

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

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..

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, 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





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

H20 Serials				
Model	3G Cellular Network	Wi-Fi	Serial	Network I/F
H20-W1{2/G}T	HSDPA DL: 3.6Mbps UL: Max 384Kbps		DTU/GPS	1*LAN 1*WAN (multiplex)
H20-W1{2/G}T-W	HSDPA DL: 3.6Mbps UL: Max 384Kbps	Wi-Fi 802.11n/150Mbps	DTU	1*LAN 1*WAN (multiplex)
H20-Wa{2/G}T	HSDPA DL: 7.2Mbps UL: Max 5.76Mbps		DTU/GPS	1*LAN 1*WAN (multiplex)
H20-Wa{2/G}T-W	HSDPA DL: 7.2Mbps UL: Max 5.76Mbps	Wi-Fi 802.11n/150Mbps	DTU	1*LAN 1*WAN (multiplex)
H20-WA{2/G}T	HSPA+ DL: 21.6Mbps UL: Max 17.28 Mbps		DTU/GPS	1*LAN 1*WAN (multiplex)
H20-WA{2/G}T-W	HSPA+ DL: 21.6Mbps UL: Max 17.28 Mbps	Wi-Fi 802.11n/150Mbps	DTU	1*LAN 1*WAN (multiplex)
H20-E1{2/G}T	EV-DO DL: 3.1Mbps UL: Max 1.8Mbps		DTU/GPS	1*LAN 1*WAN (multiplex)
H20-E1{2/G}T-W	EV-DO DL: 3.1Mbps UL: Max 1.8Mbps	Wi-Fi 802.11n/150Mbps	DTU	1*LAN 1*WAN (multiplex)
H20-E2{2/G}T	EV-DO DL: 3.1Mbps UL: Max 1.8Mbps		DTU/GPS	1*LAN 1*WAN (multiplex)
H20-E2{2/G}T-W	EV-DO DL: 3.1Mbps UL: Max 1.8Mbps	Wi-Fi 802.11n/150Mbps	DTU	1*LAN 1*WAN (multiplex)
H50 Serials				
Model	3G Cellular Network	Wi-Fi	Serial	Network I/F
H50-W1{2/G}T	HSDPA DL: 3.6Mbps UL: Max 384Kbps		DTU/GPS	4*LAN 1*WAN
H50-W1{2/G}T-W	HSDPA DL: 3.6Mbps UL: Max 384Kbps	Wi-Fi 802.11n/150Mbps	DTU	4*LAN 1*WAN
H50-Wa{2/G}T	HSDPA DL: 7.2Mbps UL: Max 5.76Mbps		DTU/GPS	4*LAN 1*WAN
H50-Wa{2/G}T-W	HSDPA DL: 7.2Mbps UL: Max 5.76Mbps	Wi-Fi 802.11n/150Mbps	DTU	4*LAN 1*WAN
H50-WA{2/G}T	HSPA+ DL: 21.6Mbps UL: Max 17.28 Mbps		DTU/GPS	4*LAN 1*WAN
H50-WA{2/G}T-W	HSPA+ DL: 21.6Mbps UL: Max 17.28 Mbps	Wi-Fi 802.11n/150Mbps	DTU	4*LAN 1*WAN
H50-E1{2/G}T	EV-DO DL: 3.1Mbps UL: Max 1.8Mbps		DTU/GPS	4*LAN 1*WAN
H50-E1{2/G}T-W	EV-DO DL: 3.1Mbps UL: Max 1.8Mbps	Wi-Fi 802.11n/150Mbps	DTU	4*LAN 1*WAN
H50-E2{2/G}T	EV-DO DL: 3.1Mbps UL: Max 1.8Mbps		DTU/GPS	4*LAN 1*WAN
H50-E2{2/G}T-W	EV-DO DL: 3.1Mbps UL: Max 1.8Mbps	Wi-Fi 802.11n/150Mbps	DTU	4*LAN 1*WAN
H50-Wa2T-D	HSUPA 2 * USIM		DTU/GPS	4*LAN 1*WAN
H50-WaE12T-D	1 * HSUPA 1 * EV-DO		DTU/GPS	4*LAN 1*WAN

1.3 Product Appearance

Table 1-2 Router Appearance

Series	H20	H20—W (G)	H50-G	H50--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

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.

