USR-G806 Series

Industrial 4G router

Quick Start Guide V1.0.0

USR-G806w,USR-G806s,G806

Build a Smarter IoT world, Your Trustworthy Partner

Content

1. Introduction

1.1. Overview

USR-G806 series routers are IoT/M2M mobile broadband industrial router which work on 4G/3G cellular network to provide reliable, secure and high speed wireless connectivity for remote management, telemetry, condition monitoring, CCTV, ATMs, vending machine and other M2M applications.

G806w using one of the world's leading Atheros scheme, the CPU basic frequency 650MHZ, wireless support 802.11 N 300Mbps. Equipped with 4G LTE, Wi-Fi, and Three Ethernet ports, G806w offers unstoppable connection continuity with automatic WAN failover. Industrial design, compact size, multiple connection interfaces, and compatibility with device management platform make this device an excellent fit in numerous IoT and M2M solutions.

The specific models of this series of industrial routers are as follows. Please contact our sales for more information.

Table 1   USR-G806 series models

Model name	Description
USR-G806w	Global
USR-G806s	-43：China/India -G: Global(coming soon) -EAU:EMEA/Thailand
USR-G806 (END OF LIFE)	-43: China/India -G: Global -A: North America -E: EMEA/South Africa/Thailand -AU: Latin/Australia/New Zealand -EAU: Europe/Australia/New Zealand

1.2. Features

The USR-G806 series routers share the same software platform on different available hardware components. It provides

- Industrial design Metal shell, IP30 protection.
- Wide operating temperature.Wide voltage input,reverse polarity protection.
- ESD,Surge,EFT protection.
- Embedded hardware watchdog, self-recovers from malfunctions, maintaining high device availability.
- Supports 4G network all over the world ,supports APN/VPDN sim card.
- Failover between 4G and WAN, ensures automatic switch to alternative backup connection,effectively ensuring uninterrupted data transmission.
- Link backup: mutual backup of wired, 4G cellular and WiFi networks*
- Equipped with strong Wi-Fi capability,802.11 a/b/g/n,2.4G Wi-Fi,2*2 MIMO*, up to 300Mbps,Support AP/STA*/repeater mode*
- VPN tunnel detection: maintains stable connection of the VPN tunnel, ensuring continuous transmission.
- Multi-layer link detection mechanism, automatic redial and recovery.

- Supports PUSR cloud platform to facilitate remote monitoring and central management of large-scale device networks.

- Supports remote monitoring, upgrade and parameter configuration, remote access to the built-in web pages.

- Wall-mounting and DIN-rail mounting options available,easy to install.

- Supports IPsec VPN, PPTP,L2TP, OPENVPN,GRE etc., ensuring secure data transmission.

- Supports firewall functions including NAT, access control, DDoS defense, IP-MAC binding, etc., protecting the network against external attacks.

- Supports APN automatic inspection ,mode switch ,SIM information display, supports private sim card.

- Supports DDNS,PPPOE,DHCP,Static IP.

- Allows multiple network management methods including SSH, WEB, TELNET and a network management platform.

- Supports firewall, NAT,DMZ,black and white list of access control

- Support SNMP,VLAN*

Note:

*: only G806w supports this function

2. Quick start guide

This chapter contains the Quick Start Guide (QSG) for the USR-G806 series LTE Routers. Here you will find an overview of the various components on the front and back of a G806 device, hardware installation instructions, login information. It is highly recommended to acquaint yourself with the Quick Start Guide before using the device.

Specifications and dimensions are not provided in this manual since they may differ considerably based on the hardware purchase. Please refer to datasheet of each model for more information.

2.1. Hardware introduction

G806w is equipped with 3 Ethernet interfaces, 802.11 b/g/n WiFi, and 4G LTE Cat 4 cellular module, offering data speeds up to 150 Mbps. The router case preview is shown in Fig.1. A short description of hardware parts of the router is listed as bellow.

Fig. 1   Hardware interfaces

2.1.1. Packaging list

Before you begin to install the G806w router, please check the package contents to verify that you have received the items below.

- ✧ 1*USR-G806w
- ✧ 2* Wi-Fi Rubber Antennas(swivel, RP-SMA male)
- ✧ 1*Power Adapter
- ✧ 1*Cellular Rubber Antenna(swivel, SMA male)

2.1.2. SIM card slot

The device is compatible with nano-SIM (4FF) size cards. But different types of SIM cards have the same contact arrangement. A size perspective of the most popular SIM card types can be seen in the figure below:
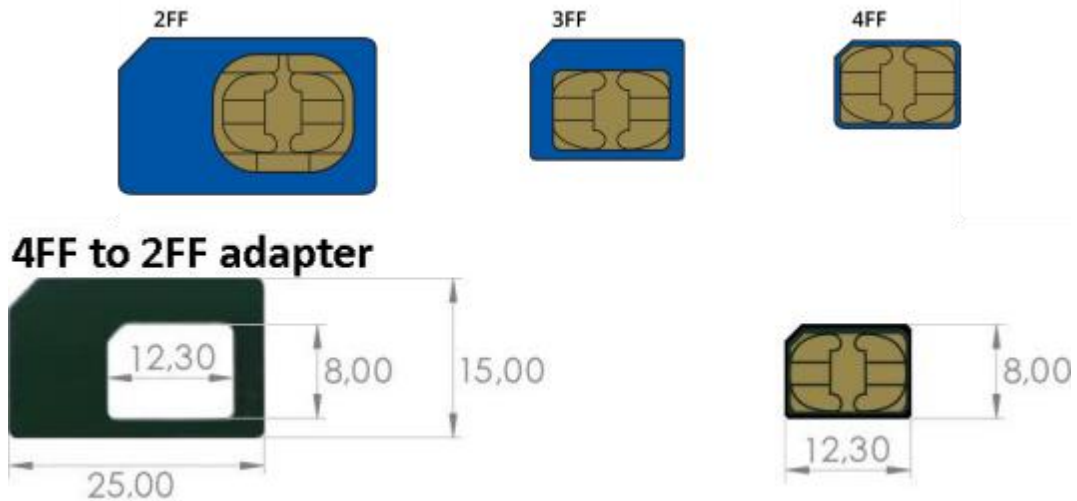
Fig. 2　**Type of sim cards**

Type of SIM card: Nano SIM (4FF) 12.30 x 8.80 x 0.67 mm.

Industrial Grade SIM cards are recommended for devices requiring a long lifespan used in environments with extreme temperatures, corrosive or extra humid climates, or hard-to-reach locations.

2.1.3.　Ethernet interfaces

The panel socket of RJ45 is used for Ethernet interface. The pinout of the socket is shown in Fig.3 and described in Table 2.
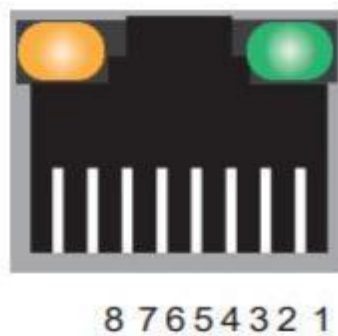

Fig. 3　**RJ45 with light**

Table 2　Ethernet pin assignments

Pin number	Signal name
1	Send data+(TD+)
2	Send data-(TD-)
3	Receive data+(RD+)
6	Receive data-(RD-)
4,5,7,8	Unused

The maximum length of the cables connected to the Ethernet ports is 60 meters to meet the EMC immunity conditions.

