



Welink your smart

**GR500**

# INDUSTRIAL LTE ROUTER

## QUICK START GUIDE



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## APPLICATION RANGE

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<b>Industrial Wireless Router</b>	
GR500-U1A	
GR500-U1AS	Support GPS

GOSUNCN Confidential

## REVISION HISTORY

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VERSION	DATE	DESCRIPTION
V1.0	2018-06-04	First release

GOSUNCN Confidential

## ABOUT THIS DOCUMENT

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### Reading Note

The symbols below are the reading notes you should pay attention on:




: Warning or Attention



: Note or Remark

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 **NOTE:** Consult our website for up-to-date product descriptions, documentation, application notes, firmware upgrades, troubleshooting tips, and press releases


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## CONTACT INFORMATION

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 **Note: Consult our website for up-to-date product descriptions, documentation, application notes, firmware upgrades, troubleshooting tips, and press releases**

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Besides, GOSUNCN provides various technical support ways to the customers, such as support by phone, website, instant messaging, E-mail and on-site.

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## 1. PRODUCT INTRODUCTION

GR500 3G/4G LTE IoT industrial wireless communication router takes the advantage of public 4G network to provide data transmission through long distance.

The product uses high-performance 32-bit industrial grade communications processor and industrial grade wireless module, Software platform is an embedded real-time operating system, While providing an RS232 interface, 2 Ethernet LAN (one of which can be configured as WAN), At the same time, connect a serial port and Ethernet equipment, implement the data transparent transmission and routing functions.

The product has been widely used in the networking industry chain in the M2M industry, Such as smart grid, smart transportation, smart home, finance, mobile POS terminals, supply chain automation, industrial automation, intelligent building, fire, public safety, environmental protection, meteorology, digital medical, telemetry, space exploration, agriculture, forestry, water, coal, petrochemical and other fields.

## 2. PACKING LIST

Please kindly check the packing list, if there are omissions, please contact the dealer.

Name of Accessory	Quantity	Remark
GR500 LTE Router Main Machine	1	
3G/4G Antenna	2 pieces	
Installation Hardware	1 pair	
Quick Start Guide	1 piece	
12VDC Power Adapter	1 piece	
RJ45 Cable	1 piece	
WLAN Antenna(The cable length is 1m)	1 piece	Optional
GPS Antenna	1 piece	Optional
RJ45-RS323 Cable	1 piece	Optional

### 3. BEFORE INSTALLATION

#### 3.1. GR500 PRODUCT EXTERIOR VIEW



Figure 3-1

#### 3.2. INDICATOR LIGHT DESCRIPTION

Table 3-2

Indicator Light	Status	Description
PWR	ON	Power ON
	OFF	Power OFF
	Flash	Temperature anomalies
SYS	ON	System operating normally
	OFF	Abnormal system operation
	Flash	Temperature anomalies
PPP	ON	Network connection
	OFF	No dial
	Fast Flash	Dialing
	Slow Flash	Allocated on a non-4G network
VPN	ON	Any VPN turned on
	OFF	Disconnect
	Flash	Connecting



SIG	ON	21~31
	Slow Flash	11~20
	Fast Flash	1~10
	OFF	No service
BAK	ON	WAN as the primary link, and lte work
	Flash	Exception, none of access
	OFF	WAN works, LTE not working

### 3.3. PC CONNECTION

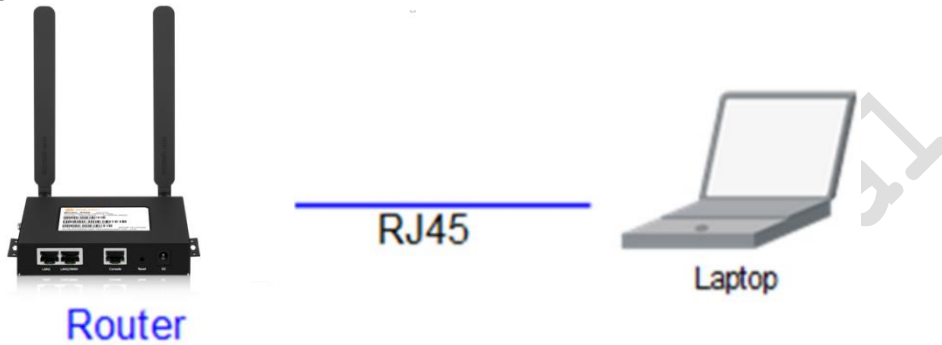


Figure 3-2 PC Connection



**NOTE (Back of the device):**

- Router antenna interface is SMA female socket. The matching antenna SMA male antenna screwed to the router interface and ensure tightened so as not to affect the signal quality.
- Insert the SIM card holder the right of small yellow dots with spikes, SIM card sets to pop up. When installing the SIM card, the first SIM card into the card holder and ensure that the SIM card metal contacts facing down, and then insert the SIM card holder in the drawer and make sure it clicks into place.