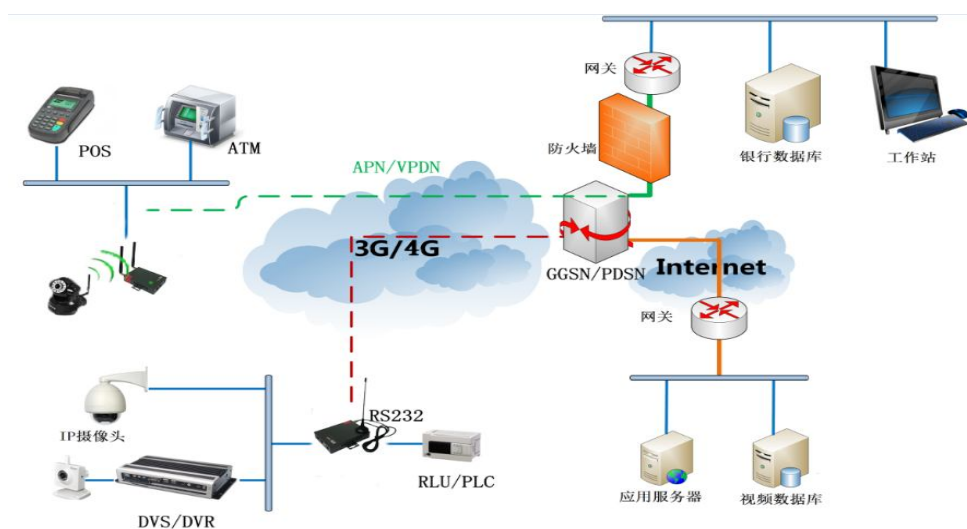


Figure 1-1 Network Topology

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

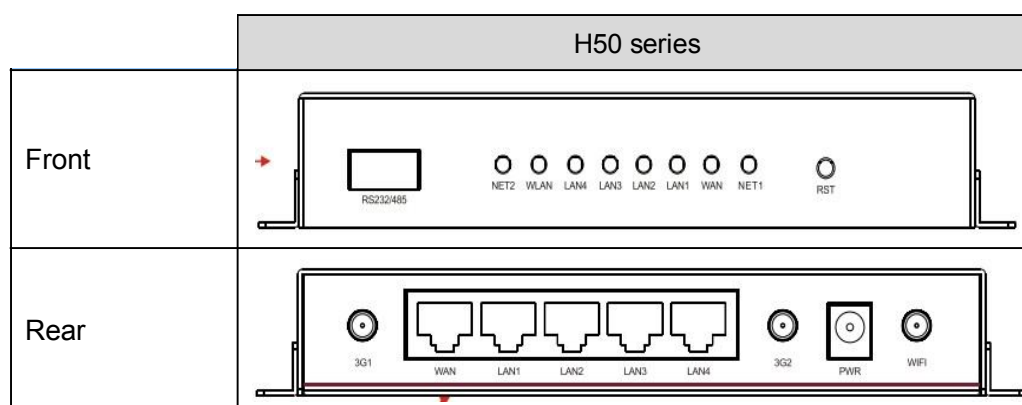
- Various cellular module optional, LTE/HSPA+/EVDO/CDMA2000 optional
- Support IEEE802.11b/g/n Wi-Fi AP function, extended support to Wi-Fi terminal, WDS bridging, support WEP, WPA/WPA2 Personal/Enterprise, TKIP/AES, etc., Authenticated encryption mode
- Support virtual data and private network (APN/VPDN)
- 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



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,	H20: 1*LAN H50: 4*LAN
WAN	10/100Base-TX, MDI/MDIX self-adaption	H20 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.	H20 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

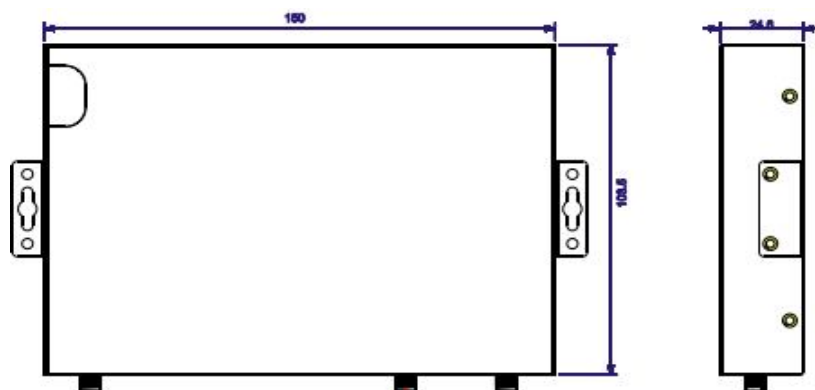


Figure 2-2 H50 Series Router Dimension Figure

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.

