www.hongdian.com

Connecting things
Hongdian

User Manual

H8951-NA Cellular Wi-Fi Router

We Hongdian provide full support to customers, contact us freely if any questions.

Shenzhen Hongdian Technologies Corporation

Address	F14-16,Headquarter Economic Center Building, ZhonghaixinScience&Tech Park, Bulan Road, Longgang District, Shenzhen
Website	http://www.hongdian.com
Technical Support	+86-0755-88864288-4/8238
Fax Number	0755-83404677
Postcode	518112

Trademarks and Permissions

Connecting things Hongdian and DTU are the trademarks and logos of Shenzhen Hongdian Technologies Corporation. Other trademarks and logos mentioned in this manual belong to other organizations related. Shenzhen Hongdian Technologies Corporation does not own the rights of other trademarks and logos.

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 do not compose any form of guarantee and we Hongdian reserves the right of final explanation.

Introduction

Summary

H8951-NA Cellular Wi-Fi Router is a data communication terminal on mobile communication network which independently researched and developed by Hongdian Corporation. The product is based on 3G/4G wireless communication technology. It uses high performance 32-bit embedded operating system and has a full industrial design. It can provide high performance 3G/4G communication speed by accessing the global 3G/4G network via the embedded 4G module. It is widely used for various industries such as telecommunication, finance, information media, electric power, transportation, on-board devices and environmental protection and so on.

The main function of this document is to help readers know the functional characteristics and typical application modes of the product, understand the installation, deployment and configuration operation methods for the product and master the methods for dealing with common faults during usage.

Product Version

The product version corresponding to the document is as shown below.

Product name	Product version
H8951-NA Cellular Wi-Fi Router	V50A

Readers

The document applies to the following persons:

- R & D engineers
- Technical support engineers
- Customers

You are recommended to start from Chapter One if you know and use any Router product of Hongdian for the first time so as to get a better understanding of the product and the correct usage by reading all the contents of the document.

You are recommended to select any chapter or section you want to know via the contents below if you have known or used any Router product of Hongdian or a similar product of any other company.

Brief Introduction of Contents

The usage of H8951-NA Cellular Wi-Fi Router is described in the document.

Section	Contents
1 Product Introduction	H8951-NA Cellular Wi-Fi Router and its functional characteristics, product orientation are introduced in the chapter.
2 Product Structure	H8951-NA Cellular Wi-Fi Router software, hardware structures are introduced in the chapter.
3 Installation of H8951-NA Cellular Wi-Fi Router	How to install H8951-NA Cellular Wi-Fi Router is introduced in the chapter.
4 Preparation before Configuration	Preparation before H8951-NA Cellular Wi-Fi Router configuration is introduced in the chapter.
5 Router Configuration	H8951-NA Cellular Wi-Fi Router functional configuration is introduced in the chapter.
6 Typical Application	Several typical application modes of H8951-NA Cellular Wi-Fi Router is introduced in the chapter.
7 FAQ	The causes and handling methods for common faults of H8951-NA Cellular Wi-Fi Router during usage are introduced in the chapter.

Conventions

Symbol Conventions

The symbols that may be found in this document are defined as follows.

Symbol	Description
	Indicates a potentially hazardous situation, which if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results.
	Indicates a tip that may help you address a problem or save your time.
	Provides additional information to emphasize or supplement important points of the main text.

Command Conventions

Convention	Description
Boldface	The keywords of a command line are in boldface.

Convention	Description
Italic	Command arguments are in italics.
[ ]	Items (keywords or arguments) in brackets [ ] are optional.
{ x | y | ... }	Optional items are grouped in braces and separated by vertical bars. One item is selected.
[x | y | ...]	Optional items are grouped in brackets and separated by vertical bars. One item is selected or no item is selected.
{ x | y | ... } *	Optional items are grouped in braces and separated by vertical bars. A minimum of one item or a maximum of all items can be selected.
[x | y | ...] *	Optional items are grouped in brackets and separated by vertical ars. Several items or no item can be selected.
&<1-n>	The parameter before the “&” sign can be repeated 1 to n times.
#	A line starting with the “#” sign is comments.

GUI Conventions

Convention	Description
Boldface	Buttons, menus, parameters, tabs, window, and dialog titles are in boldface. For example, click OK.
>	Multi-level menus are in boldface and separated by the ">" signs. For example, choose File > Create > Folder.

Keyboard Operations

Format	Description
Key	Press the key. For example, press Enter and press Tab.
Key 1+Key 2	Press the keys concurrently. For example, pressing Ctrl+Alt+A means the three keys should be pressed concurrently.
Key 1, Key 2	Press the keys in turn. For example, pressing Alt, A means the two keys should be pressed in turn.

Mouse Operation

Action	Description
Click	Select and release the primary mouse button without moving the pointer.
Double-click	Press the primary mouse button twice continuously and quickly

Action	Description
	without moving the pointer.
Drag	Press and hold the primary mouse button and move the pointer to a certain position.

Modifying Records

Modifying records accumulate the introduction of every document update. The document of the newest version includes all updating contents of previous document versions.

Document Version	Time of Modifying	Modifying Introduction
V1.0	2014-07-11	The manual was firstly released aiming at the release of H8951-NA Router.
V1.1	2017-10-10	Manual update to doc V1.1; H8951-NA hardware version update to V30 from V21.
V1.2	2020-2-21	Manual update to Doc V1.2 Hardware version from V30 to V50A

Contents

Table Contents

Figure Contents

1 Product Introduction

About This Chapter

Section	Brief Introduction of Contents
1.1 Summary	The summary of H8951-NA Cellular Wi-Fi Router is briefly introduced in the section.
1.2 Product Orientation	The product orientation of H8951-NA Cellular Wi-Fi Router is briefly introduced in the section.
1.3 Functions and Features	The functions and features of H8951-NA Cellular Wi-Fi Router are briefly introduced in the section.
1.4 Technical Indicators and Specifications	The technical indicators and relevant specifications for H8951-NA Cellular Wi-Fi Router are briefly introduced in the section.

1.1 Summary

H8951-NA Cellular Wi-Fi Router is a wireless router gateway researched and developed based on 3G/4G technology. Besides the functions such as VPN, firewall, NAT, PPPoE, DHCP of conventional routers, it can also support 3G/4G wireless dialing to provide wireless high speed bandwidth as high as 100Mbps and support 802.11n to provide local wireless local area network (WLAN) as high as 150Mbps. The most dominant feature of H8951-NA Cellular Wi-Fi Router is that it can support simultaneous online and backup switchover among various networks such as WAN, WLAN and 3G/4G. The backup in various networks can guarantee and maintain communication links to the greatest extent so as to avoid business loss caused by communication outage. The simultaneous online of various networks can facilitate strategy diversion based on business so as to realize the bandwidth rationality and adequate utilization of various network channels.

H8951-NA Cellular Wi-Fi Router supports the M2M wireless remote comprehensive network management platform independently researched and developed by Hongdian.

The M2M platform is able to realize the statistics of 3G/4G wireless network information and status in the place where H8951-NA Cellular Wi-Fi Router is used as well as the remote upgrade and configuration management for H8951-NA Cellular Wi-Fi Router.

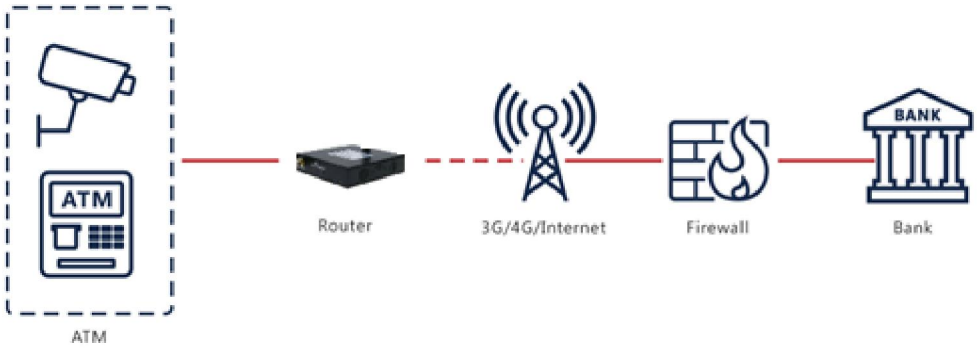
1.2 Product Orientation

H8951-NA Cellular Wi-Fi Router is widely used for various industries such as telecommunication, finance, information media, electric power, transportation, on-board devices and environmental protection and so on.

VPN application for financial industry

H8951-NA Cellular Wi-Fi Router can provide guarantees for highly secure transmission of financial data via ways such as IPSec VPN. The typical network is as shown in Figure 1-1.

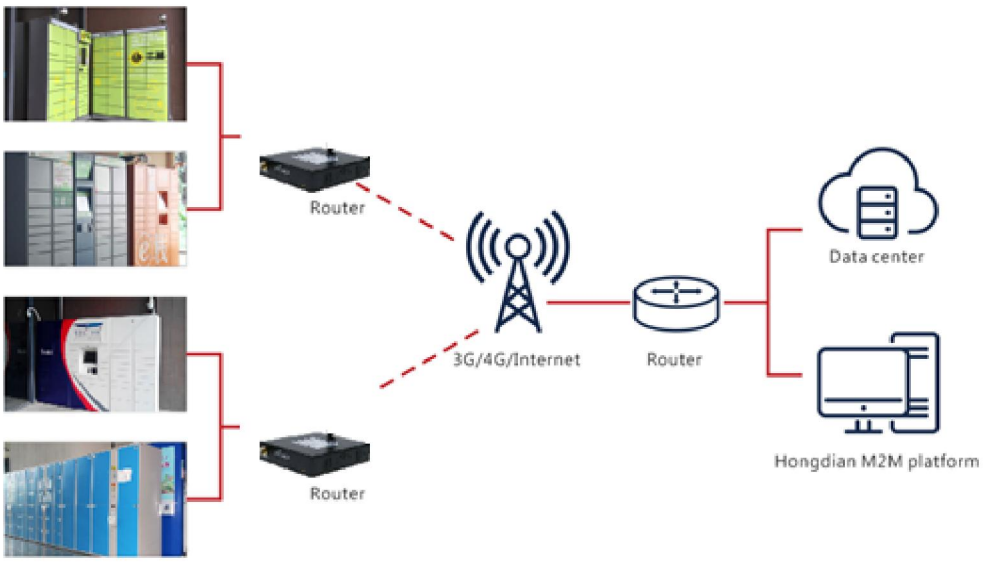
Figure 1-1 Schematic Diagram of Application for Financial Industry



Logistics cabinet industry application

The router transfers the information of the logistics cabinet to the data center for each park via 3G/4G network, and M2M cloud management platform supports vehicular video transmission. The typical network is as shown below.