The isolation barrier of the Ethernet ports against the ground is 1500 V.

2.1.4.　Power socket

The router has a DC Power Jack Barrel Type Female 5.5*2.1mm Round socket or 2 PIN industrial terminal block and can be powered

by a 9-36 VDC power supply unit (PSU).

If you decide not to use the standard 12 VDC wall adapter and want to power the device from a higher voltage (15-36 VDC), please make sure that you choose a power supply of high quality. Some power supplies can produce voltage peaks significantly higher than the declared output voltage, especially during connection and disconnection.

2.1.5. LED indicators

The G806w LTE router provides LED indicators to monitor the device working status with a comprehensive simplified troubleshooting, the function of each LED is described in the table 3 as below.

Table 3   LED indicators

LED name	status	description
PWR	Steady on	Power supply is normal
	Off	No power supply or abnormal power supply
WLAN	Steady on	always solid on when WiFi is enabled and working properly
Mobile network type LEDs	Both LEDs turned on	Device is connected to a 4G network.
Mobile signal strength indication LEDs	Steady on	2 LEDs are solid on,strongest signal
Ethernet port LEDs	LED blinking	Connection established and there is activity on this port (data being transferred).

2.1.6. Reload button

A factory reset returns the device back to its default factory settings, i.e., it deletes all custom configurations. If the reload button is pressed for at least 5 seconds (by default), the device will perform a factory reset and reboot.

It is necessary to use a narrow screwdriver or any other small tool to press the RST button.

2.2. Hardware installation

2.2.1. Wall mounting

The wall mounting option provides better shock and vibration resistance than the DIN-Rail vertical mount.

✦ Locate the installation site and place the device against the wall. Use the wall mount plates as a guide to mark the locations of the screw holes.

Fig. 4　Wall mount kit

✧　Drill two holes over the two marked locations on the wall. Insert the wall sinks into the walls.

✧　Insert the screws into the wall sinks. Leave a 2 mm gap between the wall and the screw head to allow for wall mount plate insertion.

✧　Align the wall mount plate over the screws on the wall. Hang the device on two screws and slide it downward to lock in place, then tighten the screw to enhance stability, see the following Fig.5.
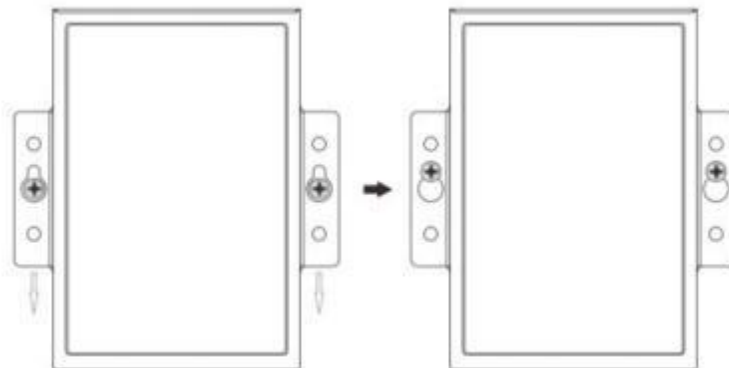

Fig. 5　Wall mount installation

✧　For device disassembling please power off the device and unscrew the screw on the wall about 2mm. Lift the device upward slightly, take out the device,

2.2.2.　DIN-Rail mounting

✧　Position the side panel of the device directly in front of the DIN-Rail, making sure that the top of the DIN-Rail clip hooks over the top of the DIN-Rail , as shown in Fig.6.
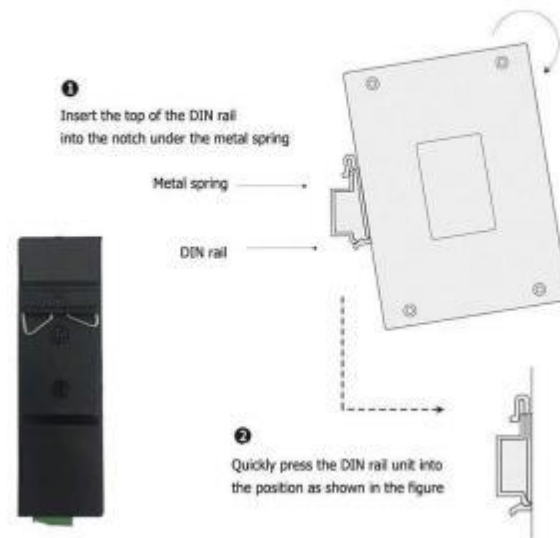
Fig. 6   Install DIN-Rail mounting kit

✦   Once the DIN-Rail is seated correctly in the DIN-Rail clip, press the front of the device to rotate the device down and into the release tab on the DIN-Rail clip. If seated correctly, the bottom of the DIN-Rail should be fully inserted in the release tab.
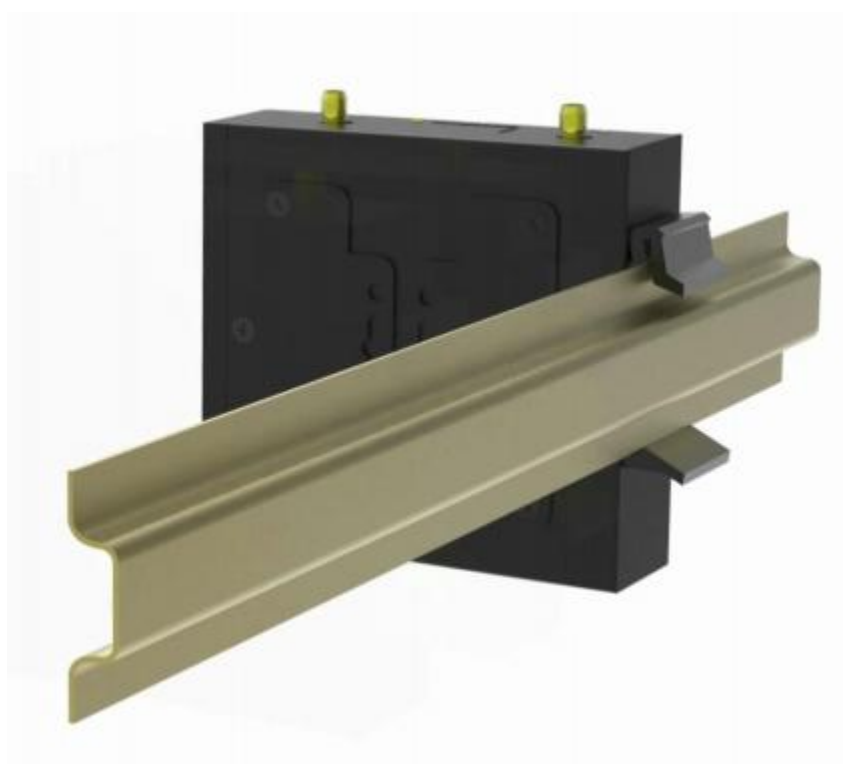

