



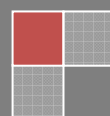
# User Manual

---Apply to R520 Series Industrial 3G/4G Router

V3.0

<http://www.wlink-tech.com>

2014/12/25



**Copyright © Shenzhen WLINK Technology Company Limited 2012 ~ 2014**

Without our written approval, Anyone can't extract, copy whole or part of content of this file and can't spread out in any format.

**Caution**

Due to product updates or functional upgrading, we may renew the content of this file, and this file only for reference. All statement, information, suggestion.etc in this file does not compose any form of guarantee and we WLINK reserves the right of final explanation.

## Shenzhen WLINK Technology Company Limited

Add: 6F, Yiben Building, Chaguang Road, Xili, Nanshan District, China, 518054

Web: <http://www.wlink-tech.com>

Service Email: [support@wlink-tech.com](mailto:support@wlink-tech.com)

Tel: 86-755-26059261

Fax: 86-755-26059261

# Contents

Contents.....	2
1 Product Introduction.....	4
1.1 Product overview .....	4
1.2 Model introduction .....	4
1.3 Product Appearance.....	6
1.4 Typical Application Diagram .....	6
1.5 Features .....	7
2 Hardware Installation.....	8
2.1 Panel:.....	8
2.2 LED Status.....	9
2.3 Dimension .....	10
2.4 How to Install .....	10
3 Router Configuration.....	12
3.1 Local Configure .....	12
3.2 Basic Configuration .....	13
3.3 WLAN Setting .....	18
3.4 Advanced Network Setting .....	22
3.5 VPN Tunnel.....	28
3.6 System Management .....	30

3.7 Debugging Setting .....	37
3.8 “RST” Button for Restore Factory Setting .....	40
3.9 Appendix (For advanced optional features only) .....	40

# 1

## Product Introduction

### 1.1 Product overview

WLINK industrial Router use industrial grade design, high-powered 32bit MIPS network processor, embedded industrial grade, high powered, multi-band frequency mobile 3G+ communication module, support WCDMA, HSPA+, TD/FDD-LTE, EVDO (CDMA 2000) etc., high-speed mobile, wide band, provide quick, convenient internet access or private network transmission to customer, optional built-in WI-FI module or multi-LAN port, provide wire-line network or wireless WLAN share high speed wide band access, meanwhile, customized high security VPN (Open VPN、IPSec、SSL), to construct safe channel, widely used in financial, electric power, environment, oil, transportation, security, etc..

WLINK industrial series router provide WEB GUI, optional CLI configuration interface, customer can configure only by IE explore or Telnet/SSH, various configuration method, concise and friendly interface make configuring and managing of all router terminal easier ,meanwhile, WLINK provide M2M terminal management platform to manage all router terminal with remote management. User can monitor all terminals which connected to platform successfully by this platform, provide long-distance control, parameter configuration, and long-distance upgrade service.

### 1.2 Model introduction





WLINK industrial grade router series have single module / single SIM card, single module / double SIM card, double module / double SIM card design, support multi-band frequency WCDMA, HSPA+, TD/FDD-LTE, EVDO (CDMA 2000) etc., mobile wide-band, downward compatibility to GPRS、EDGE、CDMA 1x, etc., mobile narrow-band, optional built-in Wi-Fi module to build WLAN network, optional GPS module Expansion positioning function, to suit different requirement and different network environment of different operator, our Router series have many model for option, below is the product model indications in detail, for more optional models, please consult local distributors /resellers.

Table 1-1 Router partial model table

Optional Model list								
Model	LTE	3G	Interface	Dual SIM	WiFi	GPS	DL	UL
WL-R520L	FDD LTE 2600/2100/1800/900/800MHz	UMTS 800/850/900/1900/2100MHz	4xLAN 1xWAN		✓		100M	50M
WL-R520L-d	FDD LTE 2600/2100/1800/900/800MHz	UMTS 800/850/900/1900/2100MHz	4xLAN 1xWAN	✓	✓		100M	50M
WL-R520L-g	FDD LTE 2600/2100/1800/900/800MHz	UMTS 800/850/900/1900/2100MHz	4xLAN 1xWAN		✓	✓	100M	50M
WL-R520LZ	FDD LTE: 2600/2100/1900/1700/900/850/700MHz TDD LTE: B338	UMTS 2100/1900/850/900MHz	4xLAN 1xWAN		✓		FDD:100M TDD: 60M	FDD:100M TDD: 60M
WL-R520LZ-d	FDD LTE: 2600/2100/1900/1700/900/850/700MHz TDD LTE: B38	UMTS 2100/1900/850/900MHz	4xLAN 1xWAN	✓	✓		FDD:100M TDD: 60M	FDD: 50M TDD: 60M
WL-R520LZ-g	FDD LTE: 2600/2100/1900/1700/900/850/700MHz TDD LTE: B40	UMTS 2100/1900/850/900MHz	4xLAN 1xWAN		✓	✓	FDD:100M TDD: 60M	FDD: 50M TDD: 60M
WL-R520H		HSPA+ 2100/1900/850MHz	4xLAN 1xWAN		✓		21M	5.76M
WL-R520H-d		HSPA+ 2100/1900/850MHz	4xLAN 1xWAN	✓	✓		21M	5.76M
WL-R520H-g		HSPA+ 2100/1900/850MHz	4xLAN 1xWAN		✓	✓	21M	5.76M
WL-R520H2		HSPA 2100/1900/900/850MHz	4xLAN 1xWAN		✓		14M	5.76M
WL-R520H2-d		HSPA 2100/1900/900/850MHz	4xLAN 1xWAN	✓	✓		14M	5.76M
WL-R520H2-g		HSPA 2100/1900/900/850MHz	4xLAN 1xWAN		✓	✓	14M	5.76M
WL-R520U		HSUPA 2100/1900/900/850MHz	4xLAN 1xWAN		✓		7.2M	5.76M
WL-R520U-d		HSUPA 2100/1900/900/850MHz	4xLAN 1xWAN	✓	✓		7.2M	5.76M
WL-R520U-g		HSUPA 2100/1900/900/850MHz	4xLAN 1xWAN		✓	✓	7.2M	5.76M
WL-R520E		EVDO 800MHz	4xLAN 1xWAN		✓		3.1M	1.8M
WL-R520E-d		EVDO 800MHz	4xLAN 1xWAN	✓	✓		3.1M	1.8M
WL-R520E-g		EVDO 800MHz	4xLAN 1xWAN		✓	✓	3.1M	1.8M
WL-R520E-dm		EVDO 800MHz HSPA+ 2100/1900/850MHz	4xLAN 1xWAN	Dual SIM Dual Module	✓		3.1M	1.8M
<b>Note:</b> 1. If need Dual module dual SIM, pls consult wlink sale person 2. If need Special frequency band, pls consult wlink sale person 3. Please specify before order if need VPN or OpenVPN								

## 1.3 Product Appearance

Table 1-2 WLINK Router Appearance

Series	R200	R200—W (G)	R520-g	R520-d
Appearance				
Ports	1*LAN 1*WAN	1*LAN + 1*WAN + GPS or WLAN(11n 1T1R)	1*WAN + 4*LAN + GPS or WLAN(11n 1T1R)	1*WAN + 4*LAN + single module/dual SIM, dual module/dual SIM
Product category	Single port router	Single port Wi-Fi (GPS) router	Multi-port Wi-Fi router	multi-port double-link router

## 1.4 Typical Application Diagram

WLINK 4G/3G Router widely used in Telecom, economic, advertisement, traffic, environment protection business area.

For example, in economic area, R520 Series Router connect server by IPSec & GRE to ensure data security, tiny design makes it could installed into ATM machine. All these technology ensured safe and reliable data transmission, and minimize the probability of network disconnection, and maximize the usability of economic business like ATM, POS .etc.