Figure 1-2 Schematic Diagram of Application for Logistics Cabinet Industry



1.3 Functions and Features

Function

- Modem/WAN/Wi-Fi multiple network mode backup
- VPN support, GRE over IPSec, IPsec over PPTP/L2TP
- WAN port support PPPoE, static IP, DHCP client
- LCP/ICMP/flow/heartbeat check, ensure network usability
- SNMP network management, NTP support
- Local & remote firmware update
- Local & remote log check
- Supports DNS proxy and Dynamic DNS (DDNS)
- Supports timing operation
- Supports LED status indication

Available cellular network

- LTE FDD: B2/B4/B5/B12/B13/B25/B26
- HSPA+/HSUPA/HSDPA/WCDMA/UMTS 2100/1900/900/850/800MHz

1.4 Specification

Interface

- 1×10/100Mb LAN interface
- 1×10/100Mb WAN/LAN interface
- 2× SMA-K antenna interface
- 1× Standard SIM/R-UIM interface
- 1× Standard DC power interface

Power supply

- Voltage: 5-36VDC
- Idle state: 200mA@12V DC

- Communication state: 300mA@12V DC

Others

- Dimension: 100mm x 98mm x 23mm (not including antenna)
- Weight: 300g
- Operation temperature: -30~+70℃
- Store temperature: -40~+85℃
- Related humidity: <95% (non-condensing)
- Guarantee: one year
- length of 3G/4G antenna cable：＞20cm

1.5 Function comparison table

The H8951-NA router is compared with other model routers of Hongdian as shown in table below.

Function description	H8922S V12	H8922 V30	H8951-NA	H7920 V30	H7960 V11	H7960 V21
Multi-carrier (3G/4G LTE)	YES	YES	YES	YES	YES	YES
Dual SIM	YES	YES	-	-	-	YES
Remote Manager (Wedora Cloud Platform)	YES	YES	YES	YES	YES	YES
WAN	YES	YES	YES	-	YES	-
Ethernet Port	4	4	1~2	1	1~2	4
Wlan/WiFi	YES	YES	YES	-	YES	YES
Serial Ports(optional)	2	-	-	1	1	2
Interface Options	AC Wi-Fi, GPS	GPS	-	-	GPS	GPS
Digital I/O	4	-	-	-	2	3
USB	-	-	-	-	YES	YES
LED Indicator	12	12	4	4	4	4
Power Supply	5-36V	5-36V	5-36V	5-36V	5-36V	9-48V
Enclosure	Industrial metal case, Wall Mounting	Industrial metal case, Wall Mounting	Industrial metal case, DIN and Wall Mounting optional	Industrial metal case, Wall Mounting	Industrial metal case, DIN and Wall Mounting optional	Industrial metal case, DIN and Wall Mounting optional
Dimension (mm)	191.5*112*26	176*105*25	100*98*23	100*98*23	121.4*98*29.7	142*98*36.6
Weight	340g	540g	300g	300g	360g	480g
VPN	IPSec/OpenVPN/GRE/L2TP/PPTP/DMVPN					
Management	WEB/CLI/SNMP/HongdianWedora Cloud					

Working temperature	-30~+75℃	-20~+70℃	-20~+65℃	-20~+75℃	-30~+70℃	-30~+70℃
Storage temperature	-40~+85℃	-40~+85℃	-40~+85℃	-40~+85℃	-40~+85℃	-40~+85℃
Safety Standards	GB/T 25119					
EMC Standards	EN61000-4-2,level 4 EN61000-4-3,level 3 EN61000-4-4,level 4 EN61000-4-6,level 3 EN61000-4-8,>level 4 CISPR 22,CLASS B CISPR 22,CLASS B					
Industry&Applications						

2 Product Structure

About this chapter

Chapter	Content
2.1 Hardware	H8951-NA Cellular Wi-Fi Router hardware.
2.2 Structure	Structure of H8951-NA Cellular Wi-Fi Router .

2.1 Hardware

2.1.1 Appearance & Size

Appearance

Figure 2-1 H8951-NA Cellular Wi-Fi Router Appearance

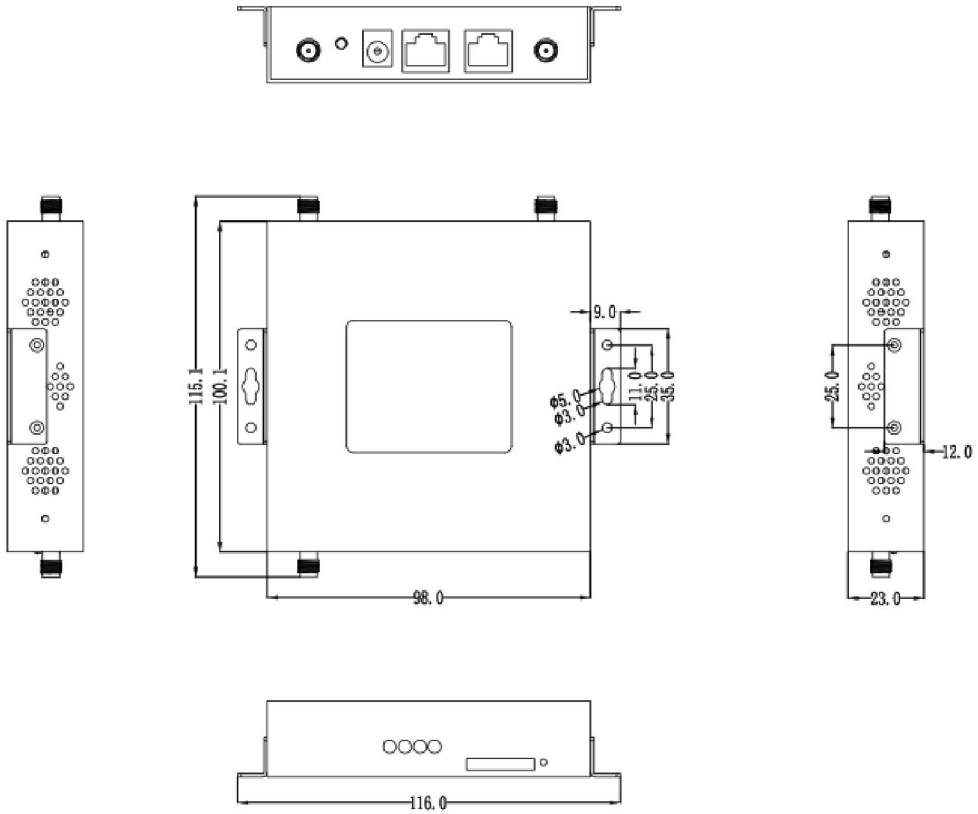
Size

Table 2-1 H8951-NA Cellular Wi-Fi Router size

Model	Dimension (mm)	Interface
H8951-NA Cellular Wi-Fi Router	100×98×23	1×10/100Mb LAN interface 1×10/100Mb WAN/LAN interface 2× SMA antenna interface 1× Standard SIM/R-UIM interface 1× Standard DC power interface

H8951-NA Cellular Wi-Fi Router appearance as the figure shown below.

Figure 2-2 H8951-NA Cellular Wi-Fi Router Figure



2.1.2 Accessories

Table 2-2 H8951-NA Cellular Wi-Fi Router accessories

Accessories name	Number	Note
H8951-NA Cellular Wi-Fi Router	1 pcs	
CD-ROM	1 pcs	Optional
3G antenna	1 or 2 pcs	According to module number inside
RJ45 cable	1 pcs	
Mounting	1 pair	Optional
Certificate and warranty card	1 pcs	

2.2 Structure

The H8951-NA interface panels are as shown below.

Figure 2-3 Front panel

Figure 2-4 Back panel

3 Router Installation

About This Chapter

Section	Brief Introduction of Contents
3.1 Unpacking	The unpacking operation and the list of equipment to be checked for installation of H8951-NA Cellular Wi-Fi Router are briefly introduced in the section.
3.2 Installation and Wiring	The installation of SIM/UIM cards, Ethernet connection, Cable connection for H8951-NA Cellular Wi-Fi Router are briefly introduced in the section.
3.3 Power Supply	The Power supply requirements and methods for H8951-NA Cellular Wi-Fi Router are briefly introduced in the section.
3.4 Installation Inspection	The inspection after the installation of H8951-NA Cellular Wi-Fi Router is briefly introduced in the section.

3.1 Unpacking

Upon arrival of the equipment, it is necessary to unpack the box and inspect whether the parts are complete. Generally speaking, the complete set of equipment shall include the parts shown in Table 2-2. The packing materials shall be properly kept for future use.

3.2 Installation and Wiring

3.2.1 Install SIM/UIM card

H8951-NA Cellular Wi-Fi Router support single SIM/UIM card, so you may need insert single SIM before config it.