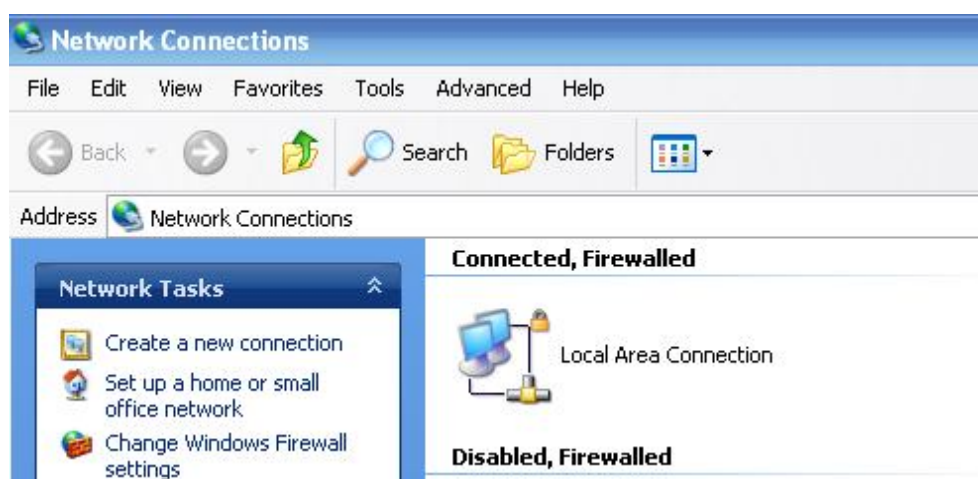


Figure 3-3 Network Connection

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

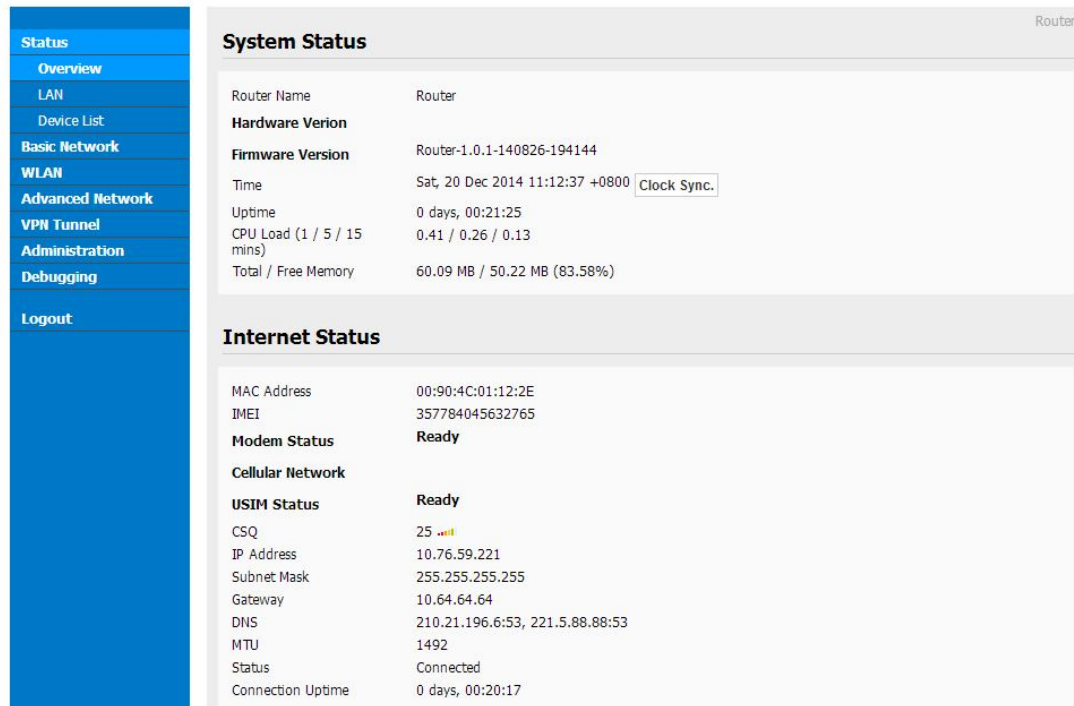
----END

3.2 Basic Configuration



Different software version have different web configuration interface, below take H50 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.



The screenshot displays the 'Router Status' web interface. On the left is a blue sidebar menu with options: Status, Overview, LAN, Device List, Basic Network, WLAN, Advanced Network, VPN Tunnel, Administration, Debugging, and Logout. The main content area is titled 'System Status' and shows various system metrics. Below this is the 'Internet Status' section, which provides details about the cellular network connection, including MAC Address, IMEI, Modem Status (Ready), Cellular Network, USIM Status (Ready), CSQ, IP Address, Subnet Mask, Gateway, DNS, MTU, Status (Connected), and Connection Uptime.

System Status	
Router Name	Router
Hardware Verion	
Firmware Version	Router-1.0.1-140826-194144
Time	Sat, 20 Dec 2014 11:12:37 +0800 Clock Sync.
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%)


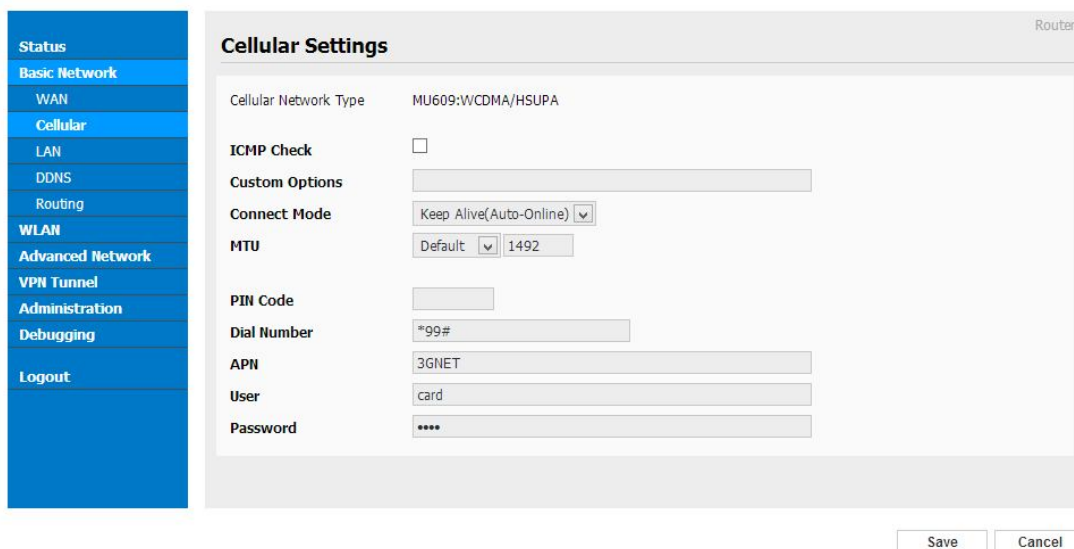
Internet Status	
MAC Address	00:90:4C:01:12:2E
IMEI	357784045632765
Modem Status	Ready
Cellular Network	
USIM Status	Ready
CSQ	25 
IP Address	10.76.59.221
Subnet Mask	255.255.255.255
Gateway	10.64.64.64
DNS	210.21.196.6:53, 221.5.88.88:53
MTU	1492
Status	Connected
Connection Uptime	0 days, 00:20:17



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.



The screenshot shows the 'Cellular Settings' web interface. The left sidebar menu is the same as in the previous figure, but 'Cellular' is highlighted. The main content area is titled 'Cellular Settings' and contains various configuration options for the cellular network. At the bottom right, there are 'Save' and 'Cancel' buttons.

Cellular Settings	
Cellular Network Type	MU609:WCDMA/HSUPA
ICMP Check	<input type="checkbox"/>
Custom Options	
Connect Mode	Keep Alive(Auto-Online) 
MTU	Default  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"> ● Keep alive (Auto-online).The router will automatically connect 3G/4G network and keep online. ● Connect On Demand. Idle offline if no data from LAN to 3G/4G within defined time. ● Schedule, Define online and offline time. This function need to enable NTP function, ● Call/SMS Triggered. Call/SMS trigger router online. ● Manually. Connect 3G/4G network by manual.
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.