✦

Fig. 7   Correctly installed DIN-Rail kit

✦   Proceed to Fig.8 if you want to remove the device from DIN-Rail. Push down on the top of the DIN rail clip release tab with your finger. As the clip releases, lift the bottom of the device, as shown in the following illustration.
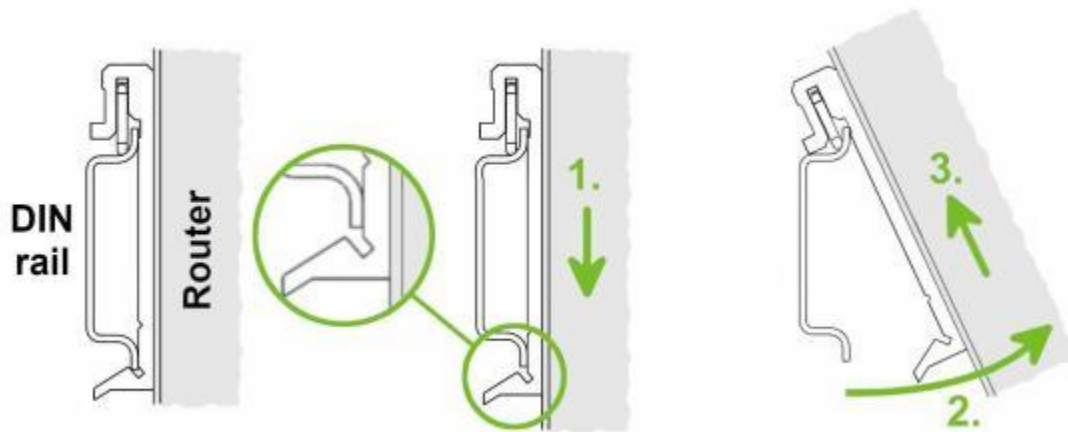
Fig. 8　**Removing router from the DIN Rail**

2.2.3. Antenna installation

Rotate the antenna into the antenna connector accordingly.

The external antenna should be installed vertically always on a site with a good signal.

2.2.4. SIM card installation

If you intend to use this device to communicate over a cellular network, please place an activated data-provisioned SIM card into the SIM card reader. The SIM cards may have different APNs (Access Point Names) adjusted. The SIM card changing procedure is

described below. Enter the PIN in the router's web interface if the PIN is required for the SIM .

•Always disconnect the router from the power supply before handling the SIM card.

•To insert a SIM card push card into the slot until it clicks into place.

•To remove an inserted SIM card, use the flat end of a spudger, or your fingernail, press the SIM card slightly into its slot until you hear a click. After hearing this click, release the card, and it will pop out of its slot.

Fig. 9　**Install the sim card**

2.2.5. Power supply

Required power supply voltage for the router is between +9 V and +36 V DC. Protection against reversed polarity without signaling is built into the router. For correct operation it is necessary that the power source is able to supply a peak current of 1 A.

Although internal grounding has been done inside, in order to help limit the effects of noise caused by electromagnetic interference (EMI) and protect your device, it is still strongly advised to ground the device properly. There is a grounding screw next to the terminal block,you should connect it to the grounding at all times.

2.3.   Log in the WebUI of router

2.3.1.   Configure your computer LAN(Windows)

1. Ensure the Network connection is Enabled. Go to **Start — Control Panel — Network and Internet — Network and Sharing Center**. Click on the **Change adapter settings** in the left panel, then right-click on Network Adapter, and select Enable.
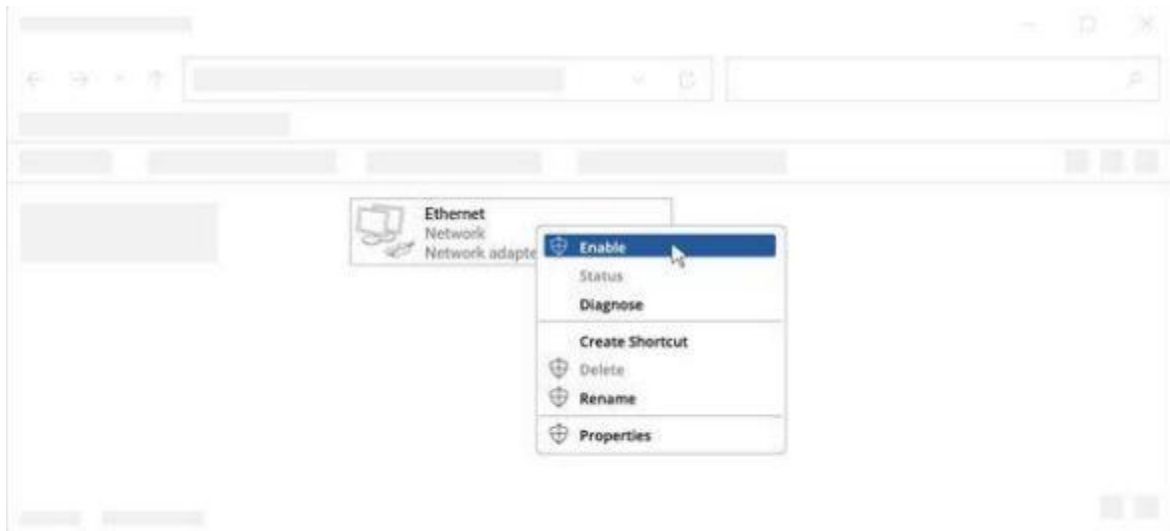

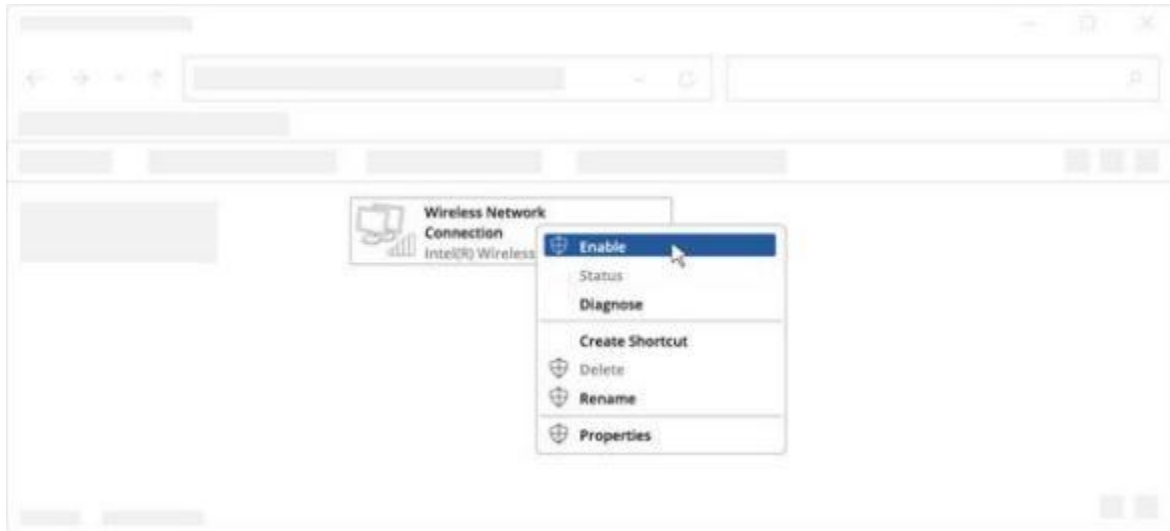**Fig. 10 Enable the Ethernet adapter**

2.   Check if IP and DNS are obtained automatically. Right-click on Ethernet Network Adapter and select Properties. Then select **Internet Protocol Version 4** and click Properties.