CAUTION

Please guarantee that the router is off when installing a SIM card.

Step 1 Use a small stick push the yellow button on router, the SIM slot will pop out as Figure 3-1 shows.

Figure 3-1 Pop out SIM slot

---End

3.2.2 Ethernet cable connection

Use Ethernet port directly connect H8951-NA Cellular Wi-Fi Router and computer, or transferred by a switch.

Single equipment direct connection

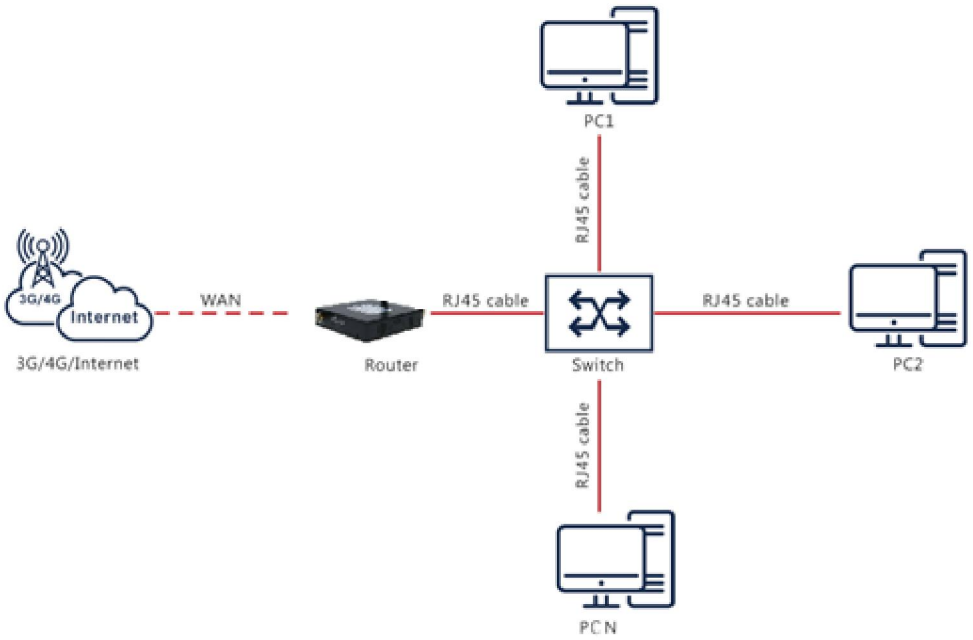
Use Ethernet cable with RJ-45 type connector to directly connect any of four exchange interfaces of Cellular Wi-Fi Router with the relevant computer as shown below.

Figure 3-1 Single Equipment Direct Connection

Multiple equipment local area network connection

Cellular Wi-Fi Router supports Ethernet switch functions, and it can simultaneously connect to multiple equipment for many LAN (such equipment may not be in the same network segment) as shown below.

Figure 3-2 Multiple Equipment Connection



3.3 Power Supply

In order to get high reliability, H8951-NA Cellular Wi-Fi Router adapt wide voltage input: 5-36VDC, support hot plug and complex application environment.

3.4 Installation Inspection

Before installation and power-on, the SIM card shall be pressed to inspect whether it is properly inserted. After power-on, the working status indicator of the router shall be inspected. The LAN interface will be bright as soon as power-on, and the RUN lamp will be bright a while later, which means that the system has been started and working normally.

CAUTION

An antenna must be connected before power-on to avoid the impedance mismatching of RF that causes unsuccessful dial-up and Internet access due to poor signals

Operating steps

Step 1 Inspect whether the antenna is correctly connected.

Step 2 Inspect whether the SIM card is correctly and properly installed and confirm whether the SIM card is valid.

Step 3 Provide power supply for H8951-NA Cellular Wi-Fi Router. The following content is about the router dialing of the SIM card.

- After providing power supply, it means that the power supply for the router is normal in case the LAN interface lamp of H8951-NA Cellular Wi-Fi Router connected with a lower computer is bright.
- After a certain period, it means the router system is started in case the RUN indicator lamp of the router is bright.
- After the RUN indicator lamp is bright for a while, it means that the router has found the module and started dialing in case the NET indicator lamp is bright and flashing quickly.
- During the dialing process, the SIG lamp will be bright, which means that the router has acquired the signal strength of the SIM card, and the network signal strength can be judged as per the flashing condition of the SIG lamp. See “Terminal Panel Indicator Lamp Status” for details.
- Upon the completion of router dialing, in case the 3G/4G lamp is normally on, it means that the connected network is 3G/4G. In case it is flashing slowly, it means that the connected network is 2G/2.5G/2.75G.

NOTE

For different modules, the durations for the router to find all modules are various; in addition, the durations for dialing are various due to different networks. Therefore, for different modules, the durations of router dialing and acquiring IP addresses may vary. However, the router dialing process is exactly as specified above.

---End

4 Before config

About This Chapter

Chapter	Content
4.1 LED Status	The meaning of LED status.
4.2 Local config	How to local config H8951-NA Cellular Wi-Fi Router .
4.3 Basic config	Basic config & function.

4.1 LED Status

There are LED on front panel of H8951-NA Cellular Wi-Fi Router , they show how H8951-NA Cellular Wi-Fi Router works.

Table 4-1 LED instruction

LED name	Status
WIFI	• Solid light: system normal • Dark: system abnormal or during booting
RF	• Solid light: good signal, 21~31 • Blinking quickly (0.5s): normal signal, 11~20 • Blinking slowly(2s): bad signal, 1~10 • Dark: no signal
NET	• Solid light: connect 3G ok • Blinking slowly(0.5s): connect 2.5G network ok • Blinking quickly(2s): dialing • Dark： No module or no auto-dial
SYS	• Solid light: run ok

4.2 Local Connection Configuration

Precondition

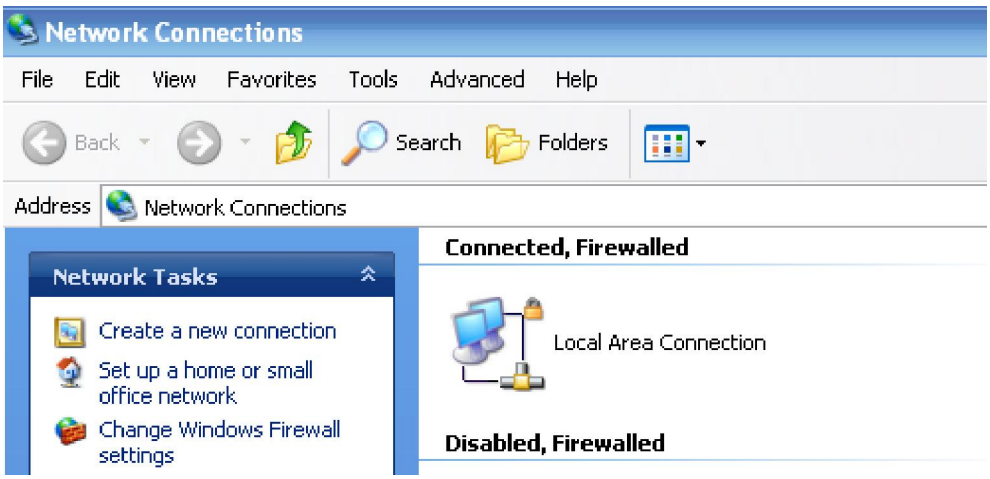
- Already power on H8951-NA Cellular Wi-Fi Router
- Ethernet cable connect to H8951-NA Cellular Wi-Fi Router

You could specify a static IP or DHCP get IP for your computer.

Static IP

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 4-1 Local Area Connection



Step 2 Obtain a IP address automatically, or follow below instruction.

NOTE

H8951-NA Cellular Wi-Fi Router default enabled DHCP server. If it has been disabled, DHCP cannot be use.

Step 3 Change or add a IP 192.168.8.* on your computer.