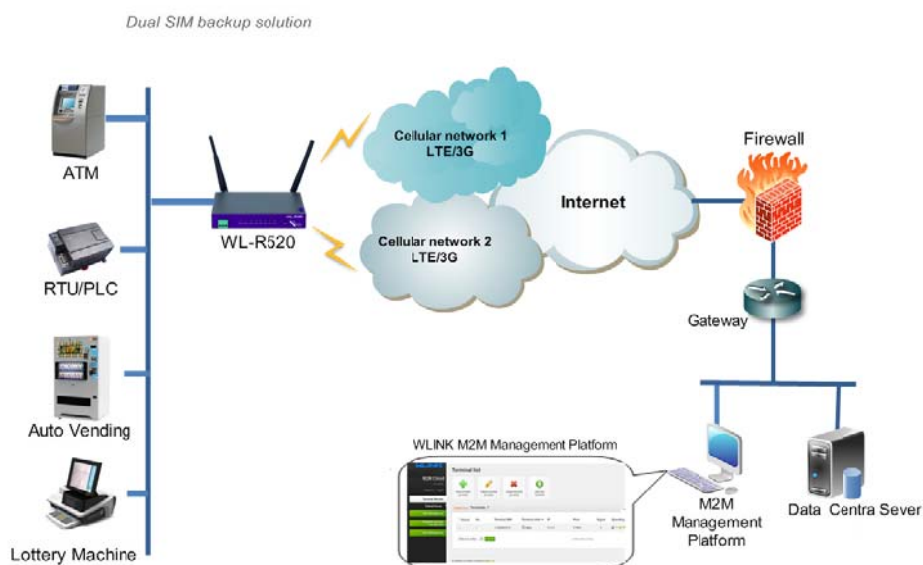


Figure 1-1 Network Topology

WLINK industrial router is based on mobile wireless public network or private network, build wireless data channel in mature network, to lower down the cost of wireless data transmission and technique.

## 1.5 Features

- Various cellular module optional, LTE/HSPA+/EVDO/CDMA2000 optional
- Support IEEE802.11b/g/n Wi-Fi AP function, extended support to Wi-Fi terminal, WDS bridging, support WEP, WPA/WPA2 Personal/Enterprise, TKIP/AES, etc., Authenticated encryption mode
- Support virtual data and private network (APN/VPDN)
- Optional support RS-232/RS-485 interface data transparent transmission and protocol conversion
- Support on-demand dialing, include timing on/off-line, voice or SMS control on/off-line, data trigger online or link idle offline
- Support TCP/IP protocol stack, support Telnet, HTTP, SNMP, PPP, PPPoE, etc., network protocol
- Support VPN Client (PPTP, L2TP), optional support Open VPN, IPSec, HTTPs, SSH, etc. advanced VPN function
- Provide friendly user interface, use normal web internet explorer to easily configure and manage, long-distance configure Telnet/SSH + CLI
- Optional IPv6 protocol stack
- Optional support M2M terminal management platform
- WDT watchdog design, keep system stable
- Customization as customer's demand

# 2 Hardware Installation

This chapter is mainly for installation introduction, there would be some difference between the scheme and real object. But the difference doesn't have any influence to products performance.

## 2.1 Panel:

Table 2-1 WL-R520 Structure

WLINK Tech.	R520 series
Front	
Rear	



### NOTE

There are some different for Antenna interface and indicator light for the expanded Wi-Fi, GPS series.

Table 2-2 Router Interface

Port	Instruction	Remark
USIM	Plug type SIM Slot, support 1.8/3V/5V automatic detection	
3G	3G antenna, SMA connector, 50Ω	
WIFI	Wi-Fi antenna, SMA connector, 50Ω	Optional
GPS	GPS antenna, SMA connector, 50Ω	Optional

Port	Instruction	Remark
LAN	10/100Base-TX, MDI/MDIX self-adaption,	R200: 1*LAN R520: 4*LAN
WAN	10/100Base-TX, MDI/MDIX self-adaption	R20 serial port and WAN port multiplex
RST	Reset button,(press on button 5 seconds)	
PWR	Power connector	5 ~ 26V DC
WAN/CON	Four pin serial port, suitable for collection device with RS-232 or RS-485 interface, for wireless data transmission, CON for debug test.	R20 serial port and WAN port multiplex

## 2.2 LED Status

Table 2-3 Router LED indicator Status

silk-screen	color	status	Indication
NET	Green	Blink	Strong Signal
	Orange	Blink	Normal Signal
	Red	Blink	Weak Signal
		Blinking slowly(2s)	Already login network or dialing online. LED color is matched with signal indication. For example, for strong signal, after login network or online, it will blink green light.
		Blinking quickly(0.5s)	Dialing
WLAN	Green	Solid light	WLAN port open, but no data sending.
	Green	Blinking quickly	Data is in transmitting
	Green	Dark	WLAN port isn't opened
LAN	Green	Solid light	connect ok
	Green	Blinking	Data Sending
	Green	Dark	Not connected



### NOTE

There are some difference among the LED indicator of expanded Wi-Fi, GPS function and single module/double SIM, double module/double SIM series products.

## 2.3 Dimension

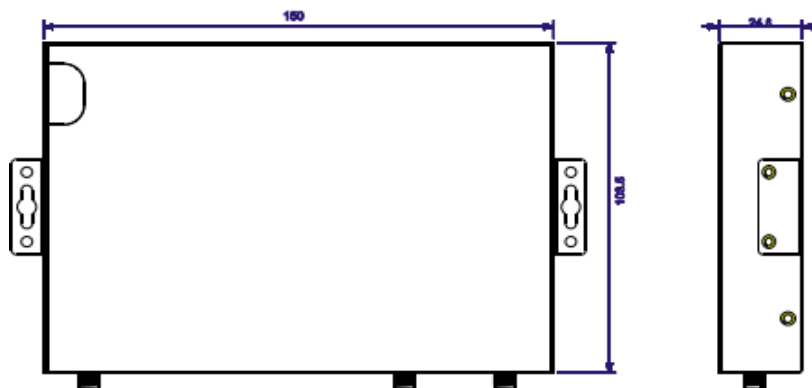


Figure 2-2 R520 Series Router Dimension Figure

## 2.4 How to Install

### 2.4.1 SIM/UIM card install

If use dual SIM/UIM card router, you may need insert dual SIM before configure it. After installation, please follow below steps to connect the router.



Before connecting, please disconnect any power resource of router

### 2.4.2 Ethernet Cable Connection

Use the Ethernet cable to connect the cellular Router to computer directly, or transit by a switch.

### 2.4.3 Serial Port Connection

If you want to connect the router via serial port to laptop or other devices, you should prepare a serial port or RJ45 cable, this cable is optional. One end connect to computer serial port, the other end connects the console port of the router



Before connecting, please disconnect any power resource of router

### 2.4.4 Power Supply

In order to get high reliability, WLINK Series Router adapt supports wide voltage input range: +5V~+36VDC, support hot plug and complex application environment.

## 2.4.5 Review

After insert the SIM/UIM card, connect Ethernet cable and necessary antenna, connect power cable.



### CAUTION

Please connect the antenna before connect the power cable, otherwise the signal maybe poor because of impedance mismatching.

---

Notice:

- Step 1 Check antenna connection.
- Step 2 Check SIM/UIM card, confirm SIM/UIM card is available.
- Step 3 Power on the industrial Router

----END

# 3 Router Configuration

This Chapter introduces the parameter configuration of the router, the router can be configured via web internet explorer, Firefox, or chrome. Here we take GUIs 7 system and Internet Explorer 9.0 as sample.

## 3.1 Local Configure

The router supports to be configured by local Ethernet port, you could specify a static IP or DHCP get IP for your computer. The default IP address is 192.168.1.1, subnet mask is 255.255.255.0, please refer to followings:

- Step 1 Click “start > control panel”, find “Network Connections” icon and double click it to enter, select “Local Area Connection” corresponding to the network card on this page. Refer to the figure below.