Fig. 11 **Configure the IP address of PC**

3.   If not selected, check to obtain an IP address and obtain DNS server address automatically. Click OK.

2.3.2.   Configure your computer Wi-Fi (Windows)

1. Ensure the Wireless network connection is Enabled. Go to Start — Control Panel — Network and Internet — Network and Sharing Center. Click on the **Change adapter settings** in the left panel, then right-click on Wireless Network Adapter, and select Enable.

Fig. 12 **Enable the wireless adapter**

2. Check if IP and DNS are obtained automatically. Right-click on Wireless Network Adapter and select Properties. Then select Internet Protocol Version 4 and click Properties.

Fig. 13 **Configure the IP address of PC**

3. If not selected, check to obtain an IP address and obtain DNS server address automatically. Click OK.

4. Connect to a wireless network by right-clicking on Wireless Network Adapter and selecting Connect.
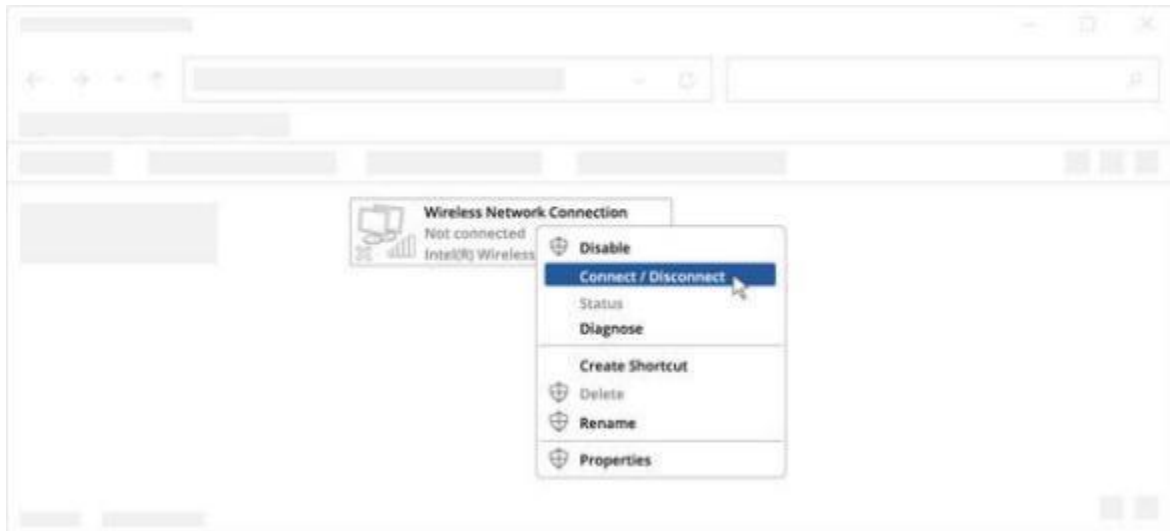

Fig. 14 **Connect WiFi SSID**

5. Choose the wireless network USR-G806w- **** from the list and click Connect. Enter the Wi-Fi password located on the device's label.

2.3.3. Login to device

1. Open a Web browser on your PC (Chrome is recommended), type in the IP address **192.168.1.1**, and press Enter on your keyboard.

2. When prompted for authentication enter the username and password **admin** located on the device information label.

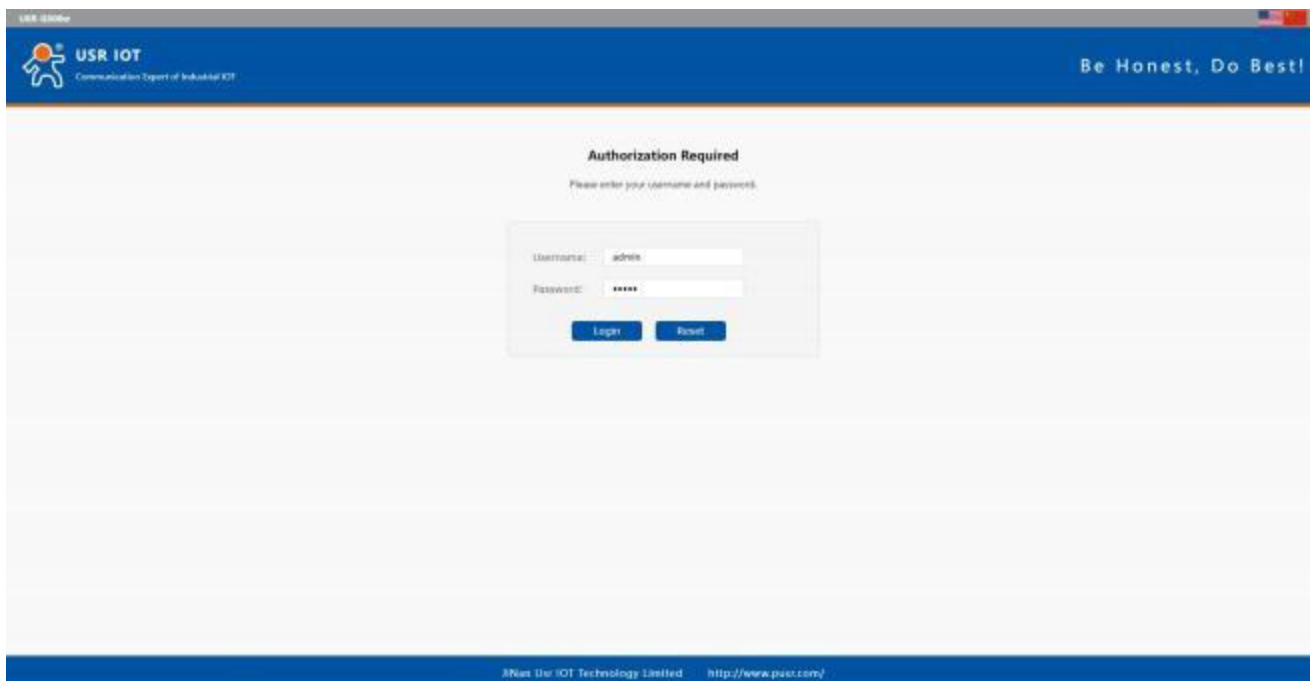3. After you login the WebUI, you can view system information and perform configuration on the router.

Fig. 15 **Login the WebUI**

2.4. Network configuration

This section explains how to connect USR-G806 to network via WAN connection or cellular.