Figure 4-2 Connection properties

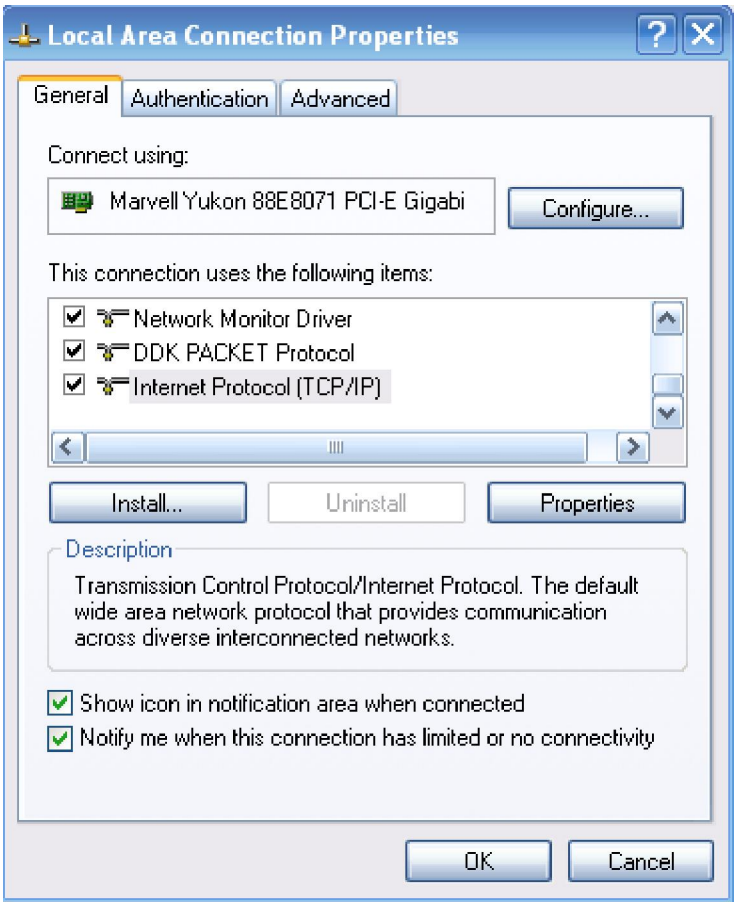
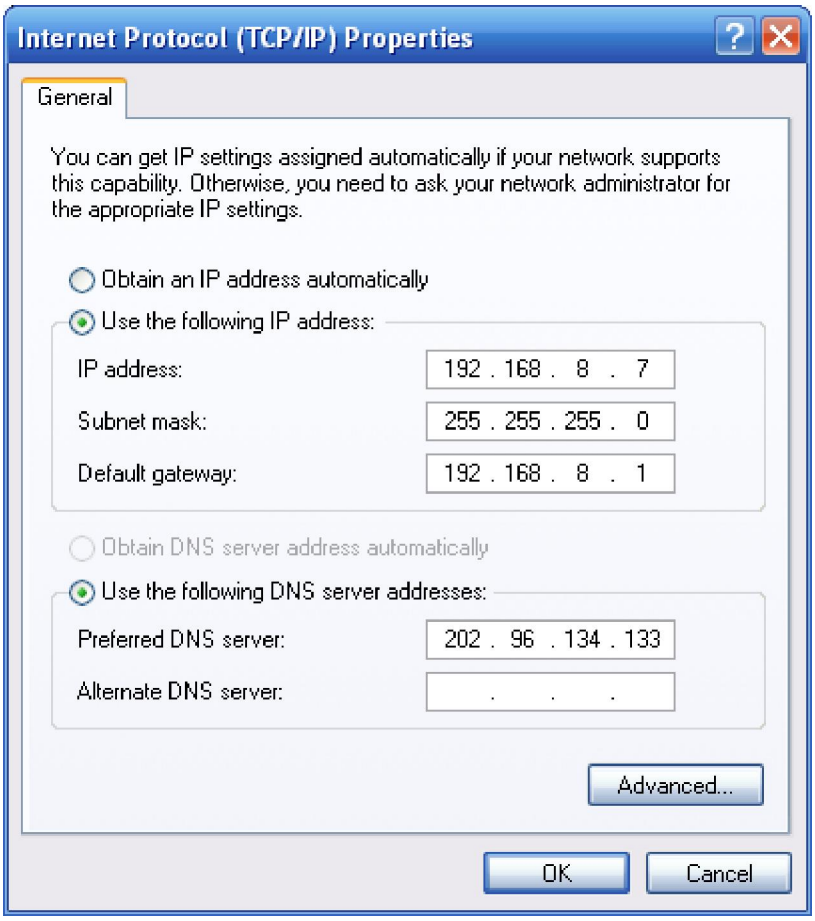


Figure 4-3 Internet protocol (TCP/IP)



You could change your IP address or add a IP address in Advanced setting.

- General configuration

This method will temporarily interrupt the communication between the computer under configuration and LAN, and the specific parameter configuration is shown as below:

IP address: 192.168.8.* (*indicates any integral between 2 to 254)

Subnet mask: 255.255.255.0

Default gateway: 192.168.8.1

Remember:

H8951-NA Cellular Wi-Fi Router LAN port factory default parameter:

IP address: 192.168.8.1

Subnet mask: 255.255.255.0

H8951-NA Cellular Wi-Fi Router factory default login parameter:

Management interface login IP address: 192.168.8.1

Login name: admin

Login password: admin

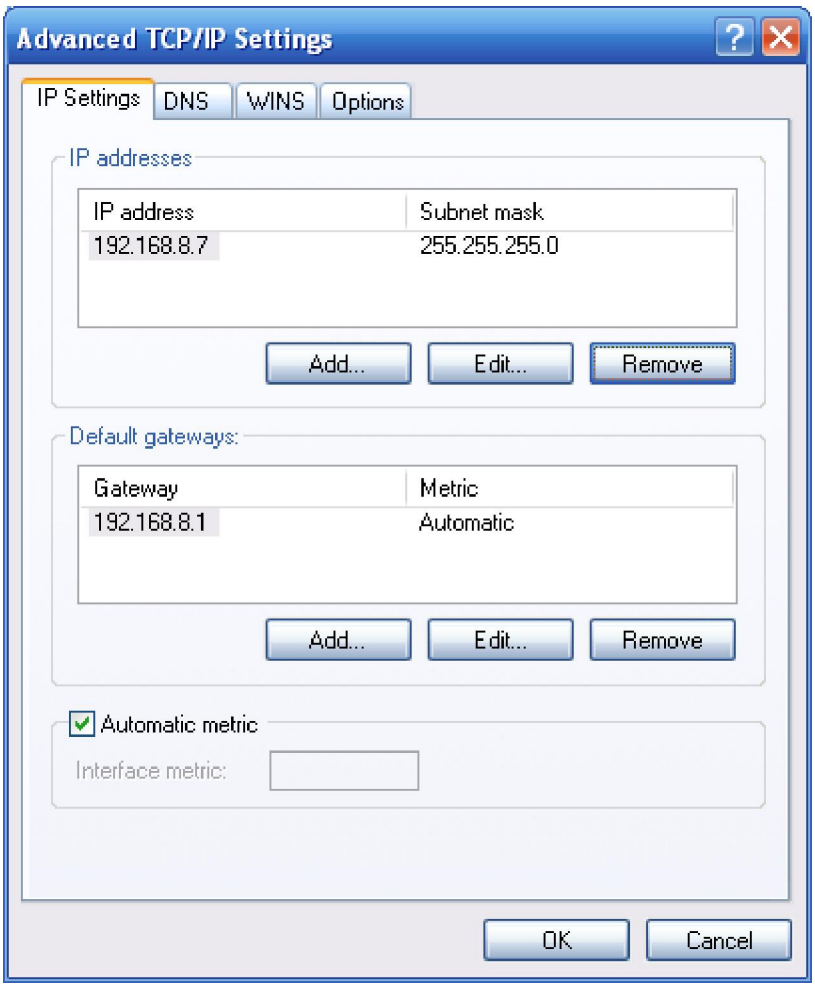
- Advanced configuration

If you don’t want to interrupt local PC LAN communication and configure H8951-NA Cellular Wi-Fi Router when the former network configuration exists, it is required add route (IP).

The configuration operation is shown as below:

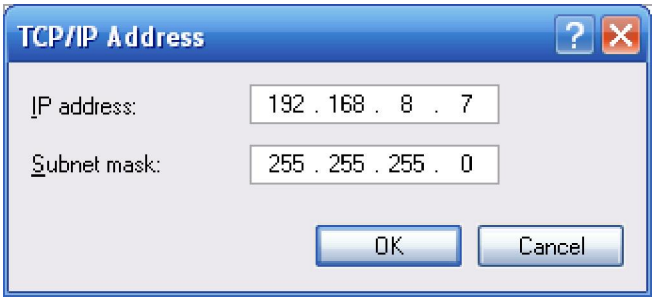
Click the “Advanced…” button to enter the interface as below:

Figure 4-4 Advanced TCP/IP Settings



Click the “Add (A)” button under the “IP address (R)”, and fill in the IP address that you want to add:

Figure 4-5 TCP/IP address



After the configuration is completed, click the “Add”. By now the computer has a route to router H8951-NA.

Note:

“Default gateway” depends on whether the configuration computer connects with Internet through original local network configuration. If Internet is accessed through original local network, the default gateway setting does not need to be modified; if H8951-NA Cellular Wi-Fi Router is used, you need to modify the default gateway and configure it as H8951-NA Cellular Wi-Fi Router’s default LAN IP address 192.168.8.1.

---END

Network Check

Step 1 IP configuration check

Use the command of ipconfig to check whether the IP address is correctly set or added. You can enter DOS mode and key-in command: ipconfig, for instance:

C:\>ipconfig

Windows IP Configuration

Ethernet adapter local connection:

Connection-specific DNS Suffix.:

Auto configuration IP Address . . .: 192.168.8.7

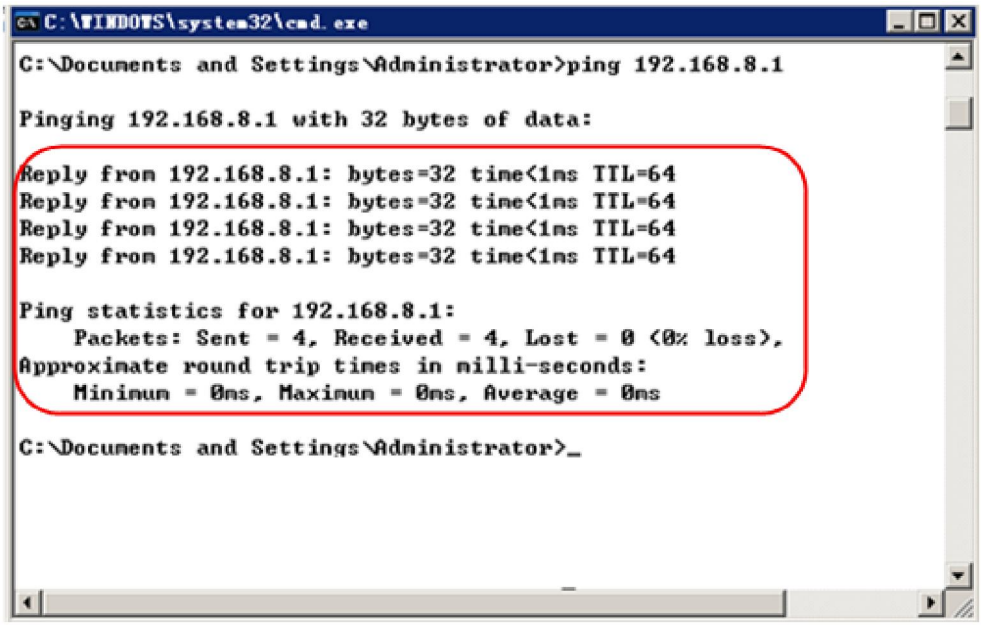
Subnet Mask . . . . . .: 255.255.255.0

Default Gateway . . . . . : 192.168.8.1

Step 2 Connectivity check

After the configuration is completed, you can check the connectivity between it and Galaxy H8951-NA Cellular Wi-Fi Router by ping command. Key-in ping command in system command line:

Figure 4-6 Connectivity check



By now, it means that the configuration computer has been connected to the router. You can carry out configuration operation on it.

