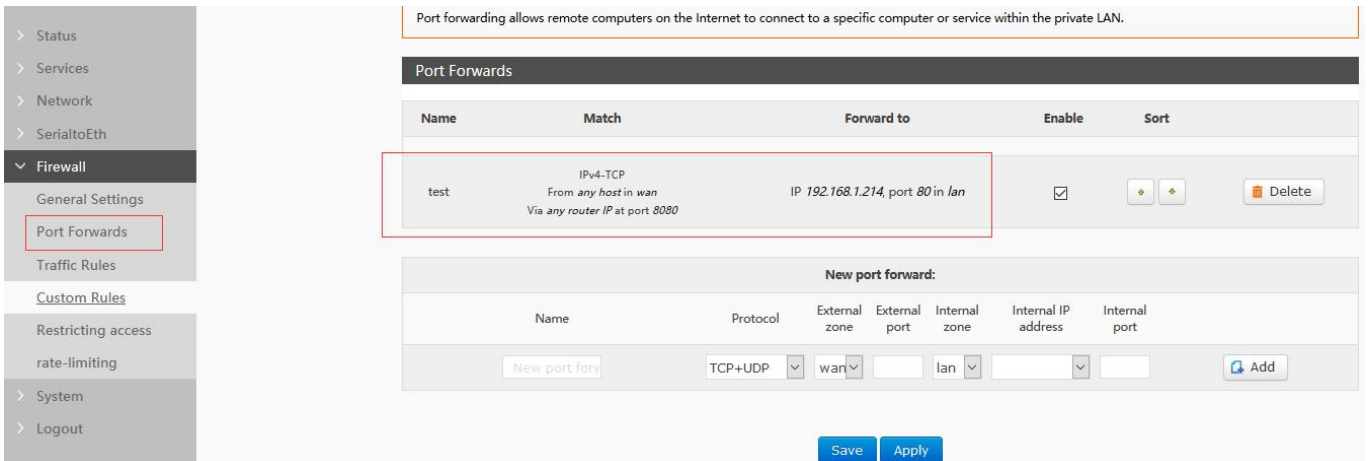
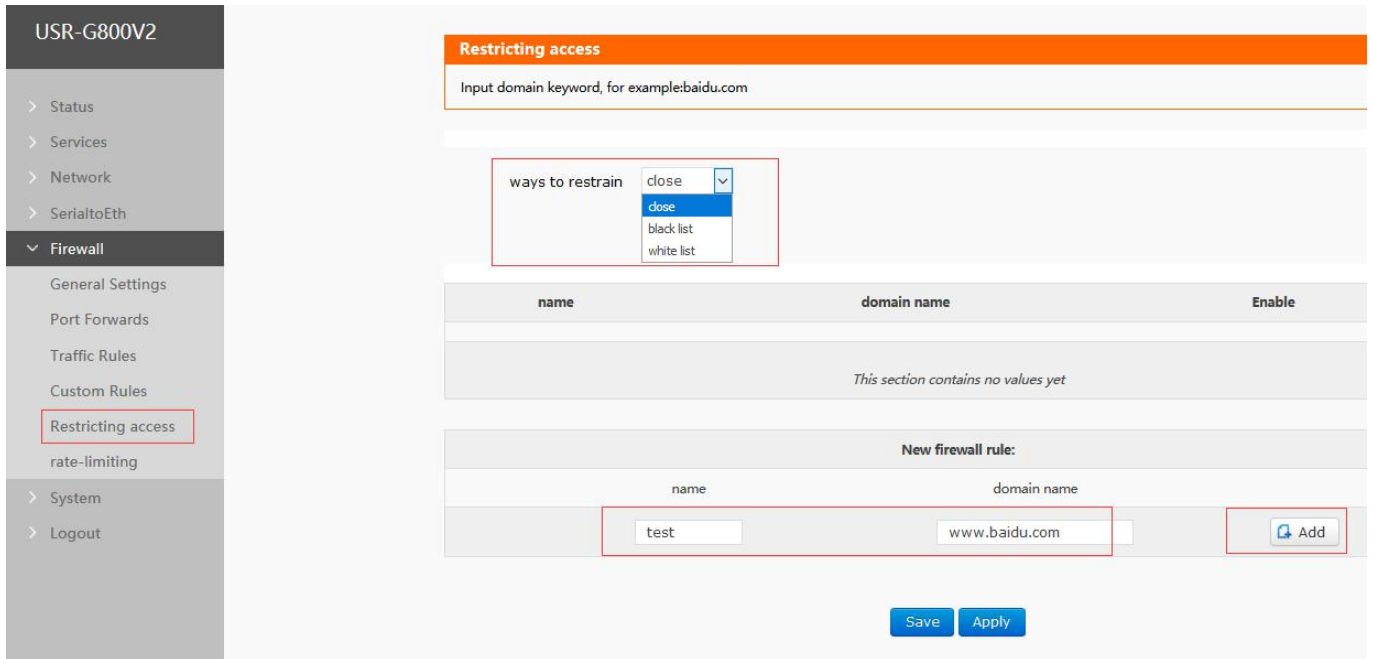