2.4.1. Ethernet WAN configuration
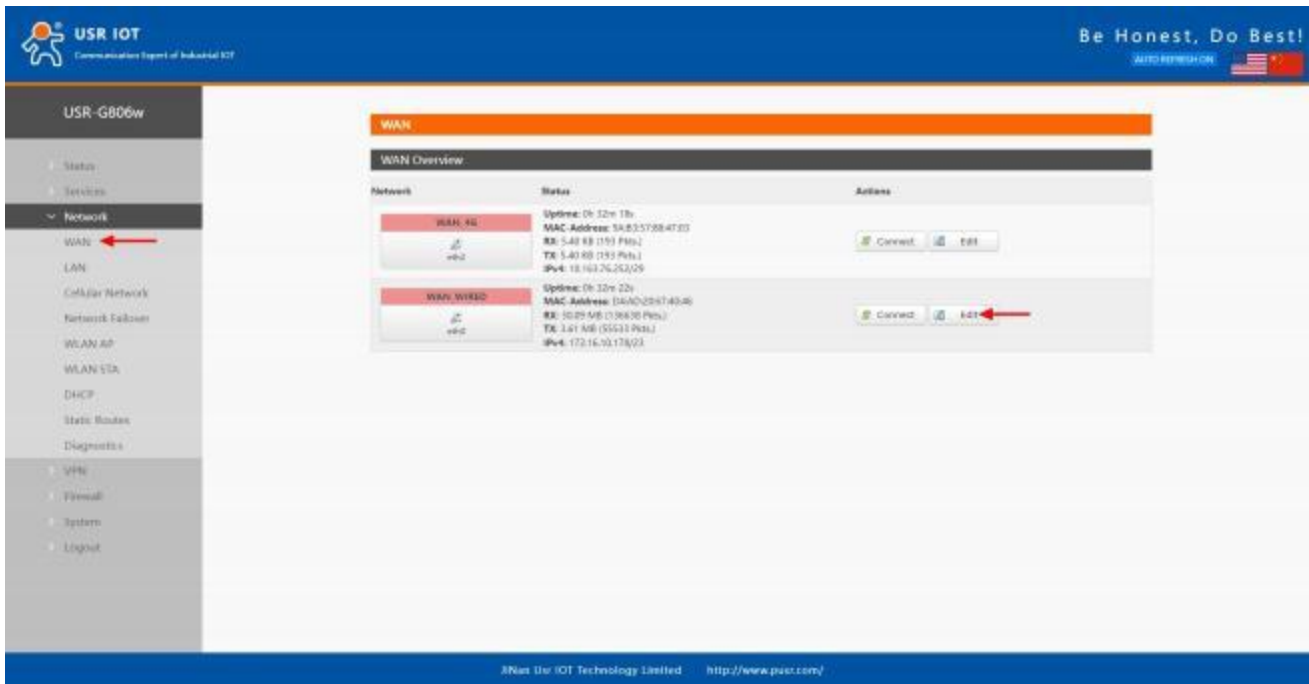
1. Go to "Network > WAN" to click Edit button.

Fig. 16 **WAN configuration**

2. Select protocol and configure WAN parameters, click "Save & Apply" button to make the changes take effect.
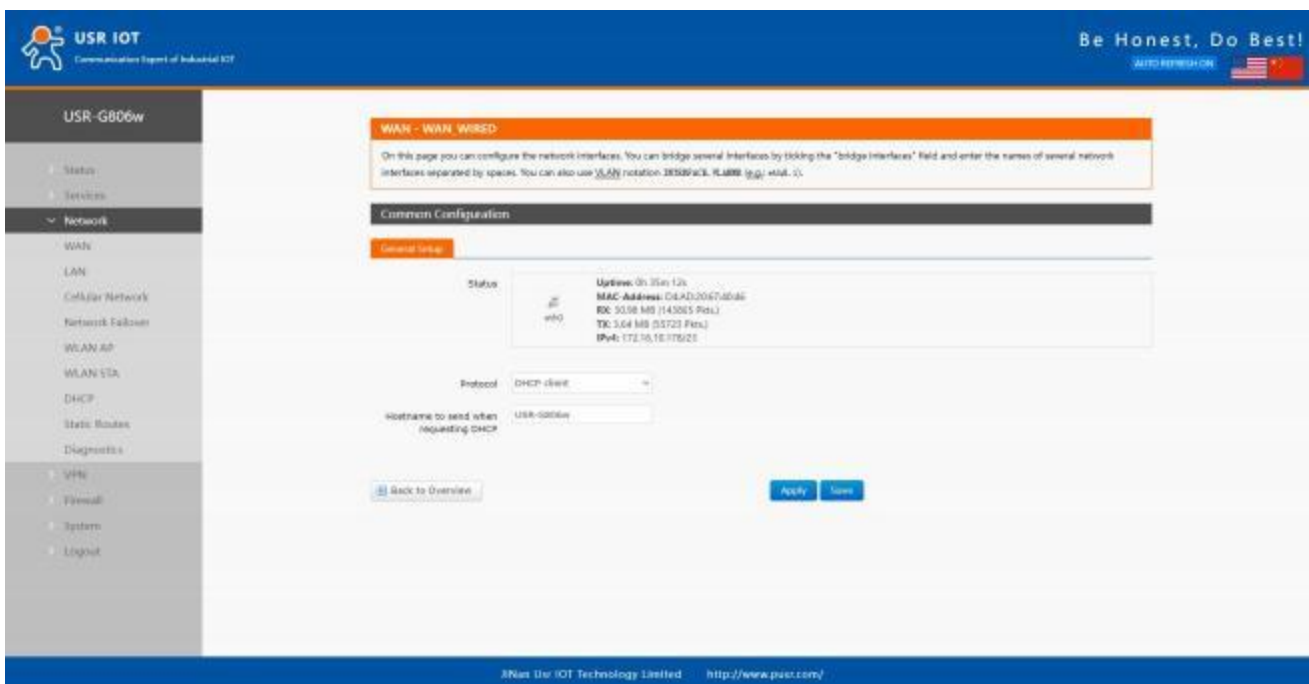

Fig. 17 **Configure Wired_WAN**

3. Connect WAN port to another network devices like Gateway or Modem.

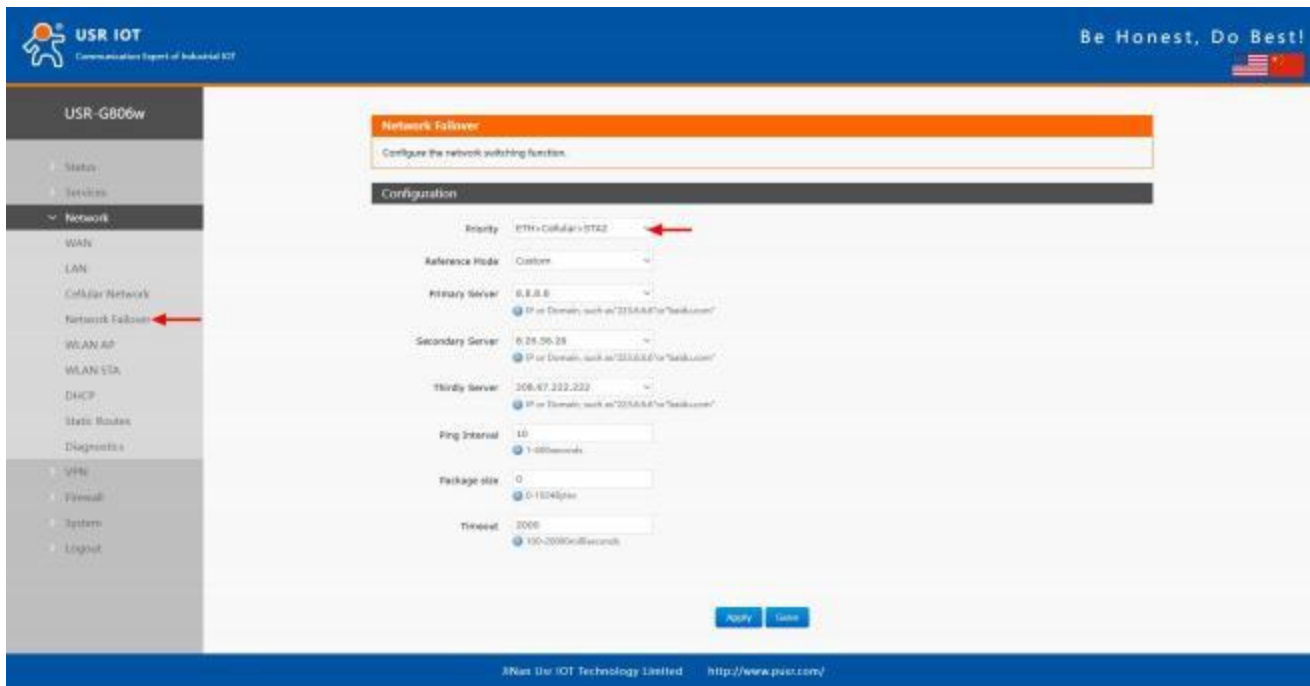4. Go to "Network > Link Failover" to select the WAN priority.