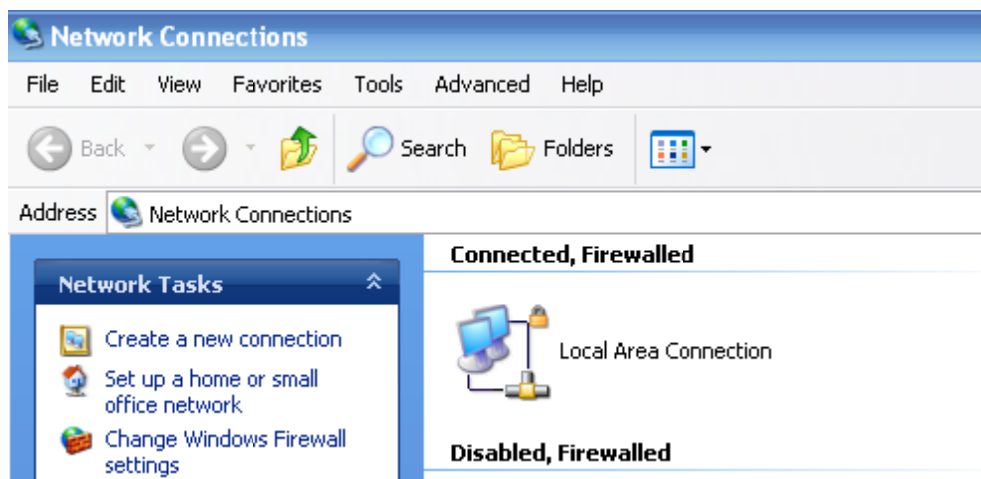


Figure 3-3 Network Connection

- Step 2 Obtain a IP address automatically or set up IP address, 192.168.1.xxx (XXX can be any number between 2~254)
- Step 3 Run an Internet Explorer and visit “<http://192.168.1.1/>”, to enter identify page.

User should use the default user name and password when log in for the first time

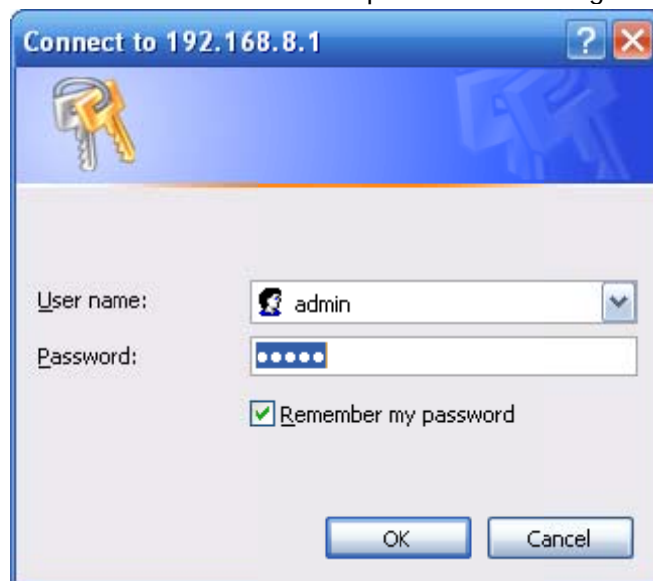


Figure 3-4 User Identify Interface

----END

## 3.2 Basic Configuration



Different software version have different web configuration interface, below take R520 2.6.0.1 version as example.

After visit the WEB interface, you can check the current status of Router, or modify router configuration via web interface, below is the introduction for the common setting.

Status	Router
Overview	
LAN	
Device List	
Basic Network	
WLAN	
Advanced Network	
VPN Tunnel	
Administration	
Debugging	
Logout	

System Status	
Router Name	Router
Hardware Verion	
Firmware Version	Router-1.0.1-140826-194144
Time	Sat, 20 Dec 2014 11:12:37 +0800 <a href="#">Clock Sync.</a>
Uptime	0 days, 00:21:25
CPU Load (1 / 5 / 15 mins)	0.41 / 0.26 / 0.13
Total / Free Memory	60.09 MB / 50.22 MB (83.58%)

Internet Status	
MAC Address	00:90:4C:01:12:2E
IMEI	357784045632765
Modem Status	Ready
Cellular Network	
USIM Status	Ready
CSQ	25
IP Address	10.76.59.221
Subnet Mask	255.255.255.255
Gateway	10.64.64.64
DNS	210.21.196.6:53, 221.5.88.88:53
MTU	1492
Status	Connected
Connection Uptime	0 days, 00:20:17

Figure 3-5 Router Status GUI

## 3.2.1 Cellular Network Configure

Step 1 Single Click Basic Network-> Cellular, you can modify relevant parameter according to the application.

Status	Router
Basic Network	
WAN	
Cellular	
LAN	
DDNS	
Routing	
WLAN	
Advanced Network	
VPN Tunnel	
Administration	
Debugging	
Logout	

Cellular Settings	
Cellular Network Type	MU609:WCDMA/HSUPA
ICMP Check	<input type="checkbox"/>
Custom Options	
Connect Mode	Keep Alive(Auto-Online) <a href="#">v</a>
MTU	Default <a href="#">v</a> 1492
PIN Code	
Dial Number	*99#
APN	3GNET
User	card
Password	****

[Save](#) [Cancel](#)

Figure 3-1 Cellular Settings GUI

Table 3-1 Cellular Setting Parameter Instruction

Parameter	Instruction
Enable	Enable SIM card dial
ICMP check	To enable or disable ICMP check rules. Enable the ICMP check and setup a reachable IP address as destination IP. Once ICMP check failed, router will switch SIM card.
Custom Options	
Connect Mode	<ul style="list-style-type: none"> <li>● Keep alive (Auto-online).The router will automatically connect 3G/4G network and keep online.</li> <li>● Connect On Demand. Idle offline if no data from LAN to 3G/4G within defined time.</li> <li>● Schedule, Define online and offline time. This function need to enable NTP function,</li> <li>● Call/SMS Triggered. Call/SMS trigger router online.</li> <li>● Manually. Connect 3G/4G network by manual.</li> </ul>
MTU	Maximum Transmission Unit is 1492 as default. It supports other value as requested.
PIN Code	Input SIM card PIN code if SIM is setup PIN by ISP.
APN	APN, provided by local ISP, usually CDMA/EVDO network do not need this parameter.
User	SIM card user name is provided by ISP
Password	SIM card password is provided by ISP



NOTE

【ICMP Check】

Enable ICMP, Router will automatically check whether the defined IP address is reachable per 60s. If the IP address is unreachable and ICMP check is timeout at the first time, it will check 2 times every 3 seconds. If the third time is still failed, the router will redial.

The ICMP Check IP is a public IP or company server IP address.

ICMP Check

☒

Check Interval

60 (seconds)

Check IP

0.0.0.0

Step 2 After Setting, please click “save” icon.

----End

## 3.2.2 LAN Setting

Step 1 Single Click “ Basic Network>LAN” to enter below interface

Figure 3-2 LAN Setting GUI

Table 3-2 LAN Setting Instruction

Parameter	Instruction
Router IP Address	Router IP address, default IP is 192.168.1.1
Subnet Mask	Router subnet mask, default mask is 255.255.255.0
DHCP	Dynamic allocation IP service, after enable, it will show the IP address range and options of lease
IP Address Range	IP address range within LAN
Lease	The valid time

Step 2 After setting, please click “save” to finish, the device will reboot.

----End

## 3.2.3 Dynamic DNS Setting

Step 1 Single click “Basic Network->DDNS to enter the DDNS setting GUI.

Figure 3-3 Dynamic DNS Setting

Table 3-3 DDNS Setting Instruction

parameter	Instruction
IP address	Default is standard DDNS protocol, for customized protocol, please contact Wlink engineer. Usually, use default IP 0.0.0.0
Auto refresh time	Set the interval of the DDNS client obtains new IP, suggest 240s or above
Service provider	Select the DDNS service provider that listed.