Figure52 setting page

Note:

Port mapping and DMZ functions cannot be used simultaneously.

### 3.3.10.2 Restricting Access



**Restricting access**

Input domain keyword, for example:baidu.com

ways to restrain: close dose black list white list

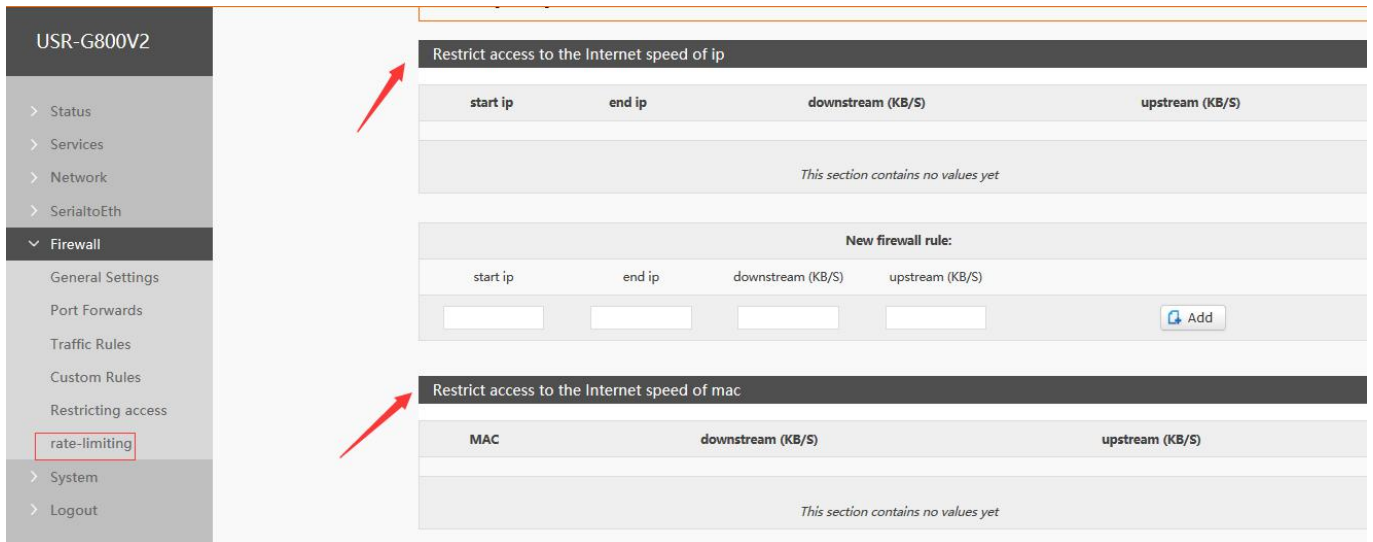
name	domain name	Enable
This section contains no values yet		

**New firewall rule:**

name:  domain name:

Figure53 black/white list

### 3.3.10.3 Rate-Limiting



**Restrict access to the Internet speed of ip**

start ip	end ip	downstream (KB/S)	upstream (KB/S)
This section contains no values yet			

**New firewall rule:**

start ip	end ip	downstream (KB/S)	upstream (KB/S)
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

**Restrict access to the Internet speed of mac**

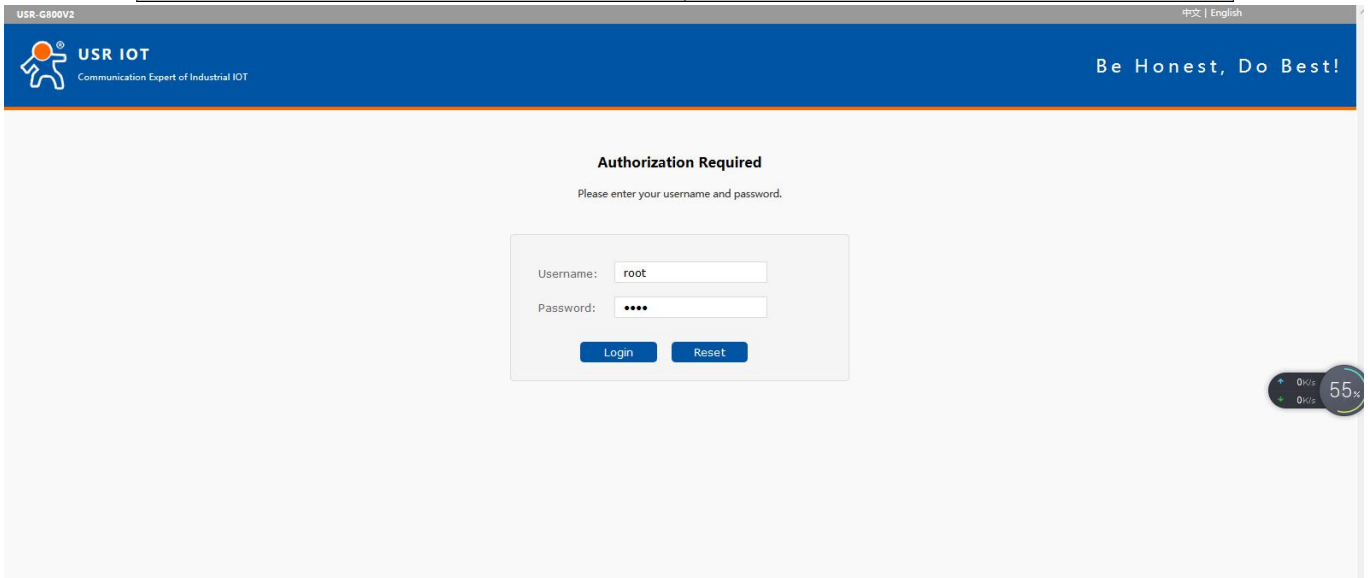
MAC	downstream (KB/S)	upstream (KB/S)
This section contains no values yet		