## 4. COMPUTER CONFIG (WINDOWS OS)

Press "WINDOWS + X" to open the menu, select "Control panel".

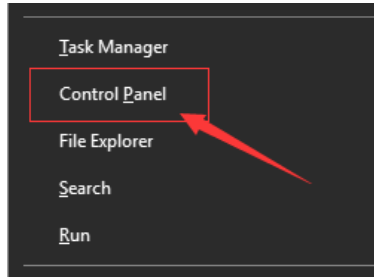


Figure 4-1

Open "View network status and tasks".

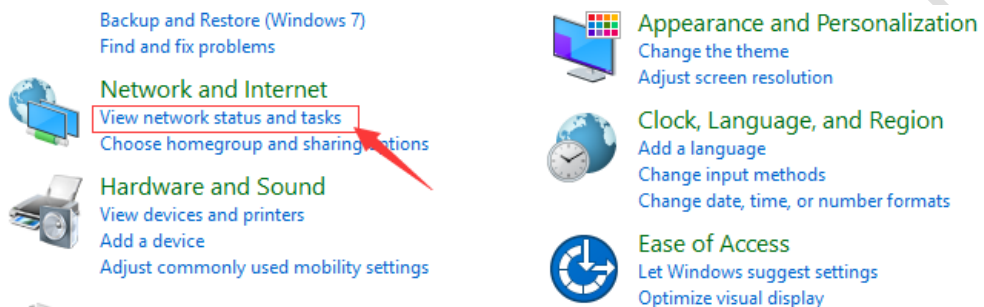


Figure 4-2

Open "Change adapter settings",

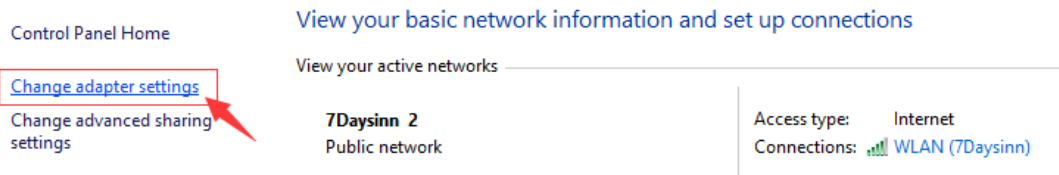


Figure 4-3

Open Ethernet Properties.

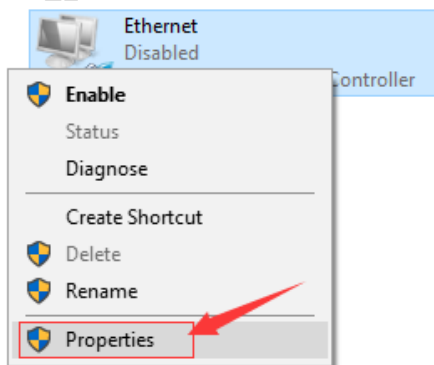


Figure 4-4

Select the internet protocol version 4 (TCP / IPv4) and click Properties.

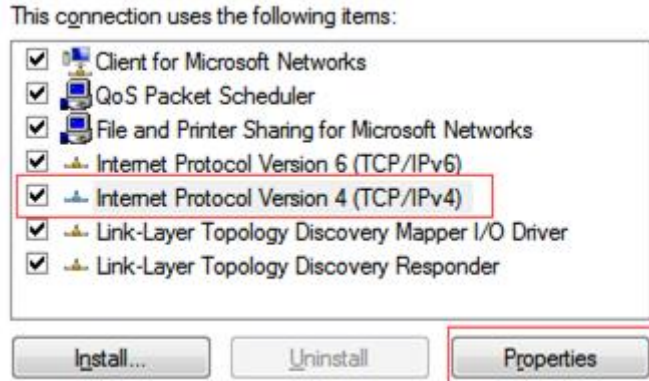


Figure 4-5

Select the Obtain an IP address automatically and Obtain DNS server address automatically.

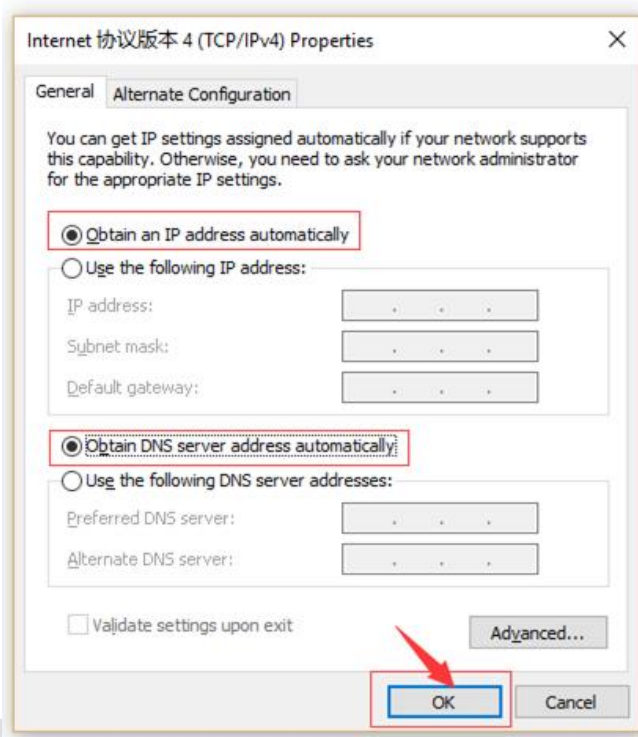


Figure 4-6

## 5. ROUTER PARAMETER CONFIG

### 5.1. BRIEF INTRODUCTION

Open the Chrome browser, enter 192.168.1.1 in the address bar to open the configuration screen and enter your password.