Step 2 Please Click “Save” to finish.

----End

## 3.2.4 Routing Setting

Step 1 Single click “Basic Network->Routing to enter the DDNS setting GUI.

Status

Basic Network

WAN

Cellular

LAN

DDNS

Routing

WLAN

Advanced Network

VPN Tunnel

Administration

Debugging

Logout

Router

### Current Routing Table

Destination	Gateway / Next Hop	Subnet Mask	Metric	Interface
10.64.64.64	*	255.255.255.255	0	ppp0 (WAN)
192.168.1.0	*	255.255.255.0	0	br0 (LAN)
127.0.0.0	*	255.0.0.0	0	lo
default	10.64.64.64	0.0.0.0	0	ppp0 (WAN)

### Static Routing Table

Destination	Gateway	Subnet Mask	Metric	Interface	Description
				<div style="border: 1px solid #ccc; padding: 2px;">v</div>	

Add

### Miscellaneous

Mode 

Gateway

RIPv1 & v2 

Disabled

Efficient Multicast Forwarding ☐

DHCP Routes ☒

Spanning-Tree Protocol ☐

Save

Cancel

Figure 3-4 Routing Setting

Table 3-4 Routing Setting Instruction

Parameter	Instruction
Destination	Router can reach the destination IP address.
Gateway	Next hop IP address which the router will reach
Subnet Mask	Subnet mask for destination IP address
Metric	Metrics are used to determine whether one particular route should be chosen over another.
Interface	Interface from router to gateway.
Description	Describe this routing name.

Step 2 Please Click “ Save “ to finish.

## 3.3 WLAN Setting

It's mainly for router which support Wi-Fi, you can modify and configure WLAN parameter through Web GUI, below is the common setting

### 3.3.1 Basic Setting

Step 1 Click “WLAN->Basic Setting” to configure relative parameter

Figure 3-5 WLAN Basic Settings GUI

Table 3-5 Basic Setting Instruction

Parameter	Instruction
Enable wireless	Enable or Disable the Wireless
Wireless mode	Support AP, AP+WDS, Bridge, Client, WDS
Wireless Network protocol	Support Auto, IEEE 11b/g/n selectable
SSID	The default is router, can be modified as per application.
Channel	The channel of wireless network, suggest keep the default
Channel Width	20MHZ and 40MHZ alternative
Security	Support various encryption method

Step 2 Please click “Save” to finish.

----End

### 3.3.2 Wireless Filter Setting

Step 1 Single click “WLAN > Wireless Filter”.

Figure 3-6 Wireless Client Filter Setting GUI

The Wireless Filter enable to set the permitted client or prohibit the specific client to connect the WiFi, However, this feature is invalid for wired connection application.

Table 3-6 "Wireless Client Filter" Setting Instruction

Parameter	Instruction
Disable Filter	Choose to disable
Permit on the following client	Only allow the listed MAC address to connect to router by wireless
Block the follow Client	Prevent the listed MAC address to connect to router by wireless

Step 2 Please click "save" to finish

----End

### 3.3.3 Advanced Wireless Setting

Step 1 Please click "WLAN> Advanced Wireless" to check or modify the relevant parameter.

- Status
- Basic Network
- WLAN**
- Basic Settings
- Wireless Filter
- Advanced Wireless
- Wireless Survey
- Advanced Network
- VPN Tunnel
- Administration
- Debugging
- Logout

Router

### Wireless Settings (2.4 GHz / eth1)

Afterburner	Disable * <input type="button" value="v"/>
AP Isolation	Disable * <input type="button" value="v"/>
Authentication Type	Auto * <input type="button" value="v"/>
Basic Rate	Default * <input type="button" value="v"/>
Beacon Interval	100 (range: 1 - 65535; default: 100)
CTS Protection Mode	Disable * <input type="button" value="v"/>
Regulatory Mode	Off * <input type="button" value="v"/>
Country / Region	UNITED STATES <input type="button" value="v"/>
Bluetooth Coexistence	Disable * <input type="button" value="v"/>
Distance / ACK Timing	0 meters (range: 0 - 99999; 0 = use default)
DTIM Interval	1 (range: 1 - 255; default: 1)
Fragmentation Threshold	2346 (range: 256 - 2346; default: 2346)
Frame Burst	Disable * <input type="button" value="v"/>
Maximum Clients	128 (range: 1 - 255; default: 128)
Multicast Rate	Auto * <input type="button" value="v"/>
Preamble	Long * <input type="button" value="v"/>
802.11n Preamble	Mixed Mode * <input type="button" value="v"/>
Overlapping BSS Coexistence	Off * <input type="button" value="v"/>
RTS Threshold	2347 (range: 0 - 2347; default: 2347)

Figure 3-7 Advanced Wireless Setting GUI

Step 2 Please click "save" to finish.

----End

### 3.3.4 Wireless Survey

Step 1 Please click "WLAN> Wireless Survey" to check survey.

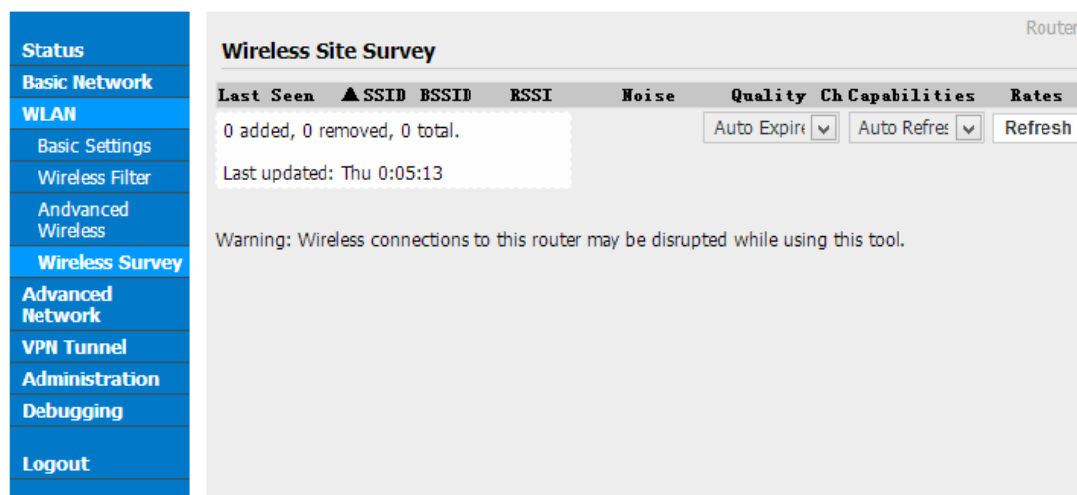


Figure 3-8 Wireless Survey Setting GUI

----End

## 3.4 Advanced Network Setting

### 3.4.1 Port Forwarding

Step 1 Please click “Advanced Network > Port Forwarding” to enter the GUI, you may modify the router name, Host name and Domain name according to the application requirement.