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

The screenshot displays the LAN configuration interface of an industrial cellular router. On the left, a vertical menu lists various system settings, with 'LAN' currently selected. The main configuration area, titled 'LAN', includes several input fields: 'Router IP Address' is set to 192.168.1.1, 'Subnet Mask' is 255.255.255.0, 'DHCP Server' is enabled with a checked box, 'IP Pool' is configured as the range 192.168.1.2 to 192.168.1.51 with a capacity of 50, and 'Lease' is set to 1440 minutes. At the bottom right of the interface, there are 'Save' and 'Cancel' buttons.

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

Wireless (2.4 GHz / eth1)

Router

Enable Wireless ☒

MAC Address 00:90:4C:06:E1:04

Wireless Mode Access Point

Wireless Network Mode Auto

SSID router-wifi

Broadcast ☒

Channel 6 - 2.437 GHz Scan

Channel Width 40 MHz

Control Sideband Upper

Security Disabled

Save Cancel

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”.

Router

Wireless Client Filter

☒ Disable filter

☐ Permit only the following clients

☐ Block the following clients

MAC Address	Description
00:00:00:00:00:00	

Add

Save Cancel

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 *	▼
AP Isolation	Disable *	▼
Authentication Type	Auto *	▼
Basic Rate	Default *	▼
Beacon Interval	100	(range: 1 - 65535; default: 100)
CTS Protection Mode	Disable *	▼
Regulatory Mode	Off *	▼
Country / Region	UNITED STATES ▼	
Bluetooth Coexistence	Disable *	▼
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 *	▼
Maximum Clients	128	(range: 1 - 255; default: 128)
Multicast Rate	Auto *	▼
Preamble	Long *	▼
802.11n Preamble	Mixed Mode *	▼
Overlapping BSS Coexistence	Off *	▼
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.

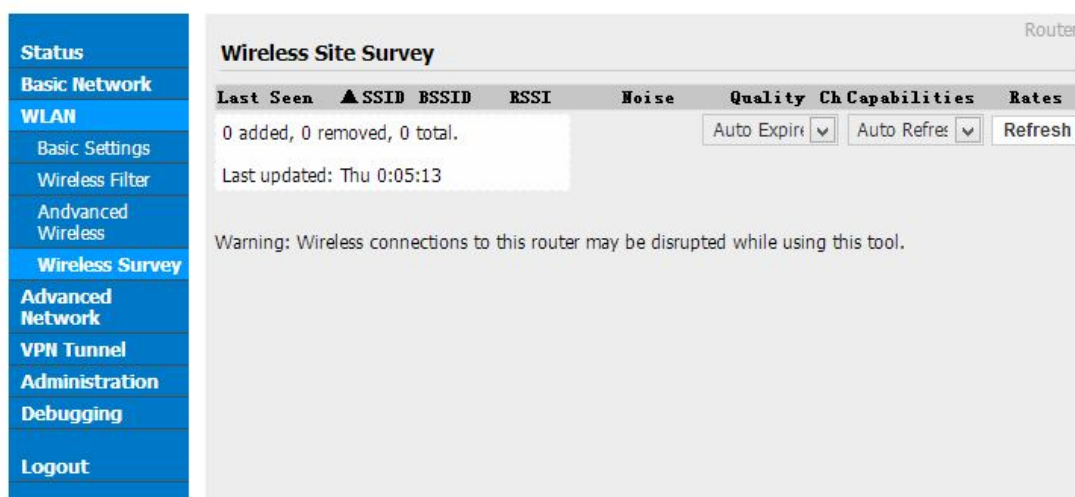


Figure 3-8 Wireless Survey Setting GUI

----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.

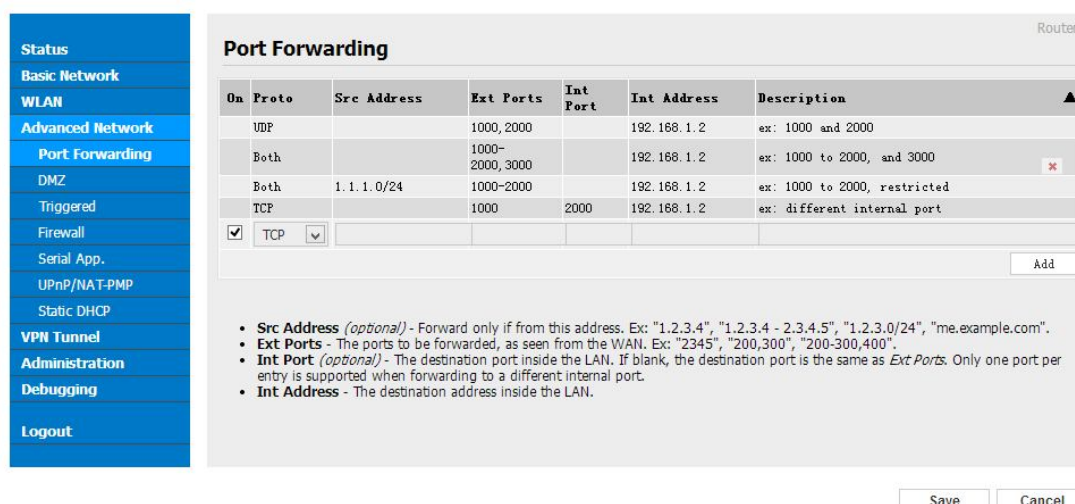


Figure 3-9 Port Forwarding GUI

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.