User name: admin

Password: admin

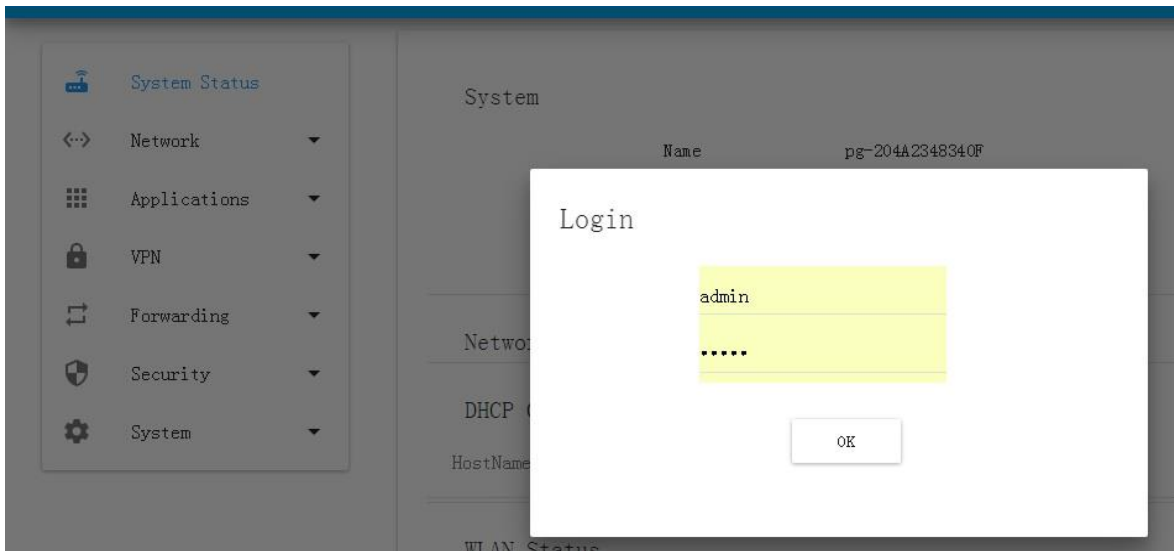


Figure 5-1

Click on "English" to select English language .



Figure 5-2

Connected to the Internet, there are two ways, one is a mobile network, and the other is connected through the Ethernet WAN.

Mobile Network:

Open the Network configuration WWAN, Fill SIM card operator APN and authentication type.