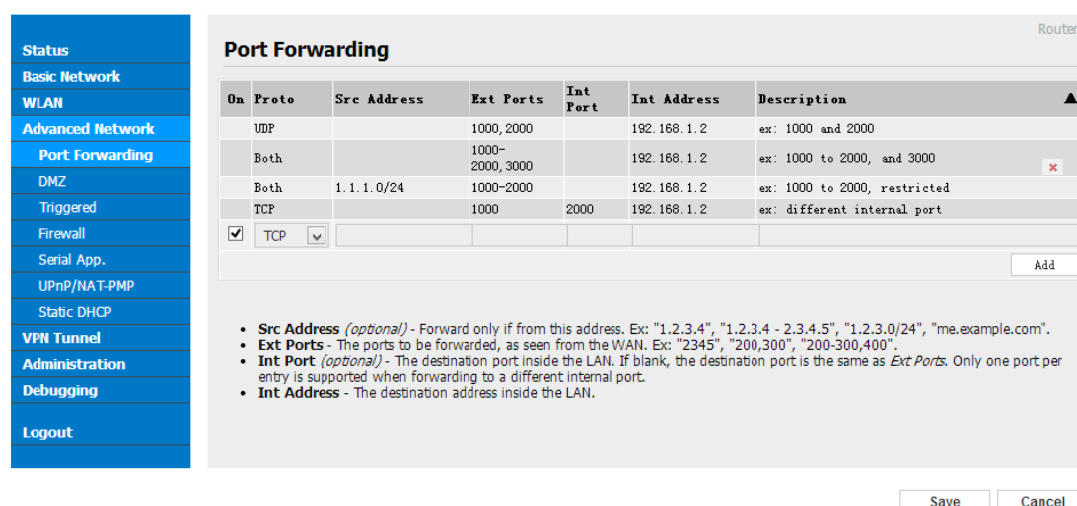


Figure 3-9 Port Forwarding GUI

Table 3-7 “Port Forwarding” Instruction

Parameter	Instruction
Protocol	Support UDP, TCP, both UDP and TCP
Src. Address	Source IP address. Forward only if from this address.
Ext. Ports	External ports. The ports to be forwarded, as seen from the WAN.
Int. Port	Internal port. The destination port inside the LAN. If blank, the destination port is the same as Ext Ports. Only one port per entry is supported when forwarding to a different internal port.
Int. Address	Internal Address. The destination address inside the LAN.
Description	Remark the rule

Step 2 Please click “save” to finish

----End

## 3.4.2 DMZ Setting

Step 1 Please click “Advanced Network> DMZ” to check or modify the relevant parameter.

Figure 3-10 DMZ GUI

Table 3-8 “DMZ” Instruction

parameter	Instruction
Destination Address	The destination address inside the LAN.
Source	If no IP address inside, it will allow all IP address to access.

parameter	Instruction
Address Restriction	If define IP address, it will just allow the defined IP address to access.
Leave Remote Access	

Step 2 Please click "save" to finish

----End

### 3.4.3 Triggered Setting

Step 1 Please click "Advanced Network> Triggered" to check or modify the relevant parameter.

**Triggered Port Forwarding**

On	Protocol	Trigger Ports	Forwarded Ports	Description
<input checked="" type="checkbox"/>	TCP	3000-4000	5000-6000	ex: open 5000-6000 if 3000-4000

• Use "-" to specify a range of ports (200-300).  
 • Trigger Ports are the initial LAN to WAN "trigger".  
 • Forwarded Ports are the WAN to LAN ports that are opened if the "trigger" is activated.  
 • These ports are automatically closed after a few minutes of inactivity.

Save Cancel

Figure 3-11 Triggered GUI

Table 3-9 "Triggered" Instruction

parameter	Instruction
Protocol	Support UDP, TCP, both UDP and TCP
Triggered Ports	Trigger Ports are the initial LAN to WAN "trigger".
Transferred Ports	Forwarded Ports are the WAN to LAN ports that are opened if the "trigger" is activated.
Note	Port triggering opens an incoming port when your computer is using a specified outgoing port for specific traffic.

Step 2 Please click "save" to finish.

----End

## 3.4.4 Firewall Setting

Step 1 Please click “Advanced Network> Firewall” to check or modify the relevant parameter.

Figure 3-12 Firewall Setting GUI

Table 3-10 “Firewall” Instruction

Parameter	Instruction
Applies To	White list.
Blocked Resources	Black list.

Step 2 Please click “save” to finish.

## 3.4.5 Serial App. Setting

Step 1 Please click “Advanced Network> Serial App” to check or modify the relevant parameter.

Figure 3-13 Serial App Setting GUI

Table 3-11 “Serial App” Instruction

Parameter	Instruction
Serial to TC/IP mode	Support Disable, Server and Client mode. Such as Client.
Server IP/Port	IP address and domain name are acceptable for Server IP
Socket Type	Support TCP/UDP protocol
Socket Timeout	Router will wait the setting time to transmit data to serial port.
Serial Timeout	Serial Timeout is the waiting time for transmitting the data package that is less the Packet payload. If the last package equals to the Packet payload, Serial port will transmit it immediately. The default setting is 500ms.
Packet payload	Packet payload is the maximum transmission length for serial port data packet. The default setting is 1024bytes.
Heart-beat Content	Send heart beat to the defined server to keep router online. Meantime, it's convenient to monitor router from server.
Heart beat Interval	Heart beat interval time
Baud Rate	115200 as default
Parity Bit	None as default
Data Bit	8bit as default
Stop Bit	1bit as default

Step 2 Please click "save" to finish.

## 3.4.6 UPnp/NAT-PMP Setting

Step 1 Please click “Advanced Network> Upnp/NAT-PMP” to check or modify the relevant parameter.

The screenshot displays the 'UPnP/NAT-PMP' configuration page. The left sidebar contains a navigation menu. The main panel has a 'Forwarded Ports' table with columns: External, Internal, Internal Address, Protocol, and Description. Below this is the 'Settings' section with the following options:

- Enable UPnP: ☐
- Enable NAT-PMP: ☐
- Inactive Rules Cleaning: ☒
- Secure Mode: ☒ (when enabled, UPnP clients are allowed to add mappings only to their IP)
- Listen on LAN: ☐
- Show In My Network Places: ☐
- Miniupnpd Custom configuration: [Text area]

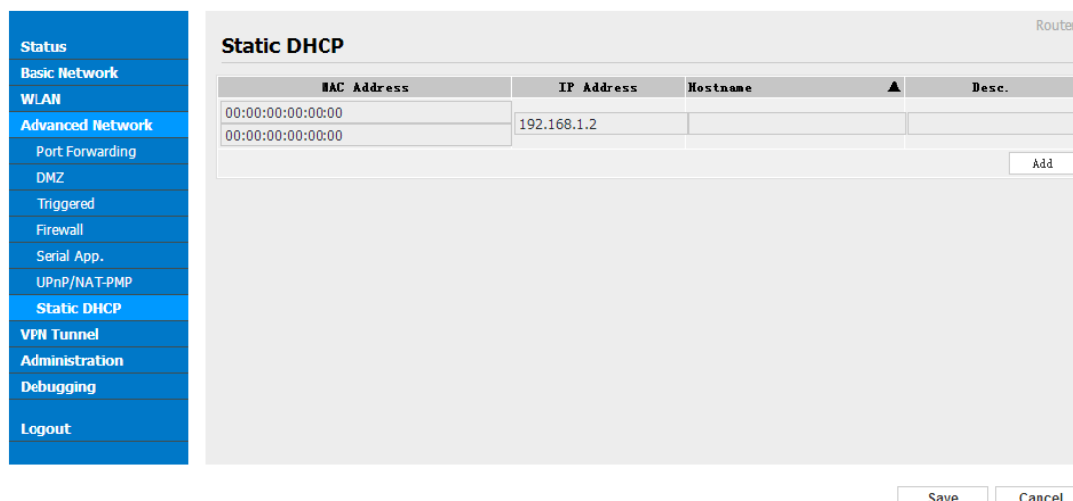
At the bottom right of the settings area are 'Save' and 'Cancel' buttons.

Figure 3-14 UPnp/NAT-PMP Setting GUI

Step 2 Please click "save" to finish.

## 3.4.7 Static DHCP Setting

Step 1 Please click “Advanced Network> Static DHCP” to check or modify the relevant parameter.



The image shows the 'Static DHCP' configuration page in the router's web interface. On the left is a blue sidebar menu with options: Status, Basic Network, WLAN, Advanced Network, Port Forwarding, DMZ, Triggered, Firewall, Serial App., UPnP/NAT-PMP, Static DHCP (highlighted), VPN Tunnel, Administration, Debugging, and Logout. The main area is titled 'Static DHCP' and contains a table with columns: MAC Address, IP Address, Hostname, and Desc. There are two rows in the table, both with MAC address '00:00:00:00:00:00'. The first row has IP address '192.168.1.2'. An 'Add' button is at the bottom right of the table. At the very bottom of the page are 'Save' and 'Cancel' buttons.