Fig. 18 Configure the WAN priority

5. Open your preferred browser on PC, then type any available web address into address bar and see if it is able to visit Internet via USR-G806 router.

2.4.2. Cellular connection configuration

1. Go to "Network > Cellular Network > WAN_4G Setting" to configure APN, PIN code or other cellular info, click "Save" and "Apply" to save the configuration.
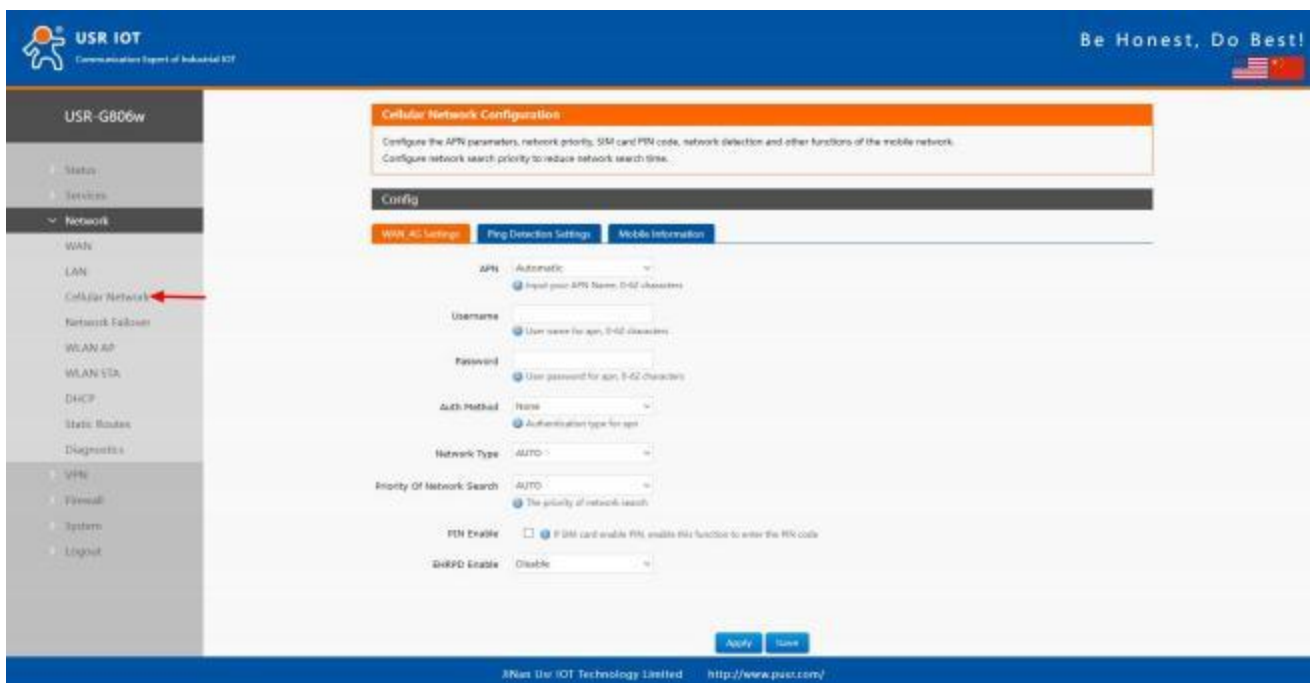

Fig. 19 Configure cellular network

2. Click "mobile information" to view the status of the cellular connection. If it shows "Network type", it means SIM has dialed up successfully. On the other hand, you can check the status of SIM indicator. If it keeps on mobile network type LEDs statically, it means SIM has dialed up successfully. To achieve the best signal conditions and maximize cellular performance, try adjusting the antennas or changing the location of your device.
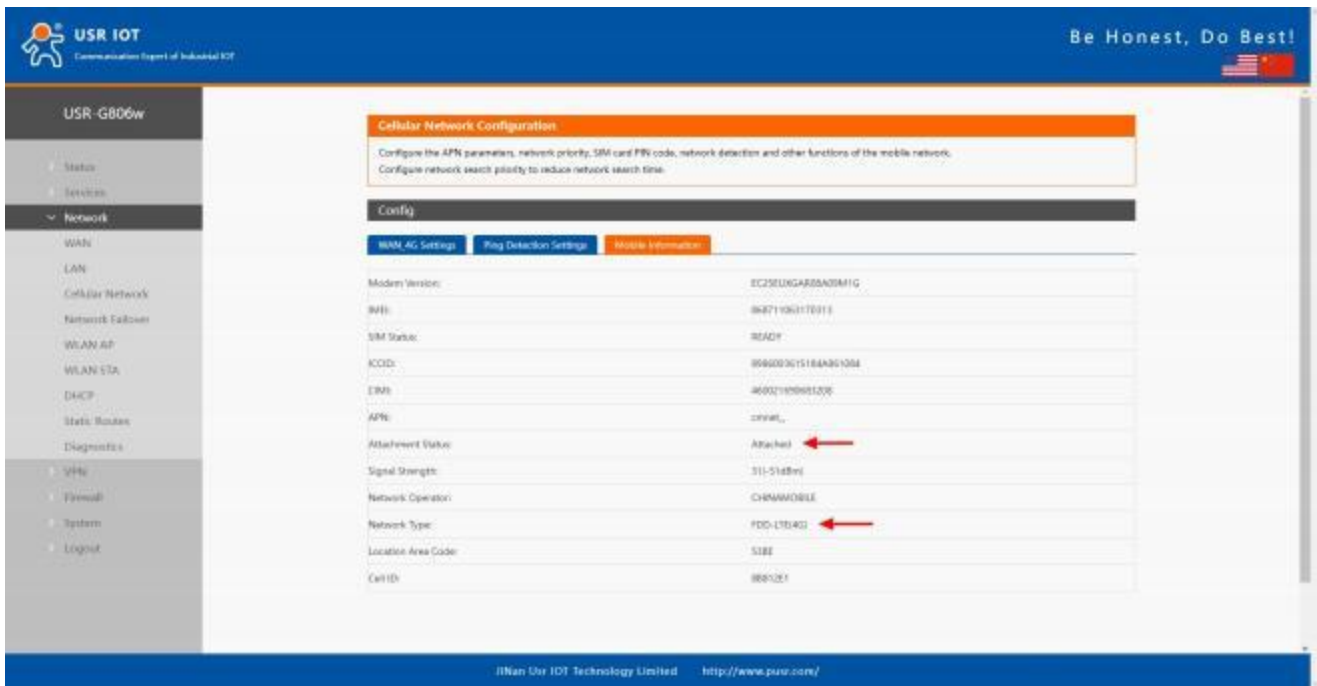
Fig. 20 Mobile information

3. Open your preferred browser on PC, then type any available web address into address bar and see if it is able to visit Internet via USR-G806w router.