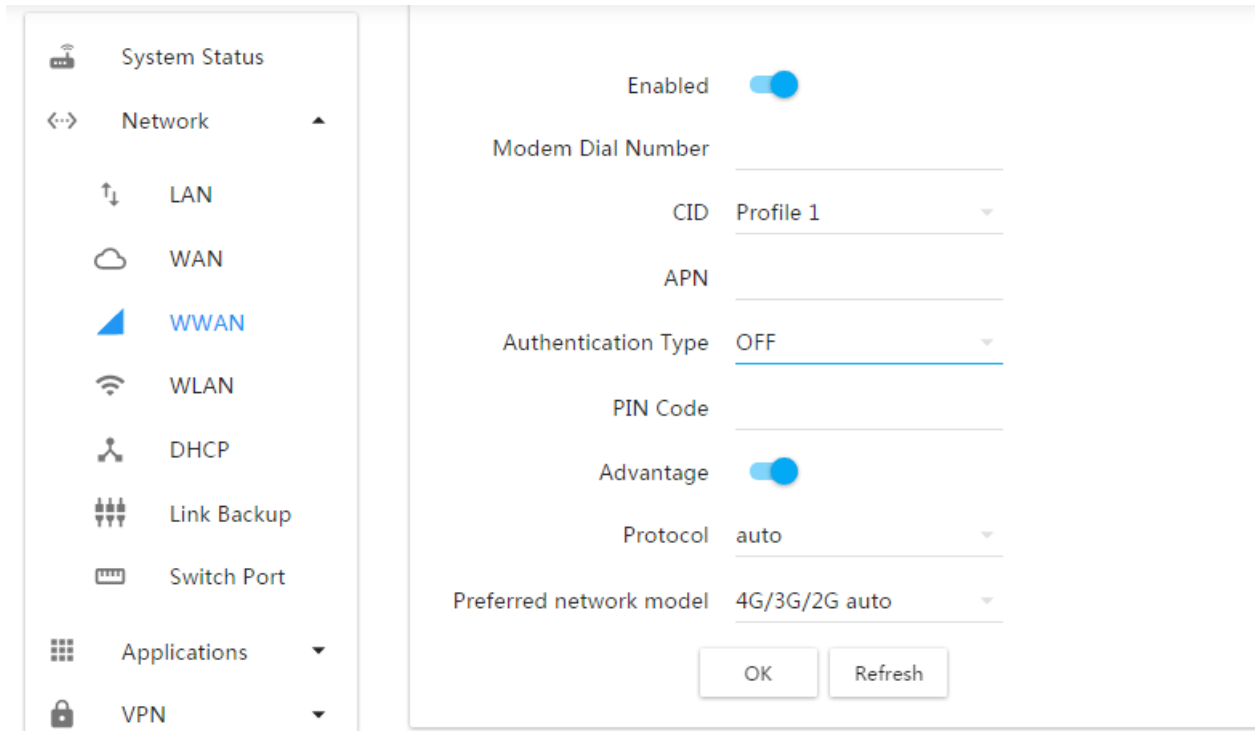


Figure 5-3

**Ethernet WAN:**

Open the "WAN" in the network configuration menu, in the "Connect Via" You can select the network mode.

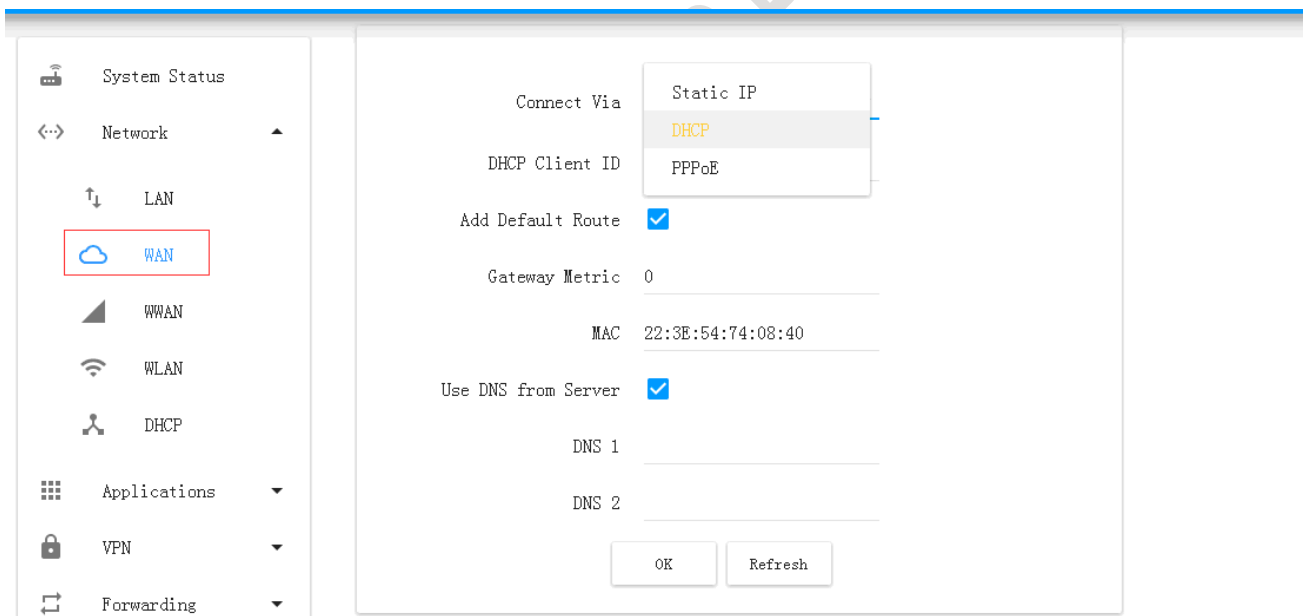


Figure 5-4

**WLAN Configuration:**

Select "WLAN" option in the network configuration, turn on the wireless status, set SSID number and password.