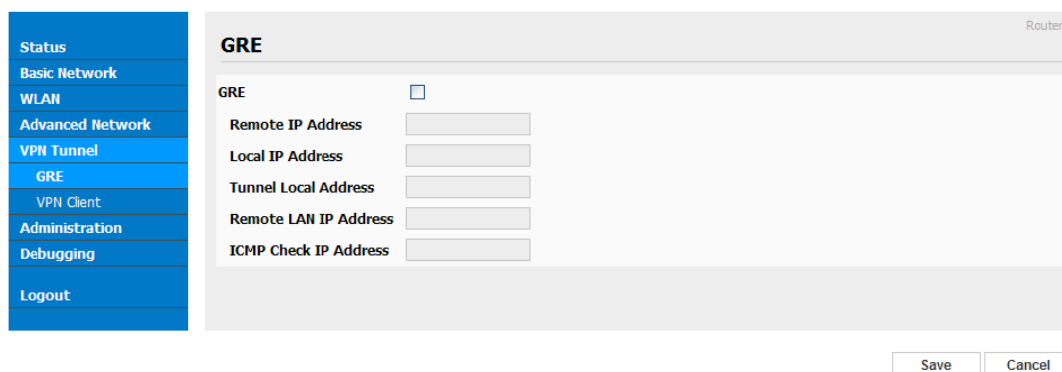
Figure 3-15 Static DHCP Setting GUI

Step 2 Please click "save" to finish.

## 3.5 VPN Tunnel

### 3.5.1 GRE Setting

Step 1 Please click "VPN Tunnel> GRE" to check or modify the relevant parameter.



The image shows the 'GRE' configuration page in the router's web interface. The left sidebar menu is the same as in Figure 3-15, but 'VPN Tunnel' is highlighted, and 'GRE' is selected under it. The main area is titled 'GRE' and contains a checkbox for 'GRE' which is currently unchecked. Below the checkbox are five input fields: 'Remote IP Address', 'Local IP Address', 'Tunnel Local Address', 'Remote LAN IP Address', and 'ICMP Check IP Address'. At the bottom right of the page are 'Save' and 'Cancel' buttons.

Figure 3-16 GRE Setting GUI

Table 3-12 "GRE" Instruction

Parameter	Instruction
Remote IP Address	GRE peer IP address. Usually a public IP address
Local IP Address	Local IP address for LAN.
Tunnel Local IP address	GRE Tunnel local IP address which is a virtual IP address.

Parameter	Instruction
Remote LAN IP Address	GRE Tunnel remote IP address which is a virtual IP address.
ICMP Check IP Address	It's a reachable IP address. Once the ICMP check is failed, GRE will be established again.

Step 2 Please click "save" to finish.

## 3.5.2 VPN Client Setting

Step 1 Please click "VPN Tunnel> VPN Client" to check or modify the relevant parameter.

Table 3-13 "VPN Client" Instruction

parameter	Instruction
VPN Mode	VPN Mode for PPTP and L2TP
Server Address	VPN Server IP address.
User name	As the configuration requested.
Password	As the configuration requested.
Encryption	As the configuration requested.
Stateless MPPE	As the configuration requested.
Accept DNS	As the configuration requested.
Remote Subnet	As the configuration requested.
Create NAT on	As the configuration requested.

parameter	Instruction
Tunnel	

Step 2 Please click "save" to finish.

## 3.6 System Management

### 3.6.1 Identification Setting

Step 1 Please click "Administrator> Identification" to enter the GUI, you may modify the router name, Host name and Domain name according to self-requirement.

Figure 3-17 Router Identification GUI

Table 3-14 "Router Identification" Instruction

Parameter	Instruction
Router name	Default is router, can be set maximum 32 character
Host name	Default is router, can be set maximum 32 character
Domain name	Default is empty, support maximum up to 32 character, it is the domain of WAN, no need to configure for most application.

Step 2 Please click "save" to finish

----End

## 3.6.2 Time Setting

Step 1 Please click “Administrator> time” to check or modify the relevant parameter.

The screenshot shows the 'Time' configuration page in the WLINK router's web interface. On the left is a vertical menu with options: Status, Basic Network, WLAN, Advanced Network, VPN Tunnel, Administration, Identification, Time (highlighted), Admin Access, Scheduler Reboot, SNMP, M2M Access, Configuration, Logging, Upgrade, Reboot..., Debugging, and Logout. The main content area is titled 'Time' and includes the following settings:

- Router Time:** Thu, 25 Dec 2014 00:18:37 +0800 [Clock Sync.]
- Time Zone:** UTC+08:00 China, Hong Kong, Western Australia, Singapore, Taiwan (dropdown menu)
- Auto Daylight Savings Time:** ☒
- Auto Update Time:** Every 4 hours (dropdown menu)
- Trigger Connect On Demand:** ☐
- NTP Time Server:** Asia (dropdown menu)
  - 0.asia.pool.ntp.org, 1.asia.pool.ntp.org 2.asia.pool.ntp.org

At the bottom right of the configuration area are 'Save' and 'Cancel' buttons.

Figure 3-18 System Configuration GUI



If the device is online but time update is fail, please try other NTP Time Server.

Step 2 Please click “save to finish.

----End

### 3.6.3 Admin Access Setting

Step 1 Please click “Administrator>Admin” to check and modify relevant parameter.

In this page, you can configure the basic web parameter, make it more convenient for usage. Please note the “password” is the router system account password.

The screenshot displays the 'Web Admin' configuration page of a router. On the left is a vertical navigation menu with options: Status, Basic Network, WLAN, Advanced Network, VPN Tunnel, Administration, Identification, Time, Admin Access (highlighted), Scheduler Reboot, SNMP, M2M Access, Configuration, Logging, Upgrade, Reboot..., Debugging, and Logout. The main content area is titled 'Web Admin' and includes a 'Router' label in the top right corner. It is divided into three sections: 'Local Access' with a dropdown set to 'HTTP' and a text box for 'HTTP Port' containing '80'; 'Remote Access' with a dropdown set to 'HTTP' and a text box for 'Port' containing '8080'; and 'Allow Wireless Access' with a checked checkbox. Below these is an 'Open Menus' section with checkboxes for Status, Basic, WLAN, Advanced, Administration, and Debug. The bottom section is 'Password', featuring two text boxes for entering and confirming the password, both masked with asterisks. At the bottom right of the page are 'Save' and 'Cancel' buttons.

Figure 3-19 Admin Setting GUI

Step 2 Please click save iron to finish the setting

----End

## 3.6.4 Schedule Reboot Setting

Step 1 Please click “Administrator>Schedule Reboot” to check and modify relevant parameter.

The screenshot shows the 'Scheduler Reboot' configuration page. On the left is a navigation menu with options like Status, Basic Network, WLAN, Advanced Network, VPN Tunnel, Administration (highlighted), Identification, Time, Admin Access, Scheduler Reboot, SNMP, M2M Access, Configuration, Logging, Upgrade, Reboot..., Debugging, and Logout. The main content area is titled 'Reboot' and includes the following settings:

- Enabled:** A checkbox that is currently unchecked.
- Time:** A dropdown menu showing '12:00 AM'.
- Days:** A row of checkboxes for each day of the week (Sun, Mon, Tue, Wed, Thu, Fri, Sat) and an 'Everyday' checkbox, all of which are checked.

At the bottom right of the main area are two buttons: 'Save' and 'Cancel'.

Figure 3-20 Scheduler Reboot Setting GUI

Step 2 Please click save iron to finish the setting

----End

## 3.6.5 SNMP Setting

Step 1 Please click “Administrator>SNMP” to check and modify relevant parameter.