The screenshot displays the 'Access Restriction' configuration page for a router. On the left, a blue sidebar contains a menu with options: Status, Basic Network, WLAN, Advanced Network (highlighted), Port Forwarding, DMZ, Triggered, Firewall (selected), Serial App., UPnP/NAT-PMP, Static DHCP, VPN Tunnel, Administration, Debugging, and Logout. The main content area has a title bar 'Access Restriction' with 'Router' on the right. Below the title bar, 'ID: 01' is displayed. The configuration area includes an 'Enabled' checkbox (unchecked), an 'Applies To' dropdown menu (set to 'All Computers / Devices'), and a 'Blocked Resources' section with a checked checkbox for 'Block All Internet Access'. At the bottom right, there are 'Save' and 'Cancel' buttons.

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.

Serial to TCP/IP

Serial to TCP/IP Mode: Client

Server IP/Port: 8.8.8.8 : 40002

Socket Type: TCP

Socket Timeout: 500 (milliseconds)

Serial Timeout: 500 (milliseconds)

Paket Payload: 1024 (bytes)

Heart-Beat Content: router_00001

Heart-Beat Interval: 5 (seconds)

Baud Rate: 115200

Parity Bit: none

Data Bit: 8

Stop Bit: 1

Save Cancel

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.

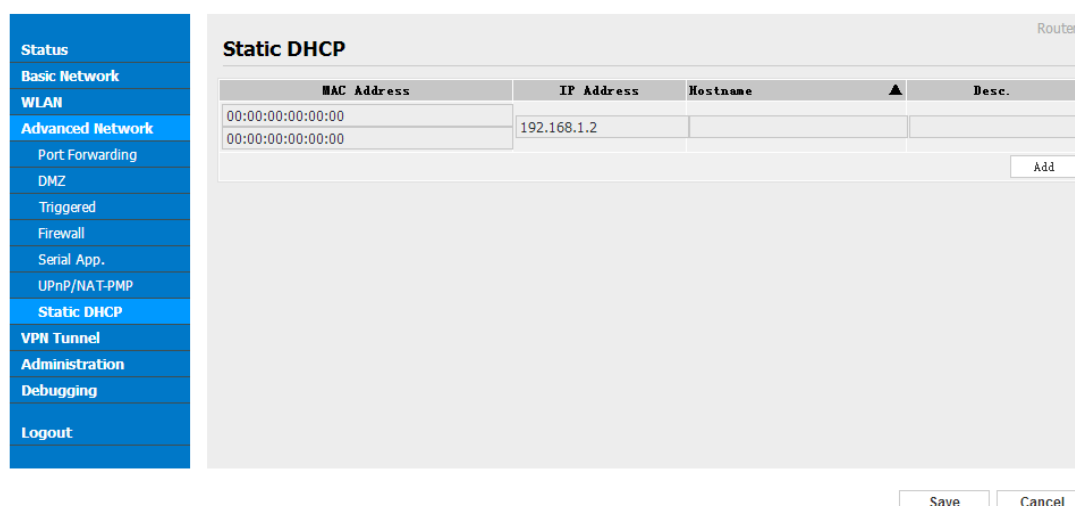
The screenshot displays the UPnp/NAT-PMP configuration page. On the left is a blue sidebar menu with the following items: Status, Basic Network, WLAN, Advanced Network (highlighted), Port Forwarding, DMZ, Triggered, Firewall, Serial App., UPnP/NAT-PMP (highlighted), Static DHCP, VPN Tunnel, Administration, Debugging, and Logout. The main content area has a title bar 'Router' and a section 'Forwarded Ports' with a table with columns: External, Internal, Internal Address, Protocol, and Description. Below this is a 'Settings' section with the following options: 'Enable UPnP' (checkbox), 'Enable NAT-PMP' (checkbox), 'Inactive Rules Cleaning' (checked checkbox), 'Secure Mode' (checked checkbox with a note: '(when enabled, UPnP clients are allowed to add mappings only to their IP)'), 'Listen on' (checkbox), 'LAN' (checkbox), 'Show In My Network Places' (checkbox), and a text area for 'Miniupnpd Custom configuration'. At the bottom right of the main 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 content area is titled 'Static DHCP' and contains a table with columns: MAC Address, IP Address, Hostname, and Desc. The table has two rows, both with MAC address '00:00:00:00:00:00'. The first row has IP address '192.168.1.2'. Below the table is an 'Add' button. At the bottom right are 'Save' and 'Cancel' buttons.

MAC Address	IP Address	Hostname	Desc.
00:00:00:00:00:00	192.168.1.2		
00:00:00:00:00:00			