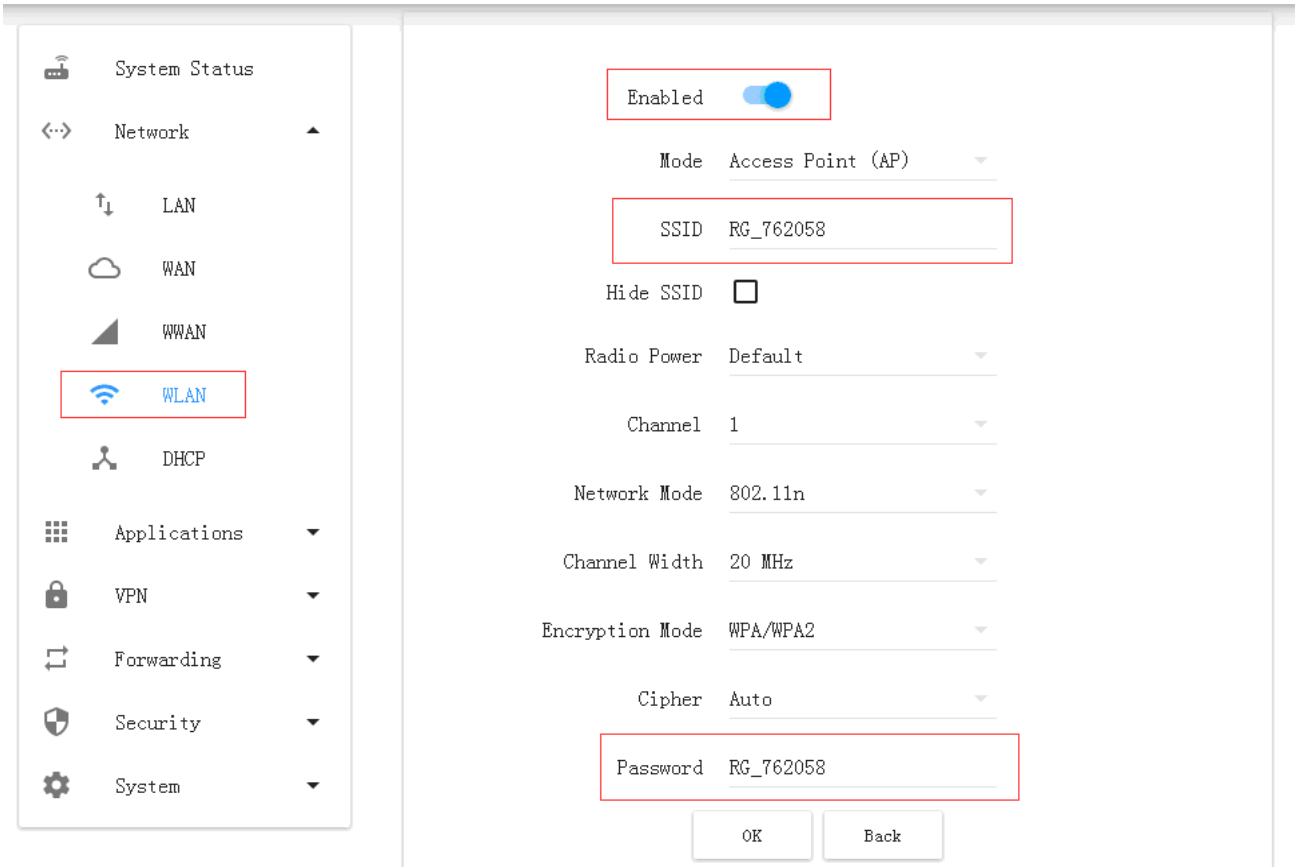


Figure 5-5

Online Maintenance Configuration: Click "Application Configuration > Online Maintenance" to open the "ICMP Detection" tab, as shown in Figure 5-5

Two default addresses can be tested under public network, if it is used in private network condition, the default address in server 1 and server 2 should be modified to the ones which private network can be connected with, otherwise there may be some abnormal network faults caused by keeping disconnection.

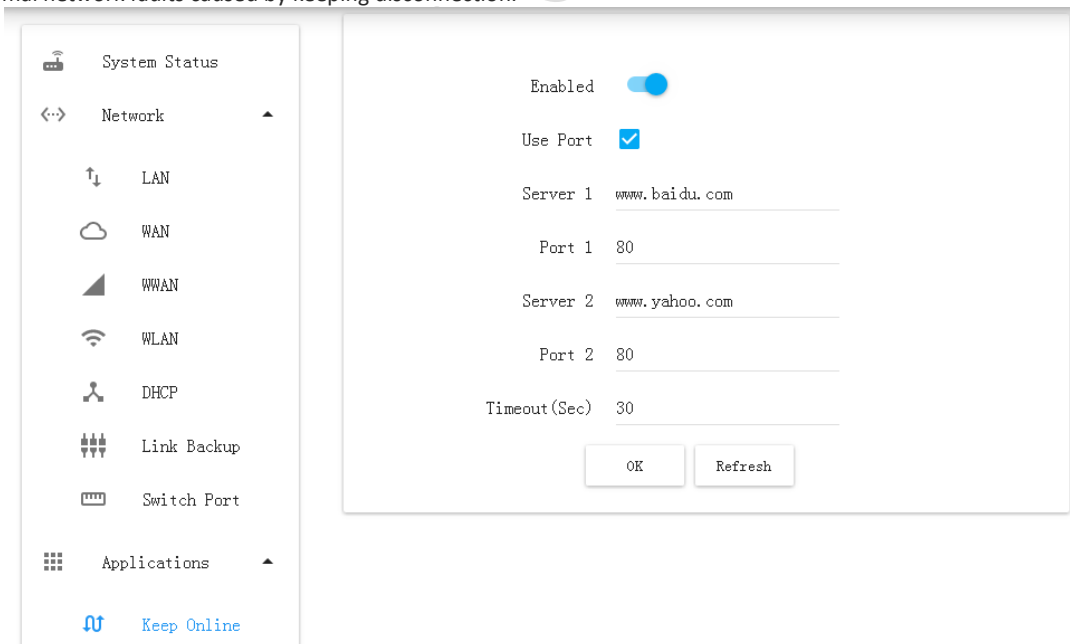


Figure 5-6

## 6. ROUTER SYSLOG ILLUSTRATION

Choose "Debug" in system configuration and select target log under "Log Type", then click "Refresh". The table below is the parameter description.