2.4.3. WiFi STA connection configuration

The WiFi module supports multi-role mode which allows to operate as access point (AP) and station (STA) simultaneously. The multichannel mode is not supported, so the AP and the STA must operate on the same channel only.

Activate WiFi station mode by checking Enable box at the top of the Network > WLAN STA configuration page. In this mode the router becomes a client station. It will receive data packets from the available access point (AP) and send data from cable connection via the WiFi network. Click on the scan to select the target SSID, set encryption and password.
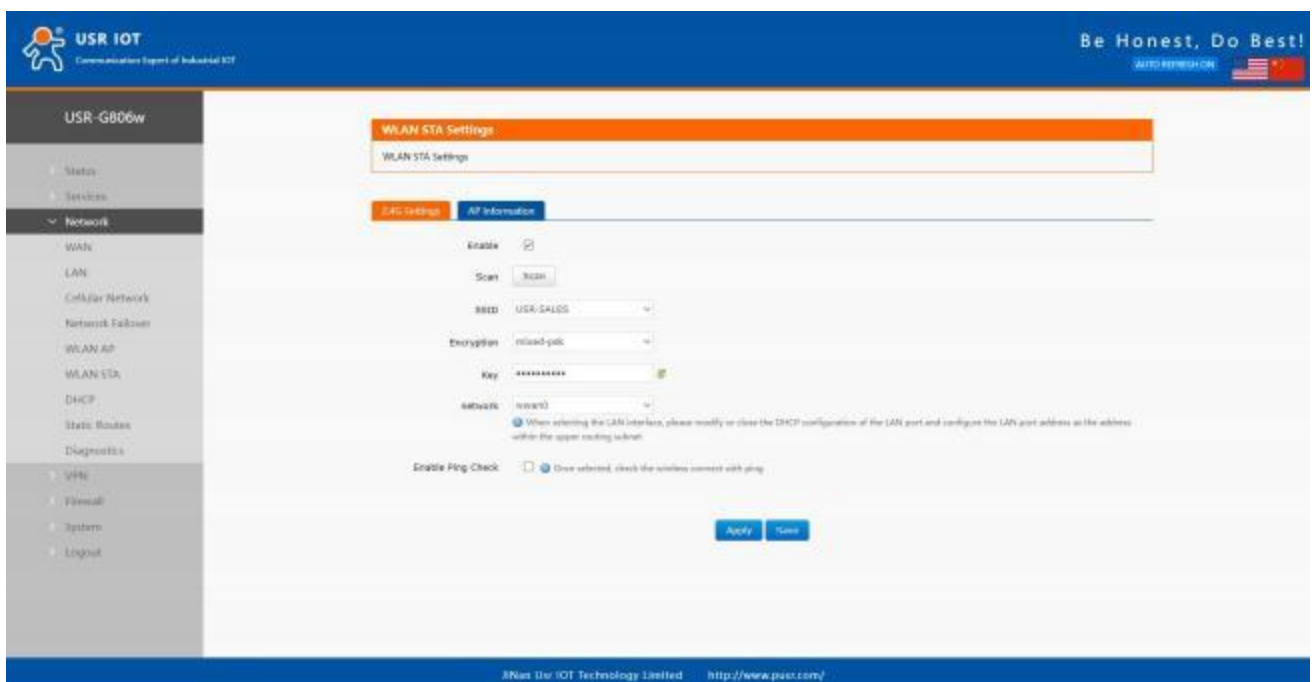

Fig. 21 WiFi Station Configuration

All changes in settings will apply after pressing the Apply button.

Click on the navigation bar "Network > WAN" to see the connection status, if connected and get the dynamic DHCP address, it means that the device is online.
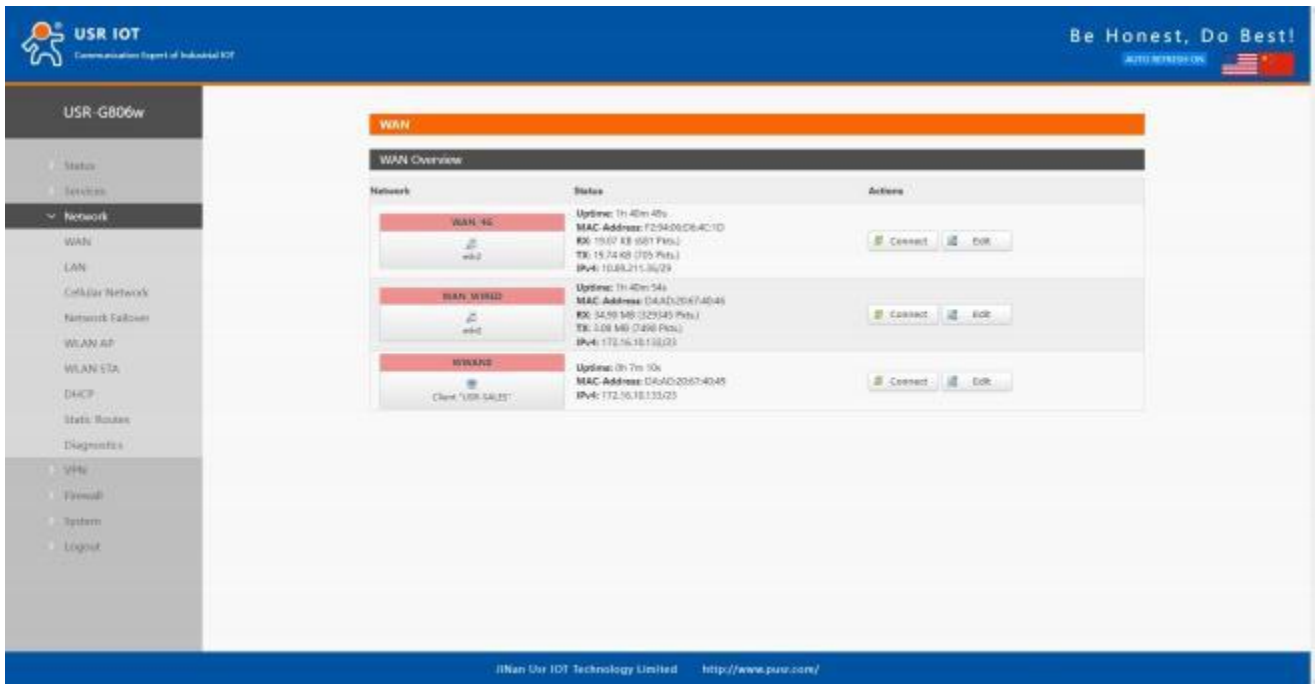