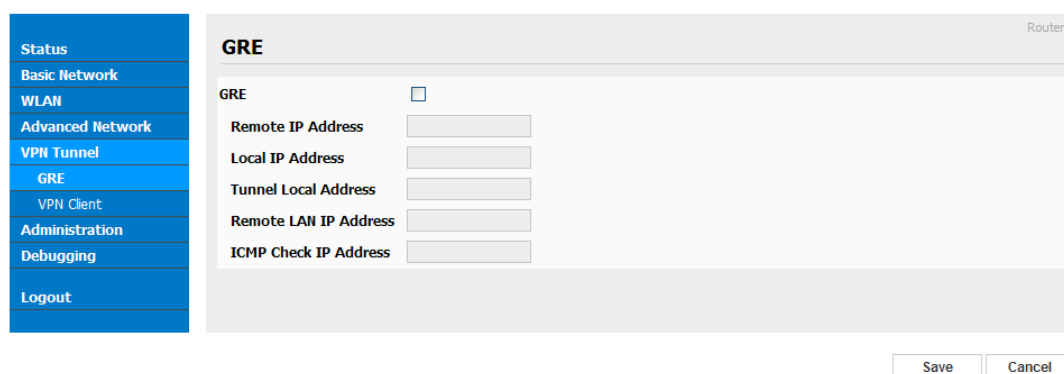
Figure 3-15 Static DHCP Setting GUI

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 content area is titled 'GRE' and features 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 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 Router GUI. On the left is a blue sidebar menu with options: Status, Basic Network, WLAN, Advanced Network, VPN Tunnel, Administration (highlighted), 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 contains the following settings: 'Router Time' is 'Thu, 25 Dec 2014 00:18:37 +0800' with a 'Clock Sync.' button; 'Time Zone' is a dropdown menu showing 'UTC+08:00 China, Hong Kong, Western Australia, Singapore, Taiwan'; 'Auto Daylight Savings Time' is checked; 'Auto Update Time' is a dropdown menu showing 'Every 4 hours'; 'Trigger Connect On Demand' is an unchecked checkbox; and 'NTP Time Server' is a dropdown menu showing 'Asia' with the text '0.asia.pool.ntp.org, 1.asia.pool.ntp.org 2.asia.pool.ntp.org' below it. At the bottom right 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 interface. On the left, a blue sidebar contains a menu with the following items: 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 the following sections:

- Local Access:** A dropdown menu set to 'HTTP' and a text input field for '80'.
- HTTP Port:** A text input field for '80'.
- Remote Access:** A dropdown menu set to 'HTTP' and a text input field for '8080'.
- Port:** A text input field for '8080'.
- Allow Wireless Access:** A checked checkbox.
- Open Menus:** A list of menu items with checkboxes: Status, Basic, WLAN, Advanced, Administration, and Debug.
- Password:** Two text input fields for the password, with the second field labeled '(re-enter to confirm)'.

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

Figure 3-19 Admin Setting GUI

Step 2 Please click save icon 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 displays the 'Scheduler Reboot' configuration interface. On the left, a vertical menu lists various system functions, with 'Scheduler Reboot' currently selected. The main panel, titled 'Reboot', allows users to configure the router's automatic restart. It includes an 'Enabled' checkbox, a 'Time' dropdown menu showing '12:00 AM', and a 'Days' section with checkboxes for each day of the week and an 'Everyday' option. All day checkboxes are checked. At the bottom right of the panel are 'Save' and 'Cancel' buttons.

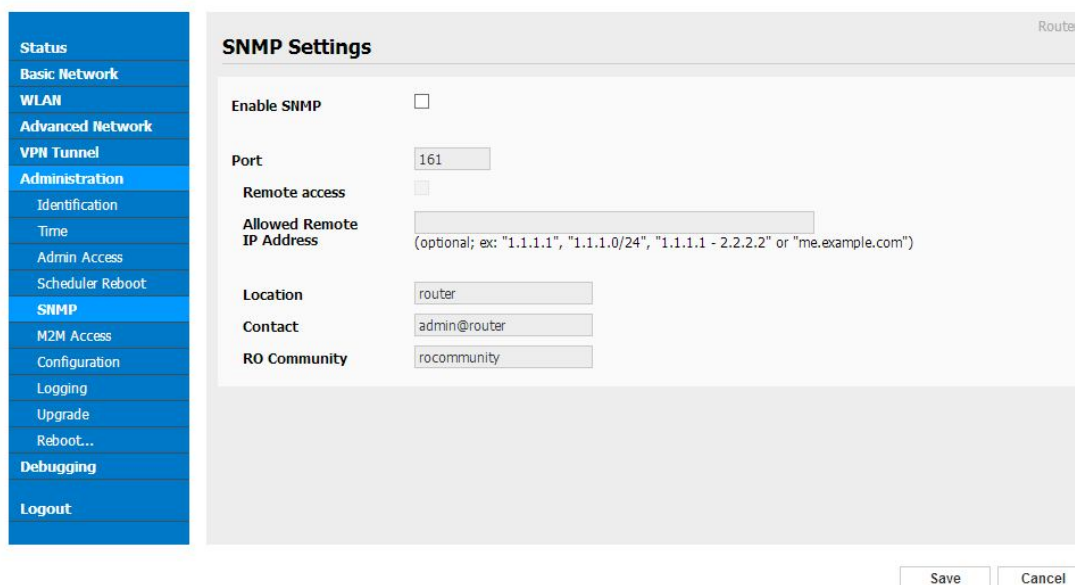
Figure 3-20 Scheduler Reboot Setting GUI

Step 2 Please click save icon to finish the setting

----End

3.6.5 SNMP Setting

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



The image shows the 'SNMP Settings' GUI. On the left is a blue sidebar menu with options: 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 panel is titled 'SNMP Settings' and contains the following fields: 'Enable SNMP' (checkbox, unchecked), 'Port' (text box with '161'), 'Remote access' (checkbox, unchecked), 'Allowed Remote IP Address' (text box with placeholder '(optional; ex: "1.1.1.1", "1.1.1.0/24", "1.1.1.1 - 2.2.2.2" or "me.example.com")'), 'Location' (text box with 'router'), 'Contact' (text box with 'admin@router'), and 'RO Community' (text box with 'rocommunity'). At the bottom right are 'Save' and 'Cancel' buttons.