The screenshot shows the 'SNMP Settings' configuration page. On the left is the same navigation menu as in the previous figure, with 'SNMP' highlighted. The main content area is titled 'SNMP Settings' and includes the following settings:

- Enable SNMP:** A checkbox that is currently unchecked.
- Port:** A text input field containing the value '161'.
- Remote access:** A checkbox that is currently unchecked.
- Allowed Remote IP Address:** A text input field with a placeholder hint: "(optional; ex: "1.1.1.1", "1.1.1.0/24", "1.1.1.1 - 2.2.2.2" or "me.example.com")".
- Location:** A text input field containing the value 'router'.
- Contact:** A text input field containing the value 'admin@router'.
- RO Community:** A text input field containing the value 'rocommunity'.

At the bottom right of the main area are two buttons: 'Save' and 'Cancel'.

Figure 3-21 SNMP Setting GUI

Step 2 Please click save iron to finish the setting

----End

## 3.6.6 M2M Access Setting

Step 1 Please click “Administrator>M2M Access” to check and modify relevant parameter.

The screenshot displays the 'M2M Setting' configuration page. On the left, a vertical menu lists various system functions, with 'M2M Access' currently selected. The main configuration area includes an 'Enable' checkbox, a 'Product ID' field containing 'China.ShenZhen', an 'M2M Server IP / Port' field containing '9991', and a 'Report Interval' field set to '10' seconds. 'Save' and 'Cancel' buttons are located at the bottom right of the page.

Figure 3-22 M2M Access Setting GUI

Step 2 Please click save iron to finish the setting

----End

## 3.6.7 Backup Setting

Step 1 Please click “ Administrator> Back up Configuration ” to do the backup setting

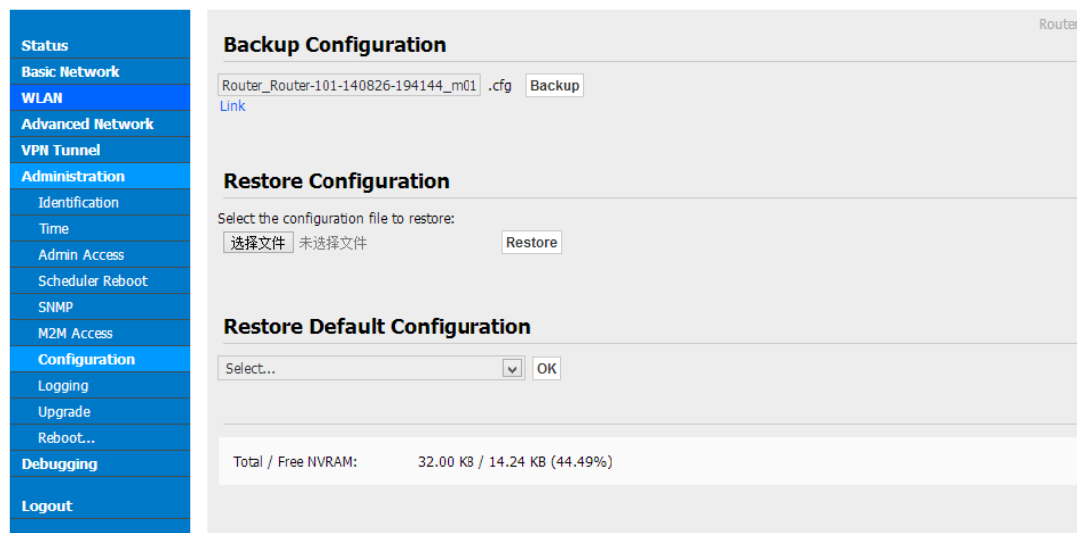


Figure 3-23 Backup and Restore Configuration GUI



Restore Default would lose all configuration information, please be careful.

Step 2 After setting the backup and restore configuration. The system will reboot automatically.

----End

## 3.6.8 System Log Setting

Step 1 Please click “Administrator> Logging” to start the configuration, you can set the file path to save the log (Local or remote sever).

The screenshot displays the 'Syslog' configuration page in a web-based GUI. On the left, a vertical menu lists various system functions, with 'Logging' highlighted. The main content area, titled 'Syslog', contains several configuration options:

- Log Internally:** A checked checkbox.
- Custom Log file Path:** An unchecked checkbox followed by a text input field containing '/var/log/messages' and a note '(make sure the drectory exists and is writable)'. (Note: the image contains a typo 'drectory').
- Log To Remote System:** A checked checkbox.
- Host or IP Address / Port:** Two input fields, the first containing '192.168.1.2' and the second containing '514'.
- Generate Marker:** A dropdown menu set to 'Every 1 Hour'.
- Limit:** An input field containing '60' with a note '(messages per minute / 0 for unlimited)'.

At the bottom right of the configuration area, there are 'Save' and 'Cancel' buttons.

Figure 3-24 System log Setting GUI

Step 2 After configure, please click “Save” to finish.

----End

## 3.6.9 Firmware upgrade

Step 1 Please click “Administrator>firmware upgrade” to open upgrade firmware tab.



Figure 3-25 Firmware Upgrade GUI



### NOTE

When upgrading, please don't cut off the power.

## 3.6.10 System Reboot

Step 1 Please click “Administrator>Reboot” to restart the router. System will popup dialog to remind “Yes” or “NO” before the next step.

Step 2 If choose “yes”, the system will restart, all relevant update configuration will be effective after reboot.

----End

## 3.7 Debugging Setting

### 3.7.1 Logs Setting

Step 1 Please click “Debugging>Logs” to check and modify relevant parameter.

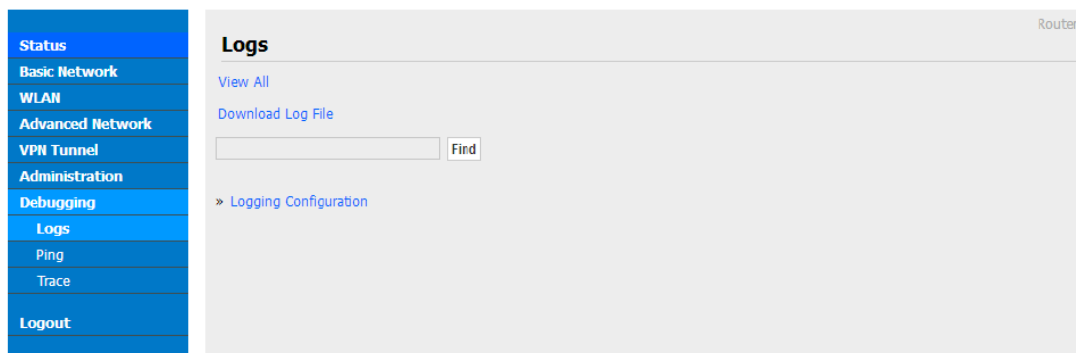


Figure 3-26 Logs GUI

Step 2 After configure, please click “Save” to finish.

----End

## 3.7.2 Ping Setting

Step 1 Please click “Debugging>Logs” to check and modify relevant parameter.

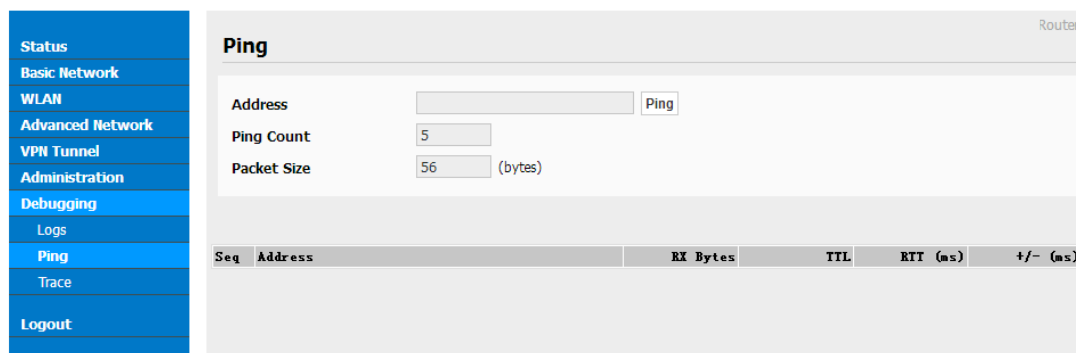


Figure 3-27 Ping GUI

Step 2 After configure, please click “Save” to finish.