---END

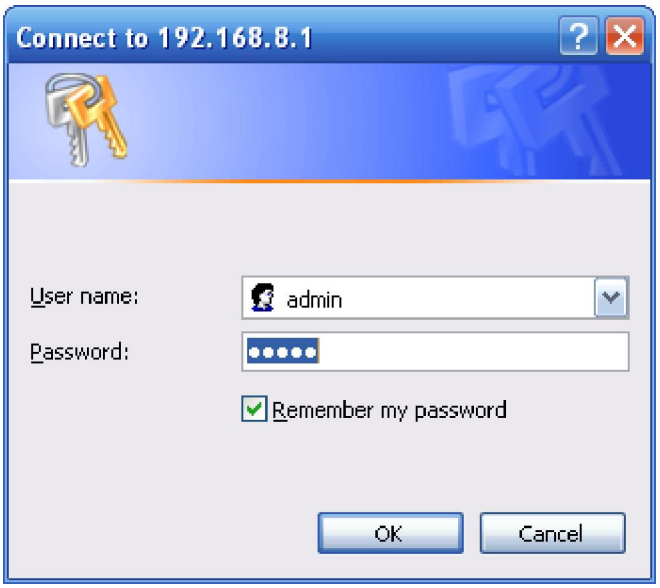
4.3 Basic configuration

Through this chapter, you could achieve basic function: visit internet.

4.3.1 Login WEB GUI

Step 1 Run a Internet Explorer and visit "http://192.168.8.1/", to enter identity page.

Figure 4-7 User identity page



Step 2 User should use default user name and password when log in for the first time:

Step 3 User name: admin

Step 4 Password: admin

---EN

5 Router Configuration

About this chapter

Chapter	Content
5.1 Overview	Enter H8951-NA Cellular Wi-Fi Router WEB GUI to configure
5.2 Network configuration	Network configuration & function
5.3 Application	Advanced function of router like timing operation, link backup .etc.
5.4 Security	Security setting of H8951-NA
5.5 Forward	NAT & DMZ setting
5.6 VPN	PPTP, L2TP, IPSec& GRE setting
5.7 System	Updating & maintain
5.8 Status	Router working status

5.1 Overview

H8951-NA Cellular Wi-Fi Router adopts WEB GUI to configure, all parameter can be modified by this GUI, and it is easy to understand.

5.2 Network configuration

Network connection configuration, including LAN, WAN, cellular network, Wi-Fi(optional), parameter switch, DHCP setting and so on.

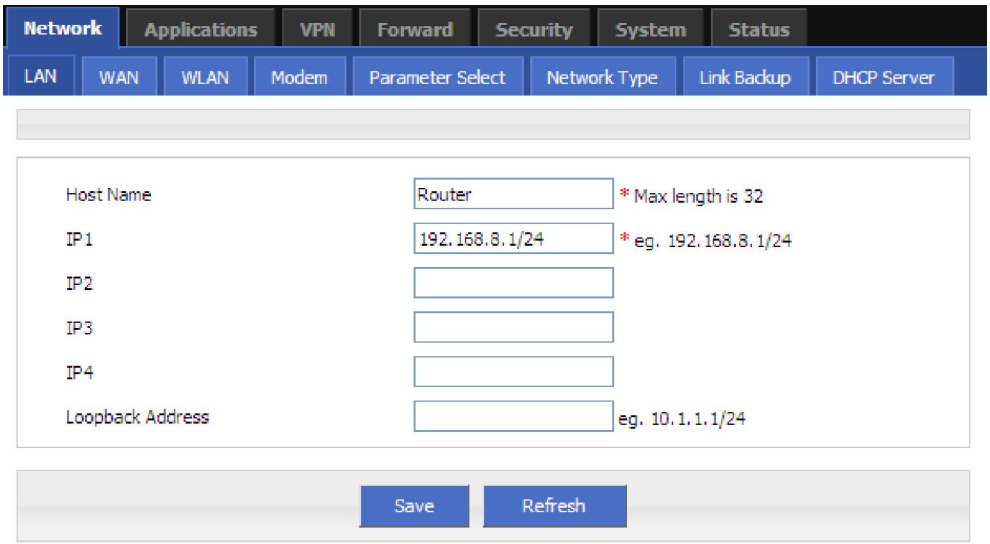
5.2.1 LAN

LAN setting used to manage local area network PC which connect to H8951-NA, make them could visit internet and the network segment connectivity normal.

Step 1 Login H8951-NA WEB GUI.

Step 2 Single click “Network > LAN”.

Figure 5-1 LAN window



Step 3 LAN parameter.

Table 5-1 LAN Parameter instruction

Parameter	Details	Operation
Host name	router name	Manual input, Maximum length limited to 32 word type character
IP1~4	Divide sub-network, those sub-net could communicate	Manual input Format： A.B.C.D/Mask IP1 default： 192.168.8.1/24
Loopback address	Use for network test, e.g. tunnel test, it won’t shutdown with the LAN interface closed	Ping IP address from peer of tunnel

Step 4 Single click “save” icon, done.

NOTE

After change the LAN IP, if page has no response anymore, please make sure your PC address is in the same network segment, or set a new IP to your PC to insure that.

---END

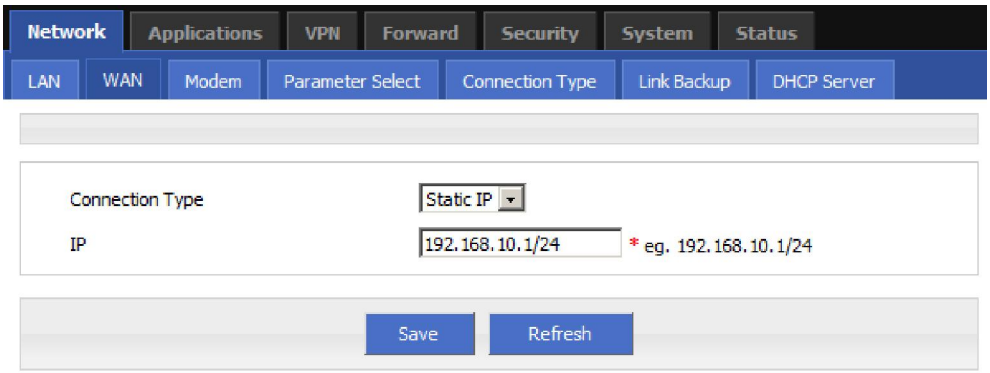
5.2.2 WAN

Wired connect to Internet by static IP, DHCP or PPPoE.

Step 1 Login H8951-NA WEB GUI.

Step 2 Single click “network > WAN”.

Figure 5-2 WAN window



Step 3 WAN connection type.

Table 5-2 WAN connection type parameter instruction

Parameter	Details	Operation
Connection Type	WAN Connection Type	Dropdown List Selection: • Static IP: Manual set WAN IP, if set static IP, need manual set gateway, DNS etc. • DHCP: DHCP get IP address • PPPoE: PPPoE dial to get IP, usually you need connect to a ADSL modem
”Connection Type” select ”Static IP”		
IP	Configure the static IP	Manual input Format：A.B.C.D/Mask IP1 default：192.168.10.1/24
”Connection Type” select ”DHCP”		

Parameter	Details	Operation
IP	get IP address from DHCP	Select DHCP
”Connection Type” select ”PPPoE”		
Service Name	Configure PPPoE service name, which is usually used for identification and judgment between client and server, and is usually provided by the service side, while ADSL dial-up provided by your ISP	WORD type, up to 64 characters, not blank, please refer to parameters regulation format
Username/Password	PPPoE dial-up user name/password usually provided by the server	WORD type/CODE type, up to 64 characters, not blank, please refer to parameters regulation format
Advanced Settings	Advanced parameters are used in special circumstances, and are generally not recommended for configuration. For the parameters instructions of the "Advanced Settings", please refer to the related parameters in table 5-2	Single click ”Display” icon show advanced settings parameters
Authentication (need match server end, default auto-negotiation)		
CHAP	Challenge-Handshake Authentication Protocol, a way to send real password when build ppp link, improved security	• Disable • Negotiation CHAP is prior to PAP
PAP	Password Authentication Protocol	• Disable • Negotiation
MS-CHAP	MS-CHAP Microsoft Challenge-Handshake Authentication Protocol Based on MPPE	• Disable • Negotiation
MS2-CHAP	MS-CHAP second version	• Disable • Negotiation
EAP	PPP Extensible Authentication Protocol	• Disable • Negotiation

Parameter	Details	Operation
Compress (need match server end, default disable)		
Compression Control Protocol	Negotiate which compress control protocol used on PPP link	• Disable • Negotiation
Address/Control Compression	Whether compress IP address	• Disable • Negotiation
Protocol Field Compression	Whether compress Whether compress IP address	• Disable • Negotiation
VJ TCP/IP Header Compress	Whether allow TCP/IP to communicate by compressing VJ	• Disable • Negotiation
Connection-ID Compression	Whether allow TCP/IP to communicate by compressing ID in the first	• Disable • Negotiation
More		
Debug	Enable PPP dialing log, default value is enable, in order to check more info about dialing, suggest no changing	• Disable • Negotiation
Peer's DNS	Auto get peer DNS when PPP dialing. DNS is necessary if want visit domain name. In order to forbid LAN pc visit domain name, you may disable it	• Disable • Negotiation
LCP interval/Retry	After PPP dialing succeed, LCP is needed to keep PPP link alive. Also it could use to quickly spot network interrupt and reconnect	Value area ： 1~512 Unit: second Default value: 30/5
MTU	the number of bytes of the maximum transfer unit by PPP interface, sometimes financial data has request on this	Value area ： 128~16364 byte
MRU	the number of bytes of the maximum receive unit by PPP interface, sometimes financial data has request on this	Value area ： 128~16364 byte
Local IP	Set the local IP address when PPP dialing, need ISP support	A.B.C.D, Example: 10.10.10.1
Remote IP	Set the remote IP address when PPP dialing, need ISP support	A.B.C.D, Example: 10.10.10.254
Professional	• nomppe • mppe required • mppe stateless	Do not suggest modify, please contact us for help if

Parameter	Details	Operation
	• nodeflate • nobsdcomp • default-asyncmap	necessary

Step 4 Single click “save” icon.