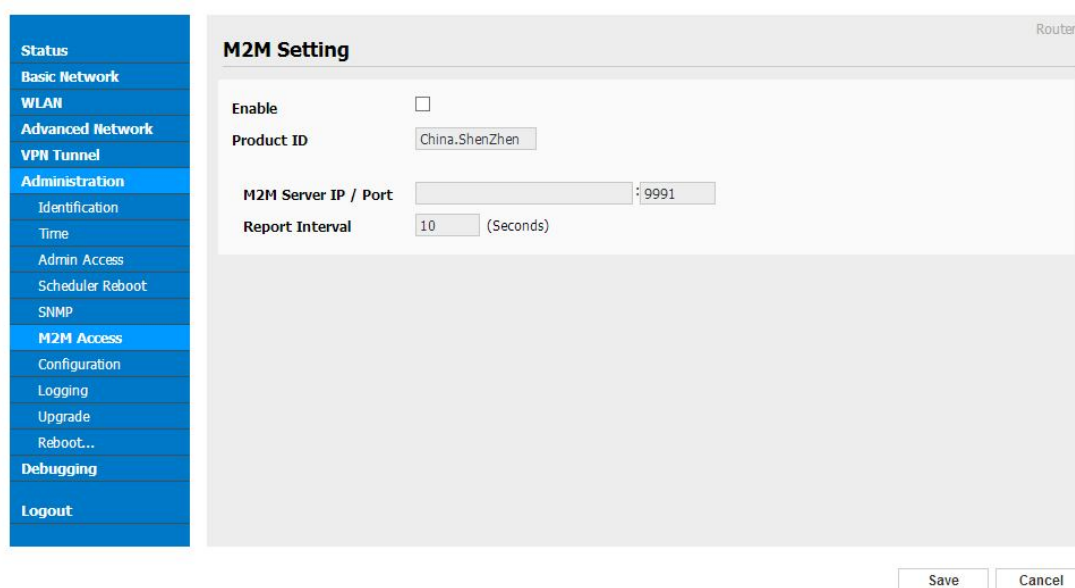
Figure 3-21 SNMP Setting GUI

Step 2 Please click save icon 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 image shows the 'M2M Setting' GUI. On the left is a blue sidebar menu with options: Status, Basic Network, WLAN, Advanced Network, VPN Tunnel, Administration, Identification, Time, Admin Access, Scheduler Reboot, SNMP, M2M Access (highlighted), Configuration, Logging, Upgrade, Reboot..., Debugging, and Logout. The main panel is titled 'M2M Setting' and contains the following fields: 'Enable' (checkbox, unchecked), 'Product ID' (text box with 'China.ShenZhen'), 'M2M Server IP / Port' (text box with '9991'), and 'Report Interval' (text box with '10' and '(Seconds)'). At the bottom right are 'Save' and 'Cancel' buttons.

Figure 3-22 M2M Access Setting GUI

Step 2 Please click save icon to finish the setting

----End

3.6.7 Backup Setting

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

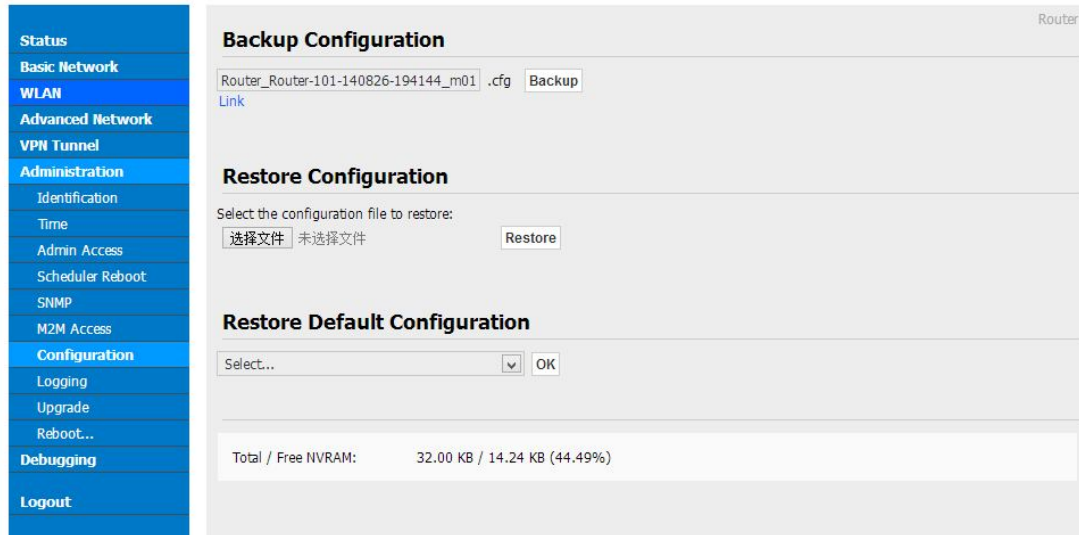


Figure 3-23 Backup and Restore Configuration GUI



CAUTION

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 interface. On the left, a vertical menu lists various system functions, with 'Logging' highlighted. The main configuration area includes the following settings:

- Log Internally:** Checked with a checkbox.
- Custom Log File Path:** A text field containing '/var/log/messages' with a note '(make sure the directory exists and is writable)'. The checkbox is unchecked.
- Log To Remote System:** Checked with a checkbox.
- Host or IP Address / Port:** A text field containing '192.168.1.2 : 514'.
- Generate Marker:** A dropdown menu set to 'Every 1 Hour'.
- Limit:** A text 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.

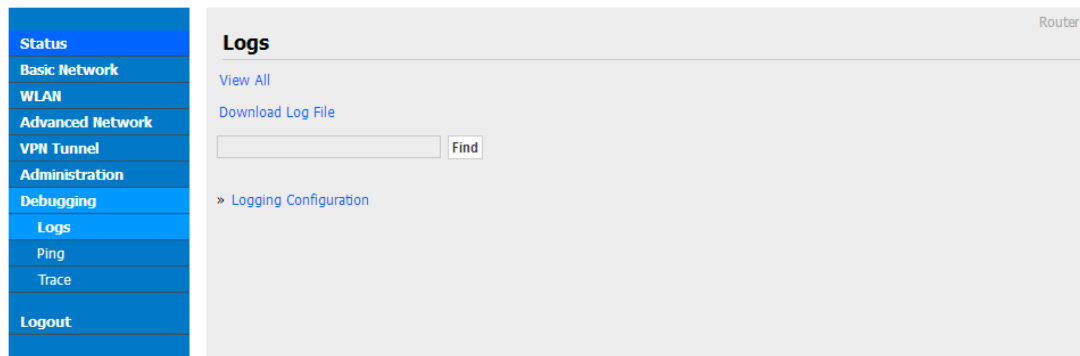


Figure 3-26 Logs GUI

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.