----End

## 3.7.3 Trace Setting

Step 1 Please click “Debugging>Trace” to check and modify relevant parameter.

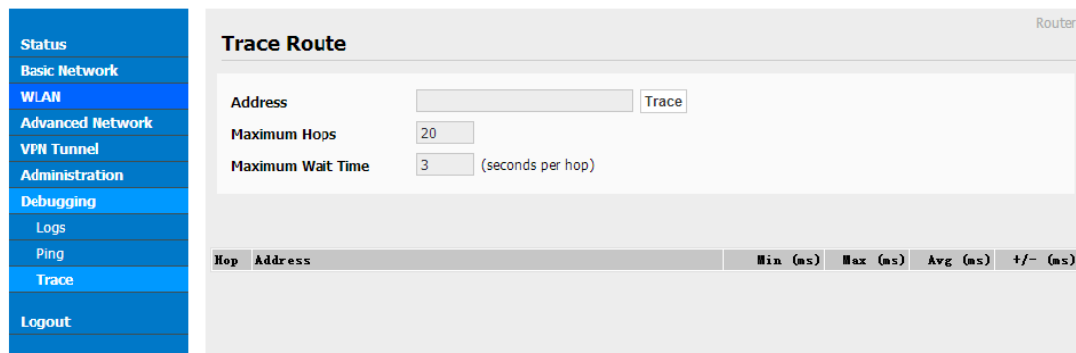


Figure 3-28 Trace GUI

Step 2 After configure, please click “Save” to finish.

**----End**

## 3.8 “RST” Button for Restore Factory Setting

If you couldn't enter web interface for other reasons, you can also use this way.  
For R200 Series, “RST” button is on the left of Ethernet port, for R520 Series, the button is on the left of NET light. This button can be used when the router is in use or when the router is turned on.

Press the “RST” button and keep more than 8 seconds till the NET light stopping blink. The system will be restored to factory.

Table 3-15 System Default Instruction

Parameter	Default setting
LAN IP	192.168.1.1
LAN Subnet Mask	255.255.255.0
DHCP server	Enable
User Name	admin
Password	admin



NOTE

After reboot, the previous configuration would be deleted and restore to factory settings.

---

## 3.9 Appendix (For advanced optional features only)

### 3.9.1 Cellular Setting (Dual-SIM)

Step 1 Single Click Basic Network-> Cellular, you can modify relevant parameter according to the application.

The screenshot shows the 'Cellular Settings' page in a web interface. On the left is a blue sidebar menu with options: Status, Basic Network (selected), Cellular, LAN, DDNS, Routing, WLAN, Advanced Network, VPN Tunnel, Administration, Debugging, and Logout. The main content area is titled 'Cellular Settings' and contains the following fields:

- Cellular Network Type: MC7710:WCDMA/HSPA+/FDD-LTE
- Enable: ☒
- ICMP Check: ☐
- Cellular Traffic Check: ☐
- DualSim Mode: Fail Over (dropdown)
- SIM 1 Mode: LTE (dropdown)
- SIM 1 APN: 3GNET
- SIM 1 User: card
- SIM 1 Password: \*\*\*\*
- SIM 2 Mode: LTE (dropdown)
- SIM 2 APN: CMNET
- SIM 2 User: cmcc
- SIM 2 Password: \*\*\*\*

At the bottom right of the settings area are 'Save' and 'Cancel' buttons.

Figure 3-29 Dual SIM GUI

Table 3-16 Cellular Instruction

Parameter	Instruction
Enable	Enable SIM card dial
ICMP check	To enable or disable ICMP check rules. Enable the ICMP check and setup a reachable IP address as destination IP. Once ICMP check failed, router will switch SIM card.
SIM Mode	Select the network type
APN	APN, provided by local ISP, usually CDMA/EVDO network do not need this parameter
User	SIM card user name is provided by ISP
Password	SIM card password is provided by ISP



**NOTE** ICMP Check and Cellular Traffic Check are alternative.

#### 【ICMP Check】

Enable ICMP, Router will automatically check whether the defined IP address is reachable per 60s. If the IP address is unreachable and ICMP check is timeout at the first time, it will check 2 times every 3 seconds. If the third time is still failed, the router will switch the SIM card.

The Check IP is a public IP or company server IP address.

ICMP Check	<input checked="" type="checkbox"/>
Check Interval	60 (seconds)
Check IP	0.0.0.0

### 【Cellular Traffic Check】

【Check Mode】 there are Rx(Receive), Tx(Transmission) and Rx/Tx check modes.

【Rx】Router will check the 3G/LTE cellular receiver traffic. If no receiver traffic within the defined check interval, the router will implement the specified action Reconnect or reboot.

Cellular Traffic Check	<input checked="" type="checkbox"/>
Check Mode	Rx
Check Interval	10 (minutes) Range: 1 ~ 1440
Fail Action	Cellular Reconnect

### 【SIM Mode】

【Fail Over】 SIM card mutual backup. Once SIM card is failed, it will switch to the SIM2 and work on SIM2. Once SIM2 is failed, it will switch back to SIM1.

【SIM1 Only】 Just SIM1 is available.

【SIM2 Only】 Just SIM2 is available.

【Backup】 SIM1 is the primary SIM. Once SIM1 is failed, it will switch to SIM2 and work on SIM2 within the defined time. Once the time is over, it will switch back to SIM1.

DualSim Mode	Fail Over
SIM 1 Mode	Fail Over
SIM 1 APN	3GNET
SIM 1 User	card
SIM 1 Password	••••

Step 2 After Setting, please click “save” icon.

----End

## 3.9.2 GPS Setting

Step 1 Please click “Advanced Network> GPS” to view or modify the relevant parameter.

The screenshot shows the 'GPS' configuration page in a web interface. On the left is a blue sidebar menu with options: Status, Basic Network, WLAN, Advanced Network (selected), Port Forwarding, DMZ, Triggered, Firewall, GPS, UPnP/NAT-PMP, Static DHCP, VPN Tunnel, Administration, Debugging, and Logout. The main content area is titled 'GPS' and contains the following settings:

- GPS Mode: Client
- Bind Port: 40001
- Server IP/Port: 192.168.6.2 : 40002
- Socket Type: UDP
- Socket Timeout: 500 (millisecond)
- Serial Timeout: 500 (millisecond)
- Packet Payload: 1024 (bytes)
- Heart-Beat Content: router\_00001
- Heart-Beat Interval: 5 (seconds)
- Baud Rate: 9600
- Parity Bit: none
- Data Bit: 8
- Stop Bit: 1

At the bottom right of the main area are 'Save' and 'Cancel' buttons.

Figure 3-30 GPS Setting GUI

Table 3-17 “GPS” Instruction

parameter	Instruction
Bind Port	Local port for GPS data.
Server IP and Port	GPS server IP address and port.
Socket type	GPS data protocol.
Socket Timeout	The timeout for socket connection. If socket is not established, it will reconnect after the timeout time.
Serial Timeout	No serial port data, GPS module will send GPS data after the specified timeout time.
Packet Payload	The max packet for GPS data.
Heart-Beat Content	GPS heart beat packet.
Heart-Beat Interval	The heart beat packet interval.

Step 2 Please click “save” to finish



GPS data format as below.

dtu.heartbeat.content,gps\_date, gps\_time, gps\_use, gps\_latitude, gps\_NS, gps\_longitude,  
gps\_EW, gps\_speed, gps\_degrees, gps\_FS, gps\_HDOP, gps\_MSL

e.g.

Router\_00001,083238,120313,12,2230.31563,N,11355.02863,E

---