---END

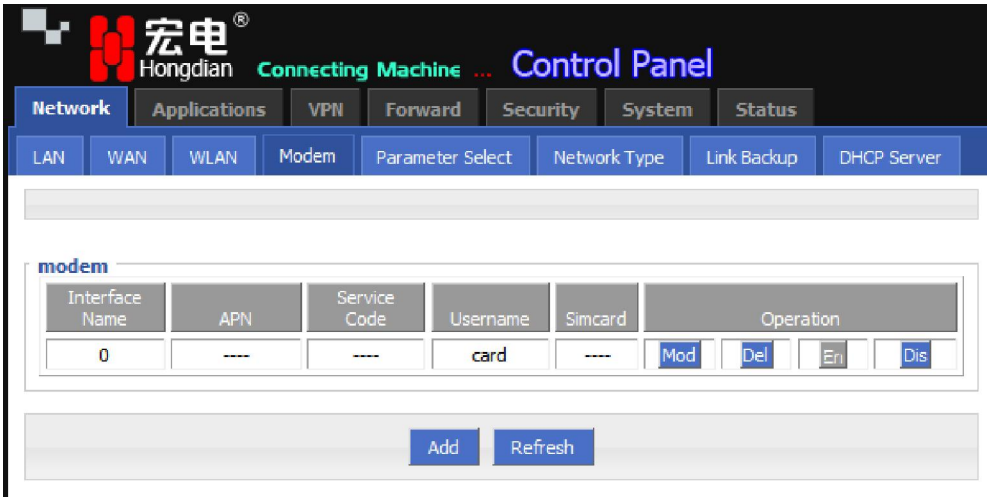
5.2.3 Modem

H8951-NA Cellular Wi-Fi Router core function, connect Internet by cellular modem, H8951-NA Cellular Wi-Fi Router support single modem single SIM, those three working type provide internet connection to customers. Usually 3G network bandwidth is 1~5Mbps, 3.5G up to 20Mbps and LTE up to 100Mbps.

Step 1 Login H8951-NA WEB GUI.

Step 2 Single click “network > Modem”.

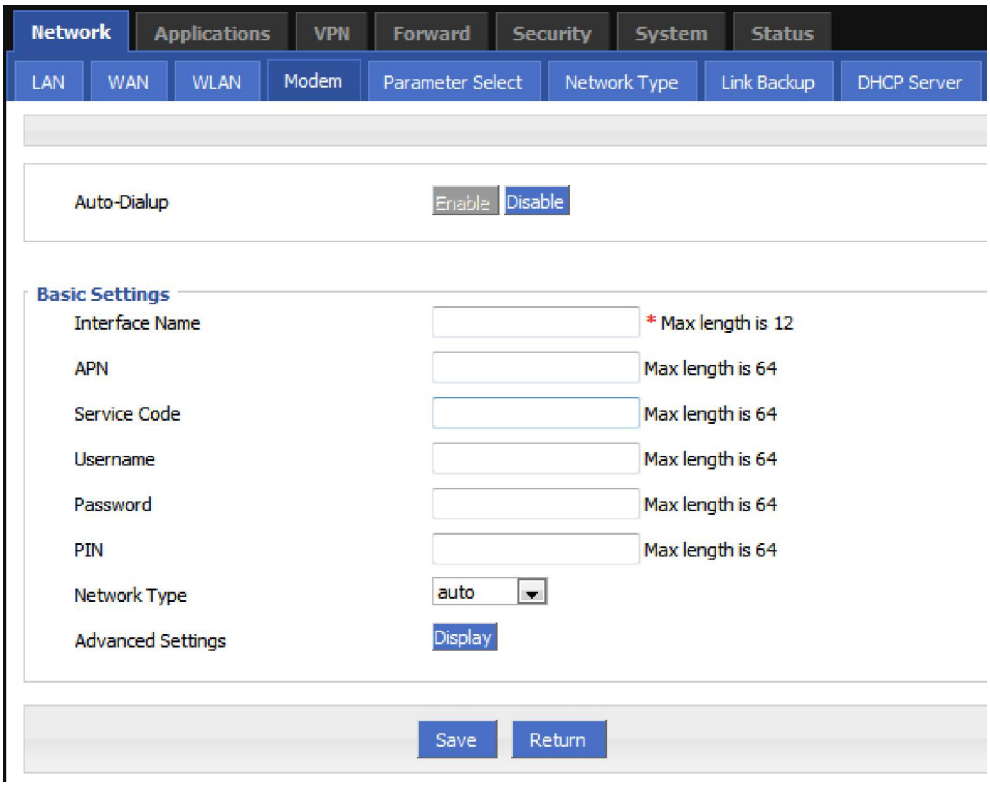
Figure 5-3 Modem window



Step 3 Operation:

- add
  1. Single click “add” and the window shows like below.

Figure 5-4 Modem page



2. Input suitable parameter.

Table 5-3 Modem Parameter instruction

Parameter	Details	Operation
Auto-dialup	• Auto-dialup current modem, if all modem auto-dialup disabled, router will not auto-dialup	• Enable • Disable
Interface Name	Interface name, to identify this interface	WORD type, up to 12 characters
APN	APN, provided by local ISP, usually CDMA/EVDO network do not need this parameter	WORD type, up to 64 bytes
Service code	Usually *99***1#, CDMA/EVDO: #777	CODE type, up to 64 bytes
Username/Password	Provided by ISP	WORD type/CODE type, up to 64 bytes
Network type	• Network type force to 2.5G or 3G/4G	Dropdown List WCDMA: • auto • wcdma • edge

Parameter	Details	Operation
		EVDO: • auto • evdo • cdma LTE, HSPA+ module force 3G means 3G auto, AUTO means 2.5G/3G/4G auto
Advance Setting	PPP process advanced parameter, do not suggest to modify the setting. If necessary, contact us for support	Single click to show advanced setting
Authentication (need match server end, default auto-negotiation)		
CHAP	Challenge-Handshake Authentication Protocol, a way to send real password when build ppp link, improved security	• Disable • Negotiation CHAP is prior to PAP
PAP	Password Authentication Protocol	• Disable • Negotiation
MS-CHAP	MS-CHAP MicrosoftChallenge-Handshake Authentication Protocol Based on MPPE	• Disable • Negotiation
MS2-CHAP	MS-CHAP second version	• Disable • Negotiation
EAP	PPP Extensible Authentication Protocol	• Disable • Negotiation
Compress (need match server end, default disable)		
Compression Control Protocol	Negotiate which compress control protocol used on PPP link	• Disable • Negotiation
Address/Control Compression	Whether compress IP address	• Disable • Negotiation
Protocol Field Compression	Whether compress Whether compress IP address	• Disable • Negotiation
VJ TCP/IP Header Compress	Whether allow TCP/IP to communicate by compressing VJ	• Disable • Negotiation
Connection-ID Compression	Whether allow TCP/IP to communicate by compressing ID in the first	• Disable • Negotiation
More		
Debug	Enable PPP dialing log, default value	• Disable

Parameter	Details	Operation
	is enable, in order to check more info about dialing, suggest no changing	• Negotiation
Peer's DNS	Auto get peer DNS when PPP dialing. DNS is necessary if want visit domain name. In order to forbid LAN pc visit domain name, you may disable it	• Disable • Negotiation
LCP interval/Retry	After PPP dialing succeed, LCP is needed to keep PPP link alive. Also it could used to quickly spot network interrupt and reconnect	Value area ： 1~512 Unit: second Default value: 30/5
MTU	the number of bytes of the maximum transfer unit by PPP interface, sometimes financial data has request on this	Value area ： 128~16364 byte
MRU	The number of bytes of the maximum receive unit by PPP interface, sometimes financial data has request on this	Value area ： 128~16364 byte
Local IP	Set the local IP address when PPP dialing, need ISP support	A.B.C.D, Example: 10.10.10.1
Remote IP	Set the remote IP address when PPP dialing, need ISP support	A.B.C.D, Example: 10.10.10.254
Professional	• nomppe • mppe required • mppe stateless • nodeflate • nobsdcomp • default-asyncmap	Do not suggest modify, please contact us for help if necessary