Figure54 rate-limiting

## 4 Setup Method

### 4.1 Webpage Setting

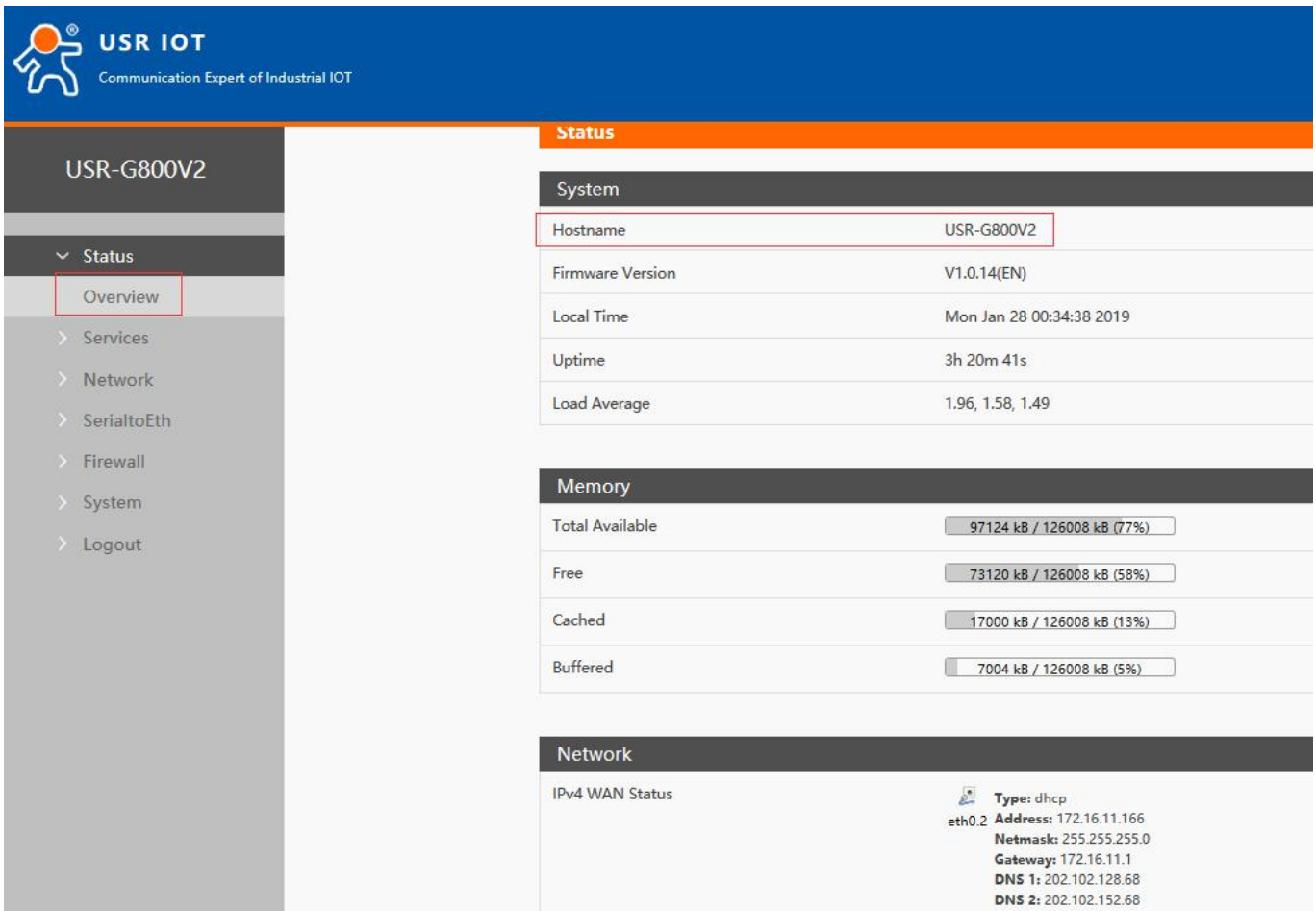
Parameters	Default
SSID	USR-G800V2-XXXX
IP of LAN port	192.168.1.1
Account	root
Password	root
Wifi-password	www.usr.cn



**Figure55 webpage**

## 4.2 Web Function

- Status



The screenshot shows the 'Status' page for the USR-G800V2 device. The left sidebar contains a navigation menu with 'Status' expanded and 'Overview' selected. The main content area is divided into three sections: System, Memory, and Network.