Table 6-1

Log Type	Description	Log Check
System Log	All router system log	Click "Refresh", new log will be displayed in log box
Kernel Log	Kernel log	Click "Refresh", new log will be displayed in log box
DNS Log	All IP address information of DNS under router	Click "Refresh", new log will be displayed in log box
DHCP Log	Router distribute IP address to client and get IP log from its WAN interface	1. There is huge amount information of DNS log, DNS log should be enabled before log inquiry. 2. Click "Refresh", new log will be displayed in log box
Keepalive Log	Log for online test of overtime connection	Click "Refresh", new log will be displayed in log box
PPP Log	Log of PPP dialing and VPN PPP dialing	Click "Refresh", new log will be displayed in log box
WWan Log	Log of module dialing	Click "Refresh", new log will be displayed in log box
WAN Log	Log of WAN interface	Click "Refresh", new log will be displayed in log box
PPTP Log	Log of PPTP VPN connection	Click "Refresh", new log will be displayed in log box
L2TP Log	Log of L2TP VPN connection	Click "Refresh", new log will be displayed in log box
IPSec Log	Log of IPSec VPN connection	Click "Refresh", new log will be displayed in log box

Choose "System log" as all log information, mark only read kernel log information. WWAN log and WAN log are mainly described here.

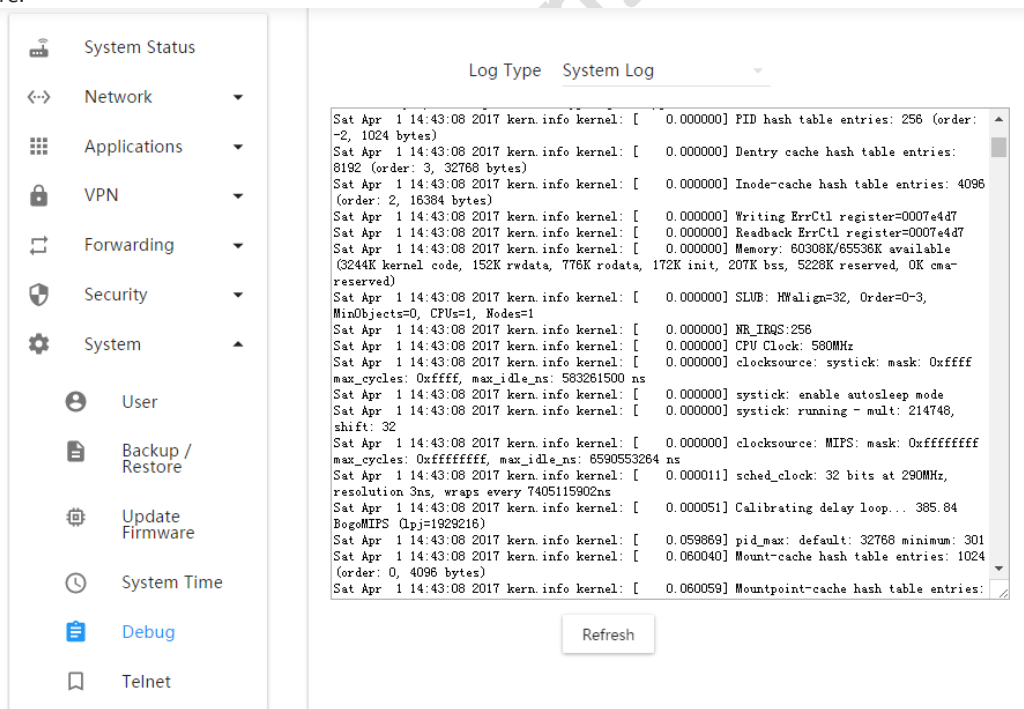


Figure6-1

**WAN log :**

Log Type WAN Log

```

Sat Apr 1 14:43:20 2017 daemon.notice netifd: wan (1845): udhcpd (v1.24.2) started
Sat Apr 1 14:43:21 2017 daemon.notice netifd: wan (1845): Sending discover...
Sat Apr 1 14:43:21 2017 daemon.notice netifd: wan (1845): Sending select for 192.168.10.103...