Fig. 22 **wireless networking results**

2.5. Restore to factory default settings

Login to the WEB page, click on the "System > Backup/Upgrade" menu in the navigation tree to enter the "Backup/Restore" interface. Click the "Perform" button to restore the factory default settings.
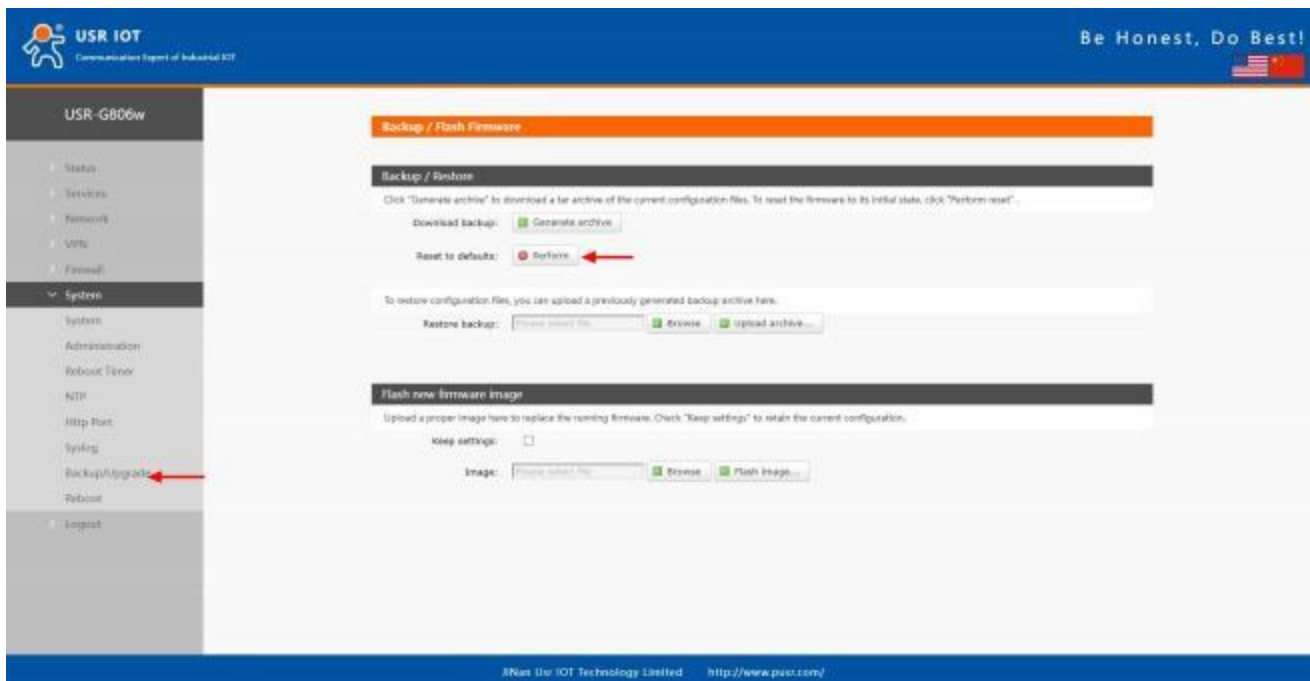

Fig. 23 **Restore factory defaults**

For hardware resetting please refer to section 2.1.6.

2.6. Import/Export configuration

2.6.1. Export configuration

You can save actual configuration of the router using the Backup Configuration item in the System menu section. Login to the WEB page, click on the "System > Backup/Upgrade" menu in the navigation tree to enter the "Backup / Restore" interface.

Click Generate archive to export the currently applied configuration parameter file, and the exported file is in ".tar.gz" format.
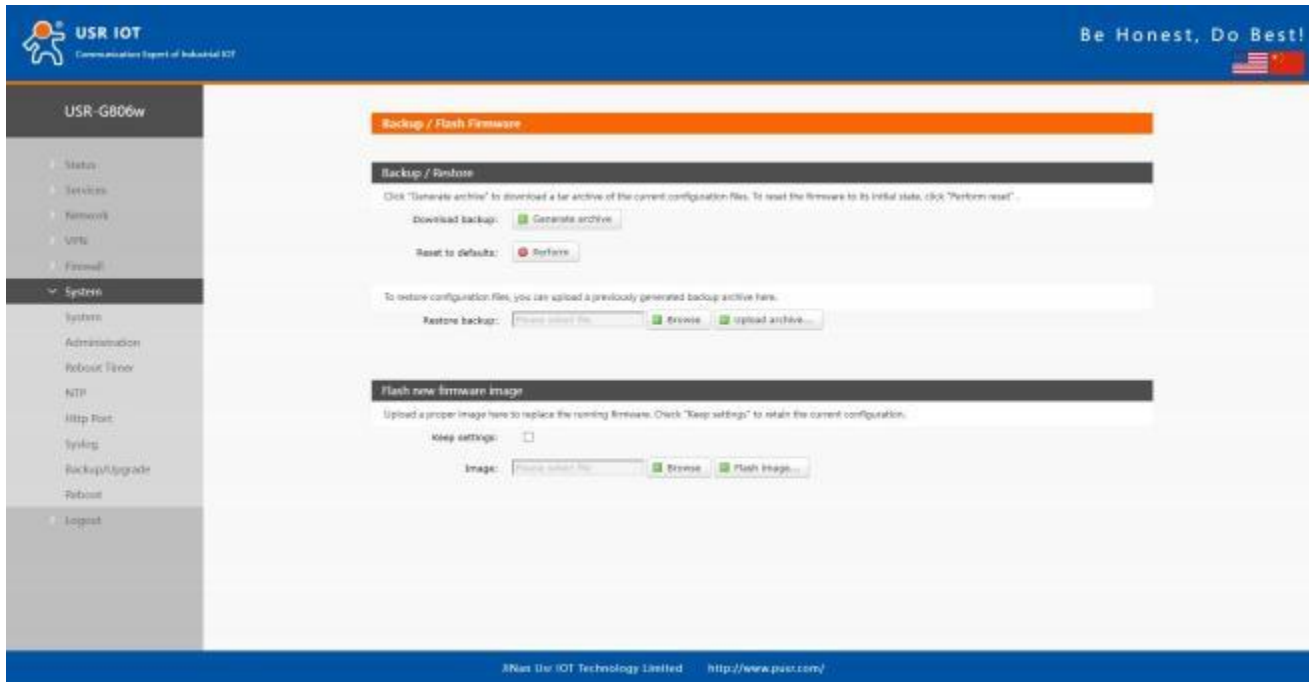

Fig. 24 **Export configuration**

2.6.2. Import configuration

You can restore a router configuration stored in a file. You have created the file as shown in the previous chapter.

Next, click the Browse button to navigate the directory containing the configuration file you wish to load to the router.

To start the restoration process, click on upload archive button. After importing the configuration file, restart the system to take effect.

2.7. Technical support and assistance

Please visit the USR IoT website: https://www.pusr.com where you can find the latest information about the product.

Contact your distributor, sales representative, or PUSR's support center:

http://h.usriot.com/index.php?c=frontTicket&m=sign for technical support if you need additional assistance. Please have the following information ready before you submit a ticket:

– Product model

– Description of your peripheral attachments

– Description of your software (firmware version, application,function description,etc.)

– A complete description of the issue and steps to reproduce

3. Contact Us

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