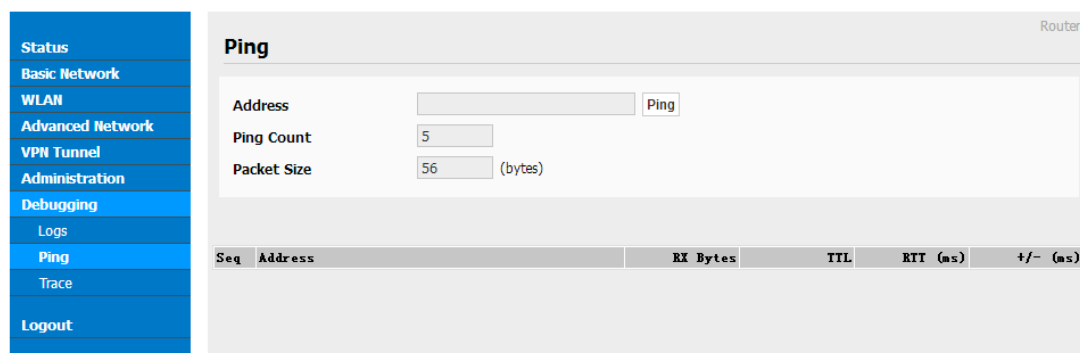


Figure 3-27 Ping GUI

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.

The screenshot shows a web management interface for an Industrial Cellular Router. On the left is a vertical navigation menu with the following items: Status, Basic Network, WLAN, Advanced Network, VPN Tunnel, Administration, Debugging, Logs, Ping, Trace, and Logout. The 'Trace' option is highlighted in blue. The main content area is titled 'Trace Route' and has a 'Router' label in the top right corner. It contains three input fields: 'Address' with a text box and a 'Trace' button, 'Maximum Hops' with a value of 20, and 'Maximum Wait Time' with a value of 3 and a unit of '(seconds per hop)'. Below these fields is a table with the following headers: Hop, Address, Min (ms), Max (ms), Avg (ms), and +/- (ms). The table body is currently empty.

Hop	Address	Min (ms)	Max (ms)	Avg (ms)	+/- (ms)
-----	---------	----------	----------	----------	----------

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 H20 Series, “RST” button is on the left of Ethernet port, for H50 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.

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】

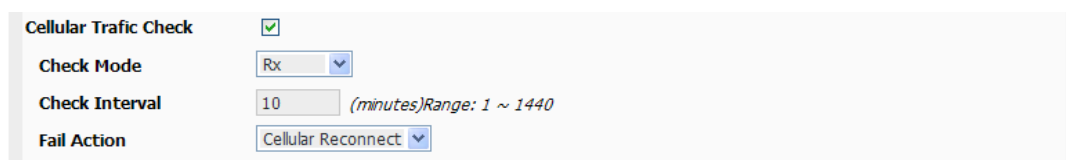
Enable ICMP, Router will automatically check whether the defined IP address is reachable per 60s. If the IP address is unreachable and ICMP check is timeout at the first time, it will check 2 time as 3s interval. If the third time is still failed, the router will implement fail action as you configured..

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

【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.



The screenshot shows the 'Cellular Traffic Check' configuration interface. It includes a checkbox for 'Cellular Traffic Check' which is checked. Below it, 'Check Mode' is set to 'Rx' via a dropdown menu. 'Check Interval' is set to '10' minutes, with a range of '1 ~ 1440' minutes indicated. 'Fail Action' is set to 'Cellular Reconnect' via a dropdown menu.

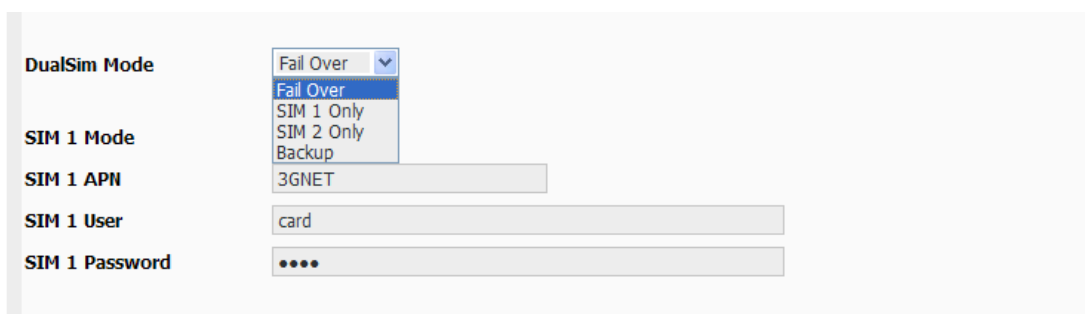
【SIM Mode】

【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.



The screenshot shows the 'DualSim Mode' configuration interface. The 'DualSim Mode' dropdown menu is open, showing options: 'Fail Over' (selected), 'SIM 1 Only', 'SIM 2 Only', and 'Backup'. Below the dropdown, 'SIM 1 APN' is set to '3GNET'. 'SIM 1 User' is set to 'card'. 'SIM 1 Password' is masked with four dots.

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.

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



NOTE

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