Sat Apr 1 14:43:21 2017 daemon.notice netifd: wan (1845): Lease of 192.168.10.103 obtained,
lease time 43200
Sat Apr 1 14:45:45 2017 daemon.notice netifd: wan (1845): Received SIGTERM
Sat Apr 1 14:45:45 2017 daemon.notice netifd: wan (2714): udhcpd (v1.24.2) started
Sat Apr 1 14:45:46 2017 daemon.notice netifd: wan (2714): Sending discover...
Sat Apr 1 14:45:46 2017 daemon.notice netifd: wan (2714): Sending select for 192.168.10.103...
Sat Apr 1 14:45:46 2017 daemon.notice netifd: wan (2714): Lease of 192.168.10.103 obtained,
lease time 43200
Sat Apr 1 14:47:21 2017 daemon.notice netifd: wan (2714): Received SIGTERM
Sat Apr 1 14:47:21 2017 daemon.notice netifd: wan (3775): udhcpd (v1.24.2) started
Sat Apr 1 14:47:22 2017 daemon.notice netifd: wan (3775): Sending discover...
Sat Apr 1 14:47:22 2017 daemon.notice netifd: wan (3775): Sending select for 192.168.10.103...
Sat Apr 1 14:47:22 2017 daemon.notice netifd: wan (3775): Lease of 192.168.10.103 obtained,
lease time 43200
Sat Apr 1 14:47:33 2017 daemon.notice netifd: wan (3775): Received SIGTERM
Sat Apr 1 14:47:33 2017 daemon.notice netifd: wan (4351): udhcpd (v1.24.2) started
Sat Apr 1 14:47:33 2017 daemon.notice netifd: wan (4351): Sending discover...
Sat Apr 1 14:47:36 2017 daemon.notice netifd: wan (4351): Sending discover...
Sat Apr 1 14:47:36 2017 daemon.notice netifd: wan (4351): Sending select for 192.168.10.103...
Sat Apr 1 14:47:37 2017 daemon.notice netifd: wan (4351): Lease of 192.168.10.103 obtained,
lease time 43200
                
```

Figure6-2

**WWAN log :** log information can be referred in the figure below, the information in red box is the information after online.



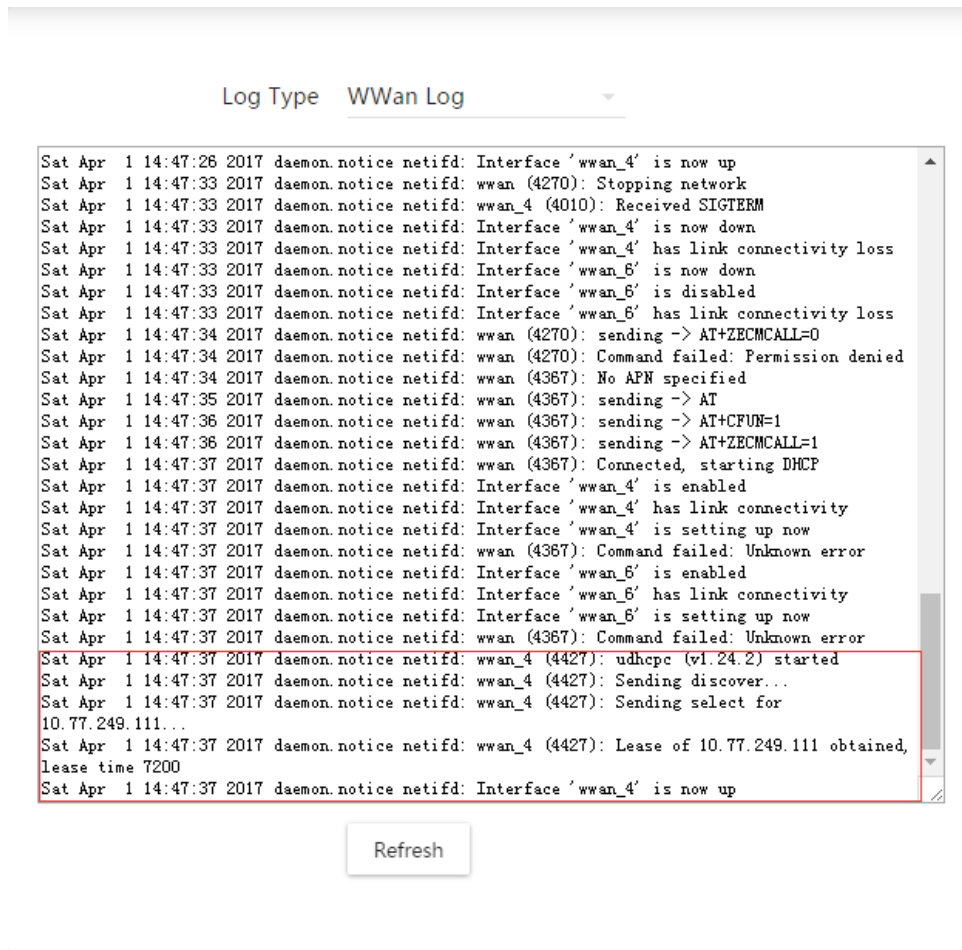
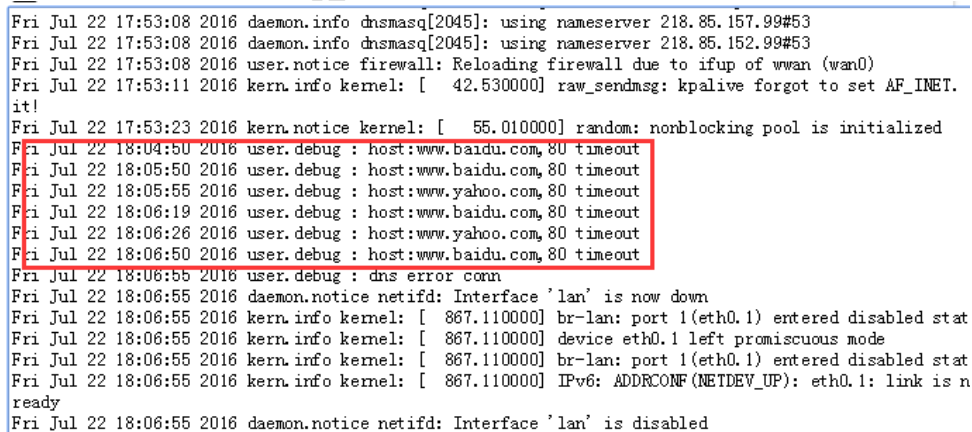