Figure 5-5 Modem Dialup

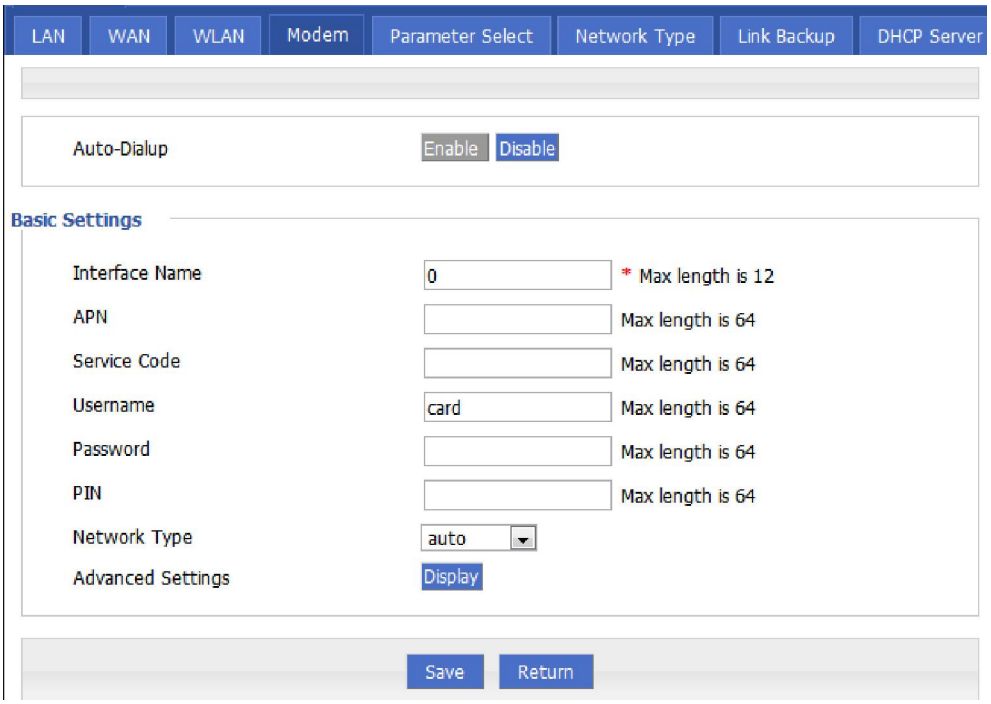
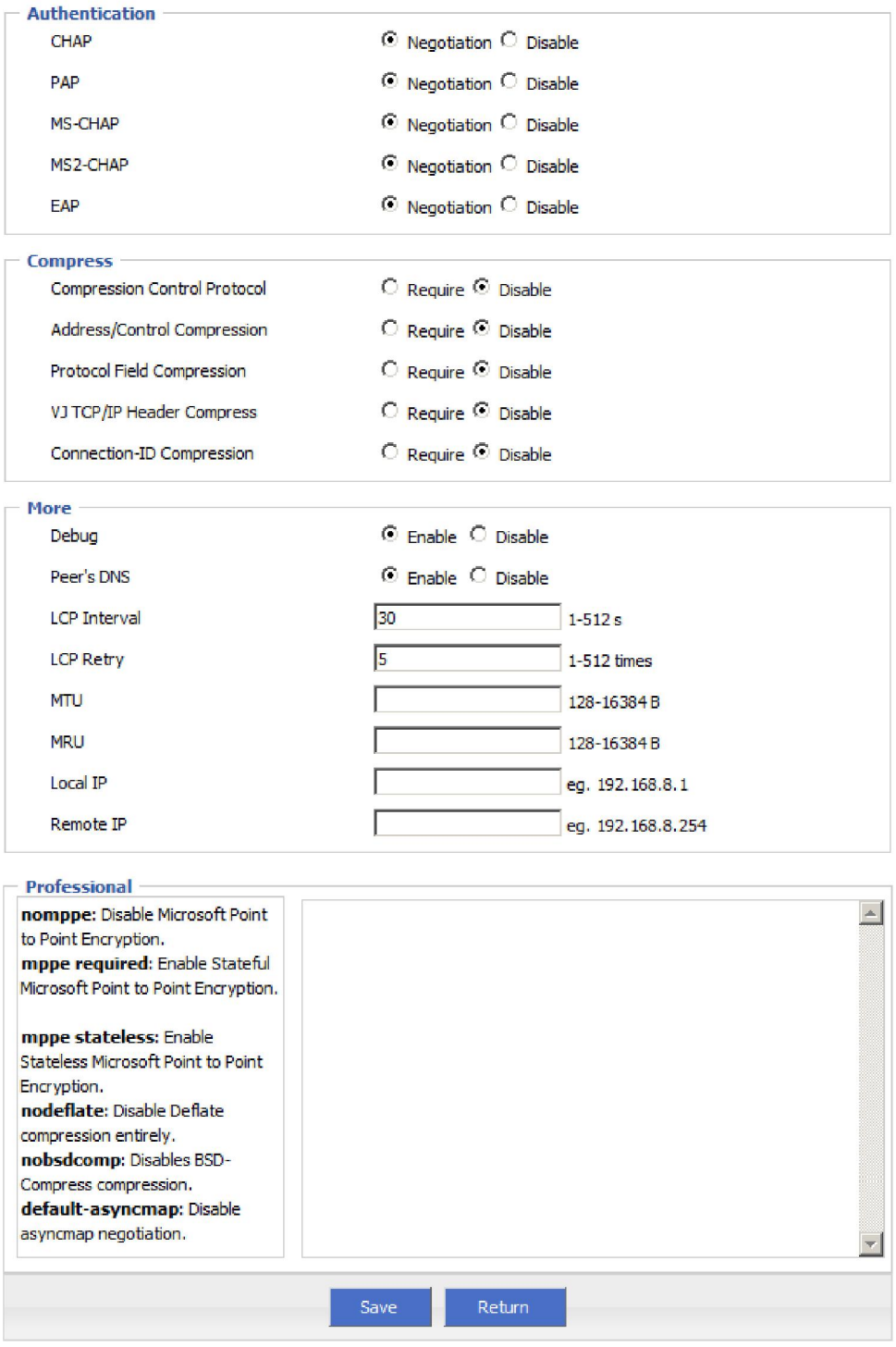


Figure 5-6 Advanced setting



3. Single click “save” icon to finish.

NOTE

Grey icon means enabled.

---END

5.2.4 WLAN

H8951-NA Cellular Wi-Fi Router provides WLAN AP, Station Client, Repeater three functions, through AP function, H8951-NA Cellular Wi-Fi Router can provide wireless LAN hotspots; through Station client function, it allows H8951-NA Cellular Wi-Fi Router access to other AP devices, such H8951-NA Cellular Wi-Fi Router downlink machine can access the Internet via the AP connection; Repeater functionality can be other AP WLAN signal amplification device, to achieve WLAN signal repeater, so the clients far away from the AP WLAN can access the AP.

Step 1 Login H8951-NA WEB GUI.

Step 2 Single click “Network > WLAN”.

Step 3 Open “WLAN” tag, when you select a different VLAN mode (AP, Station, Repeater), respectively, display the page shown in Figure 5-19, Figure 5-20, Figure 5-21. When the WLAN mode select Station and Repeater, need to scan the surrounding AP, an AP access to select, shown in Figure 5-22.