**System**

Hostname	USR-G800V2
Firmware Version	V1.0.14(EN)
Local Time	Mon Jan 28 00:34:38 2019
Uptime	3h 20m 41s
Load Average	1.96, 1.58, 1.49

**Memory**

Total Available	97124 kB / 126008 kB (77%)
Free	73120 kB / 126008 kB (58%)
Cached	17000 kB / 126008 kB (13%)
Buffered	7004 kB / 126008 kB (5%)

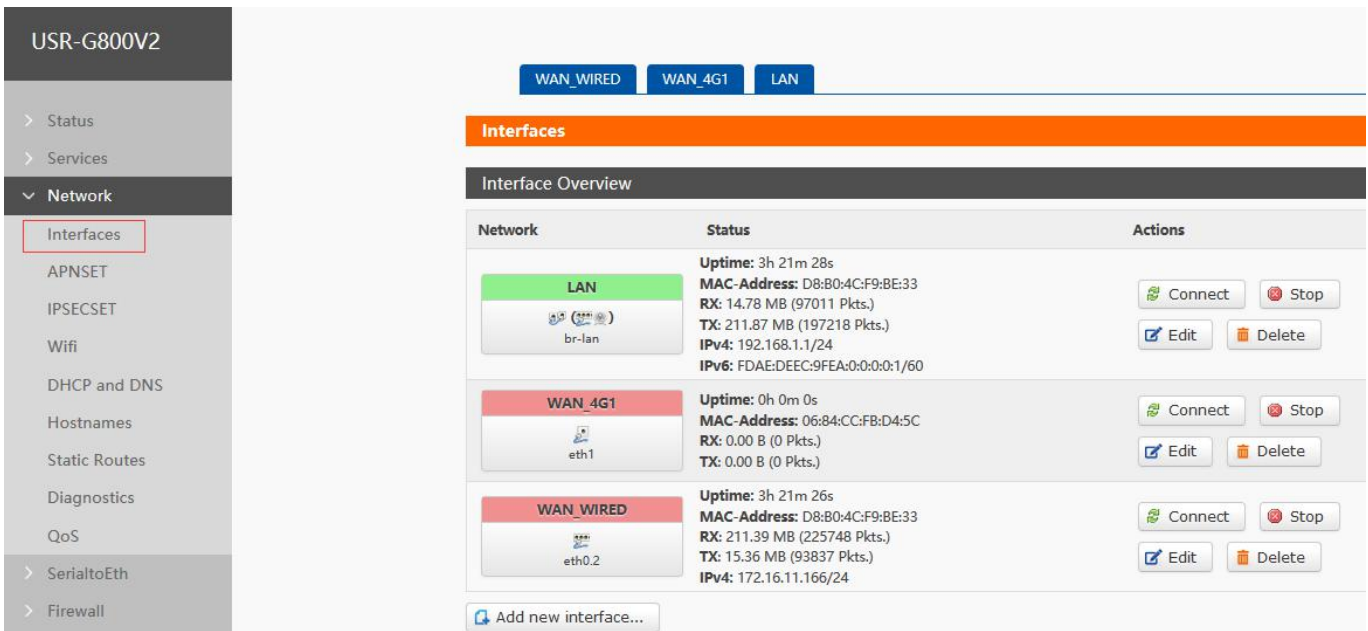
**Network**

IPv4 WAN Status

Type: dhcp  
eth0.2 Address: 172.16.11.166  
Netmask: 255.255.255.0  
Gateway: 172.16.11.1  
DNS 1: 202.102.128.68  
DNS 2: 202.102.152.68

Figure56 status

➤ Interfaces



The screenshot shows the 'Interfaces' page for the USR-G800V2 device. The left sidebar shows 'Network' expanded and 'Interfaces' selected. The main content area has tabs for 'WAN\_WIRED', 'WAN\_4G1', and 'LAN'. Below the tabs is a table of interface details.

**Interfaces**

Interface Overview

Network	Status	Actions
LAN br-lan	Uptime: 3h 21m 28s MAC-Address: D8:B0:4C:F9:BE:33 RX: 14.78 MB (97011 Pkts.) TX: 211.87 MB (197218 Pkts.) IPv4: 192.168.1.1/24 IPv6: FDAE:DEEC:9FEA:0:0:0:1/60	Connect Stop Edit Delete
WAN_4G1 eth1	Uptime: 0h 0m 0s MAC-Address: 06:84:CC:FB:D4:5C RX: 0.00 B (0 Pkts.) TX: 0.00 B (0 Pkts.)	Connect Stop Edit Delete
WAN_WIRED eth0.2	Uptime: 3h 21m 26s MAC-Address: D8:B0:4C:F9:BE:33 RX: 211.39 MB (225748 Pkts.) TX: 15.36 MB (93837 Pkts.) IPv4: 172.16.11.166/24	Connect Stop Edit Delete

Add new interface...