Figure6-3

**Keepalive log :** when network disconnection , will online test connection to [www.baidu.com](http://www.baidu.com) and [ping www.yahoo.com as](http://ping www.yahoo.com as) timeout , and will connect again.



```

Fri Jul 22 18:06:56 2016 daemon.notice netifd: Interface 'wwan_b' is now down
Fri Jul 22 18:06:56 2016 daemon.notice netifd: Interface 'wwan_6' has link connectivity loss
Fri Jul 22 18:06:56 2016 daemon.warn dnsmasq[2045]: no servers found in /tmp/resolv.conf.auto, will retry
Fri Jul 22 18:06:56 2016 daemon.notice netifd: wwan_4 (2217): Received SIGTERM
Fri Jul 22 18:06:56 2016 daemon.notice netifd: Interface 'wwan_4' is now down
Fri Jul 22 18:06:56 2016 daemon.notice netifd: Interface 'wwan_4' is disabled
Fri Jul 22 18:06:56 2016 daemon.notice netifd: Interface 'wwan_4' has link connectivity loss
Fri Jul 22 18:06:57 2016 daemon.notice netifd: radio0 (2660): command failed: Not supported (-122)
Fri Jul 22 18:06:57 2016 user.notice firewall: Reloading firewall due to ifup of lan (br-lan)
Fri Jul 22 18:06:57 2016 kern.info kernel: [ 869.250000] br-lan: port 1(eth0.1) entered forwarding state
Fri Jul 22 18:06:59 2016 daemon.notice netifd: wwan (2657): sending -> AT 'NETACT=0,0
Fri Jul 22 18:06:59 2016 daemon.notice netifd: wwan (2657): Error running AT-command
Fri Jul 22 18:06:59 2016 daemon.notice netifd: wwan (2657): Failed to disconnect
Fri Jul 22 18:06:59 2016 daemon.notice netifd: Interface 'wwan' is now down
Fri Jul 22 18:06:59 2016 daemon.notice netifd: Interface 'wwan' is setting up now
Fri Jul 22 18:07:01 2016 daemon.notice netifd: wwan (2827): sending -> AT
Fri Jul 22 18:07:02 2016 daemon.notice netifd: wwan (2827): sending -> AT+CFUN=1
Fri Jul 22 18:07:02 2016 daemon.notice netifd: wwan (2827): sending -> AT+MODECONFIG=2
Fri Jul 22 18:07:03 2016 daemon.notice netifd: wwan (2827): sending -> AT+CGDCONT=1,"IP","ctnet"
Fri Jul 22 18:07:04 2016 daemon.notice netifd: wwan (2827): sending -> AT 'NETACT=1,0
Fri Jul 22 18:07:05 2016 daemon.notice netifd: wwan (2827): Connected, starting DHCP
Fri Jul 22 18:07:05 2016 daemon.notice netifd: Interface 'wwan' is now up
Fri Jul 22 18:07:05 2016 daemon.notice netifd: Network device 'wan0' link is up
Fri Jul 22 18:07:05 2016 daemon.notice netifd: Network alias 'wan0' link is up
Fri Jul 22 18:07:05 2016 daemon.notice netifd: Interface 'wwan_4' is enabled
Fri Jul 22 18:07:05 2016 daemon.notice netifd: Interface 'wwan_4' has link connectivity
    
```

Figure6-4

## 7. FEDERAL COMMUNICATION COMMISSION INTERFERENCE STATEMENT

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This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### FCC Caution:

- Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.
- This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

### Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

**FCC ID: 2APNR-GR500**