Figure57 interfaces

➤ Serial to Ethernet

**USR-G800V2**

- > Status
- > Services
- > Network
- ▼ SerialtoEth
  - setup\_ser2net
  - > Firewall
  - > System
  - > Logout

**Serial to ethernet**

Settings for Serial to Ethernet Converter, it has one serial port and able to transceive data to r

**Configuration**

Network | Serial Port | heart | register

Work Mode: TCPServer

Remote Address: 192.168.1.201

Remote Port: 8899 (1-65535)

Local Port: 8899 (1-65535)

ModbusTCP: NotUse

Save Apply

Figure58 serial to ethernet

➤ system

**USR-G800V2**

- > Status
- > Services
- > Network
- > SerialtoEth
- > Firewall
- ▼ System
  - System
  - Administration
  - Scheduled Tasks
  - Backup/Upgrade
  - Reboot
  - > Logout

**System Properties**

General Settings | Remote log | Local log | Language and Style

Local Time: Mon Jan 28 00:38:35 2019 Sync with browser

Hostname: USR-G800V2

Timezone: America/New York

**Time Synchronization**

Enable NTP client:

Provide NTP server:

NTP server candidates:

- 0.openwrt.pool.ntp.org
- 1.openwrt.pool.ntp.org
- 2.openwrt.pool.ntp.org
- 3.openwrt.pool.ntp.org

Figure59 system

## 5 AT Commands

Num	Command	Function
<b>Version</b>		
1	AT+VER	Query firmware version
2	AT+MAC	Query MAC
3	AT+ICCID	Query ICCID
4	AT+IMEI	Query IMEI
<b>4G</b>		
5	AT+SYSINFO	Query device network information
6	AT+APN	Query/set APN
7	AT+CSQ	Query signal strength
8	AT+TRAFFIC	Query traffic information
<b>System</b>		
9	AT+UPTIME	Query running time
10	AT+WWAN	Query IP of device
11	AT+LANN	Query/set LAN IP(effect when G800V2 work as router)
12	AT+WEBU	Query/set account and password of webpage
13	AT+PLANG	Query/set the default language of webpage
14	AT+RELD	Restore to factory setting
15	AT+Z	Reboot. Note: return +ok
16	AT+DHCOPEN	Enable/disable DHCP server
<b>Transparent</b>		
17	AT+SOCKALK	Query connect status
18	AT+SOCK	Query/set format of network protocol parameters
19	AT+UART	Query/set serial port parameters
20	AT+REGEN	Query/set transparent register package
21	AT+HTBT	Query/set transparent heartbeat package
<b>System Shell Command</b>		
22	AT+LINUXCMP	Execute system shell command



## 6 Contact us

**Company:** Jinan USR IOT Technology Limited

**Address:** Floor 11, Building 1, No. 1166 Xinluo Street, Gaoxin District, Jinan, Shandong, 250101, China

**Web:** [www.usriot.com](http://www.usriot.com)

**Support:** [h.usriot.com](http://h.usriot.com)

**Email:** [sales@usr.cn](mailto:sales@usr.cn)

**Tel:** 86-531-88826739

## 7 Disclaimer

This document provides the information of USR-G800V2 products, it hasn't been granted any intellectual property license by forbidding speak or other ways either explicitly or implicitly. Except the duty declared in sales terms and conditions, we don't take any other responsibilities. We don't warrant the products sales and use explicitly or implicitly, including particular purpose merchant-ability and marketability, the tort liability of any other patent right, copyright, intellectual property right. We may modify specification and description at any time without prior notice.

## 8 Updated History

2019-01-28 V1.0.1 established