Figure 5-7 AP mode configure interface

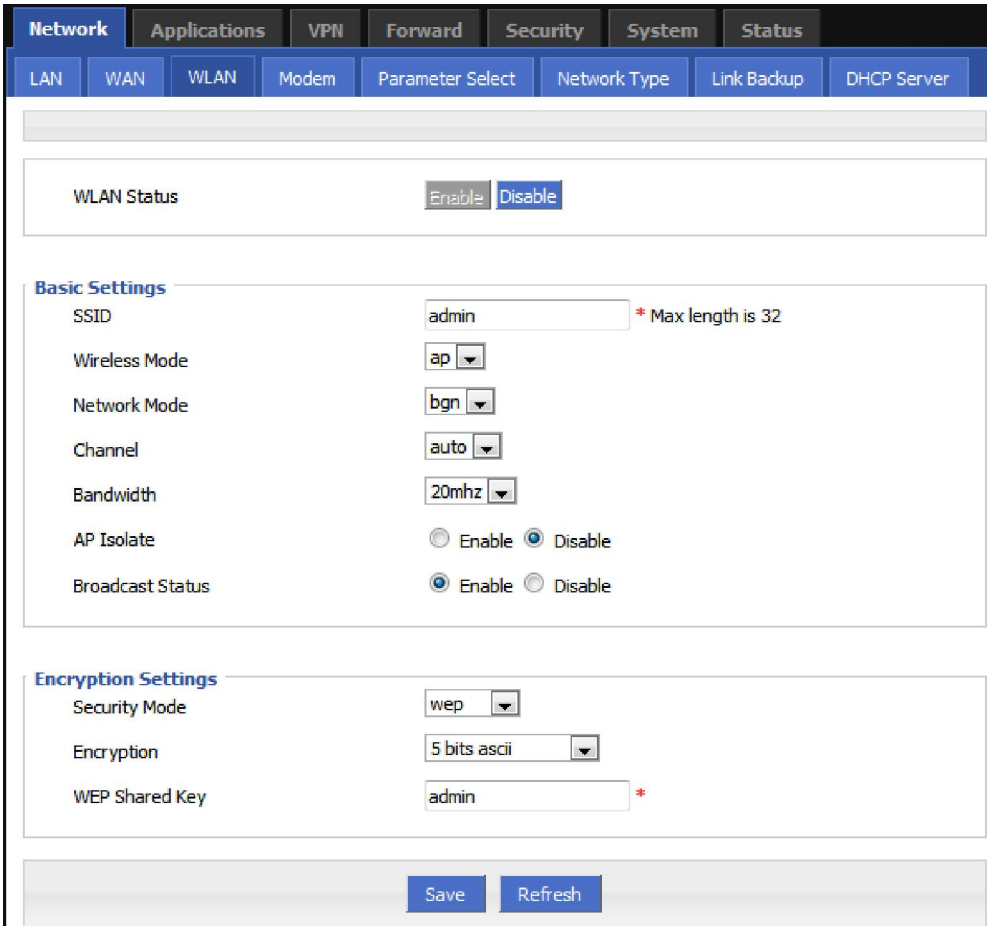


Figure 5-8 Station mode configure interface

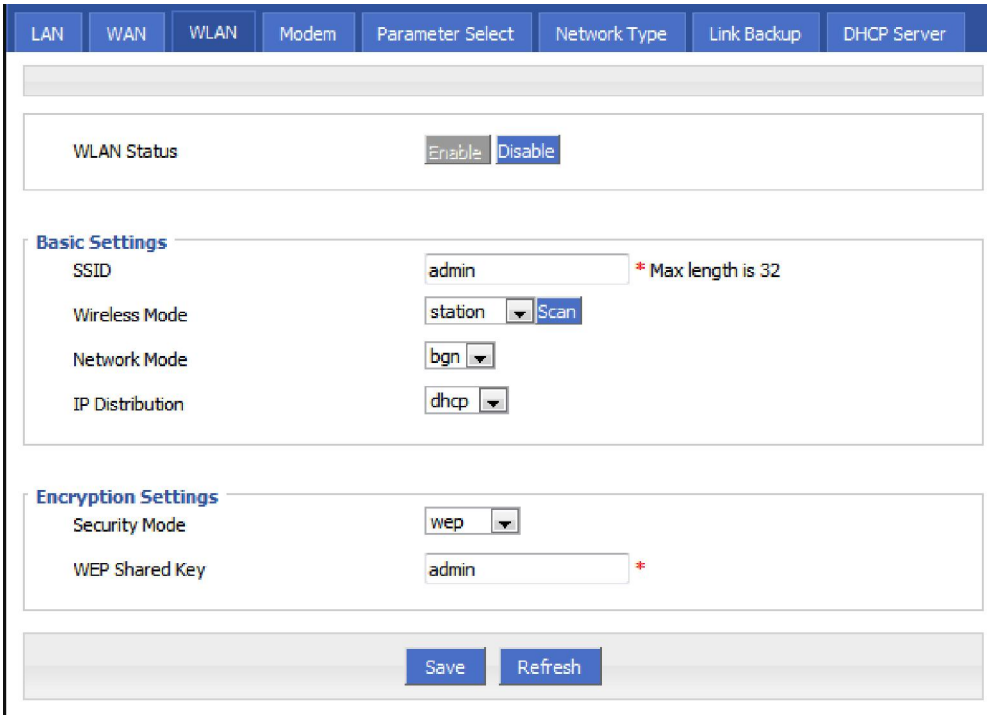
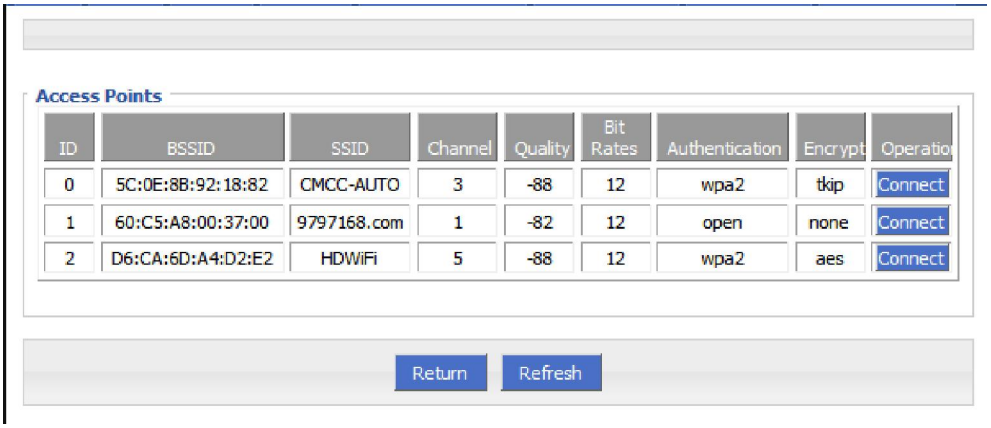


Figure 5-9 Station scan signal interface



Step 4 "WLAN" configure parameter instruction, parameter instruction as Table 5-4.

Table 5-4 WLAN parameter instruction

Parameter	Details	Operation
WLAN Status	Enable or disable WLAN feature	Dropdown List • Enable • Disable
Basic Setting		
SSID	WLAN server identity	WORD type, max to 32Bytes

Parameter	Details	Operation
Wireless Mode	• WLAN work mode, support ap/station	Dropdown List • ap • station
Network Mode	WLAN network mode, different network models are quite different transmission rates, default bgn mixed mode. When operating mode is selected AP, the AP needs to manually set the network mode; When working mode selection station or repeater, AP network mode for the selected network mode, can not be modified manually.	Dropdown List • n represents the network rate is • 150Mbps • bgn represents the network rate is • 11Mbps,54Mbps(Auto-Negotiation) • bgn can support 11Mbps, • 54Mbps,150Mbps mixed mode • (auto adapt according to the client)
Channel	WLAN work channel, configure according to the specific needs of the network environment, the default value is auto.	Dropdown List • auto • 1~11 auto shows when there is no interference, the default channel is 6, when the same channel interference occur, it can automatically jump out interfere to work with the smaller channel
Bandwidth	Bandwidth configure when WLAN work at 802.11n	Dropdown List • 20MHz • 40MHz 40MHz represents high speed mode
AP Isolate	AP isolate the WLAN client, so the WLAN client can not access each other	Dropdown List • Enable • Disable
Broadcast Status	Used to configure the WLAN SSID is broadcasted so that clients can search the SSID, usually do not want other people to search and disable WLAN function, disable it means hidden SSID function in a network environment, users want to connect, you need to manually add the SSID	Dropdown List • Enable • Disable
IP Distribution(	The router is used as station, and the router can get the IP	Dropdown List

Parameter	Details	Operation
when Wireless Mode is station)	address when it is connected to AP	• dhcp： get IP address from DHCP • static：manually set IP address
IP(when Wireless Mode is station)	The router get an IP in correspondence with AP when it is station	Manual input Format：A.B.C.D/Mask
BSSID(when Wireless Mode is repeater)	MAC which the router select AP	WORD type MAC format: XX:XX:XX:XX:XX:XX You can manually set MAC depending on the selected AP
WLAN Encryption		
Security Mode	Configure the WLAN encryption, when encrypted authentication is not required, it can disable. WEP encryption is relatively easy to crack, we recommend using WPA encryption	Dropdown List • wep • disable • wpa • wpa2
WEP Encryption **(Wired Equivalent Privacy)**		
Encryption	WLAN password format • 5 bits ASCII • 13 bits ASCII • 10 bits hex digits • 26 bits hex digits	Dropdown List
WEP shared key	Password connected to WLAN	Configure according to the previous "Encryption" result
wpa/wpa2(**WiFi Protected Access**)		
Algorithms	Encryption algorithms • tkip • aes	Dropdown List
WPA Share Key	WLAN encryption key, used to connect the specified SSID	WORD or Number type, refer to "Parameter Specification Table"
WPA Renewal Interval	WLAN client verification interval; If authentication passes, it continues to be a WLAN connection, if authentication fails, disconnect the WLAN connection	Value area：120-86400 Units：Seconds

NOTE

When the working mode select station or repeater, H8951-NA Router will automatically match according to the selected AP and the corresponding encryption algorithm (to keep consistent with AP encryption); shared key update interval is required to fill in the connections of AP key and interval.

---END

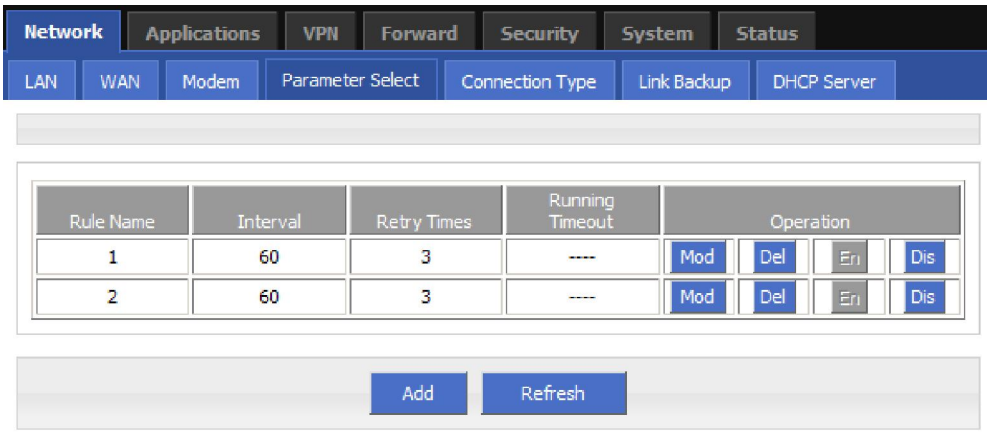
5.2.5 Parameter select

Router parameter select function is used for multi-function switch, like VPN parameter switch, SIM parameter switch, multi-sever switch .etc. You could pre-config several network parameter and switch between them, to achieve multiple Telecom operator backup. This function also could switch VPN setting, for example, when modem online it connect VPN 1, wan online it connect VPN2, they cannot connect at same time because conflict, by this function you could easily switch when network failure.

Step 1 Login H8951-NA WEB GUI.

Step 2 Single click “Network > parameter select”.

Figure 5-10 Parameter select



Step 3 Add, modify, delete, enable and disable the parameter select rule.

- add

Figure 5-11 Add rule

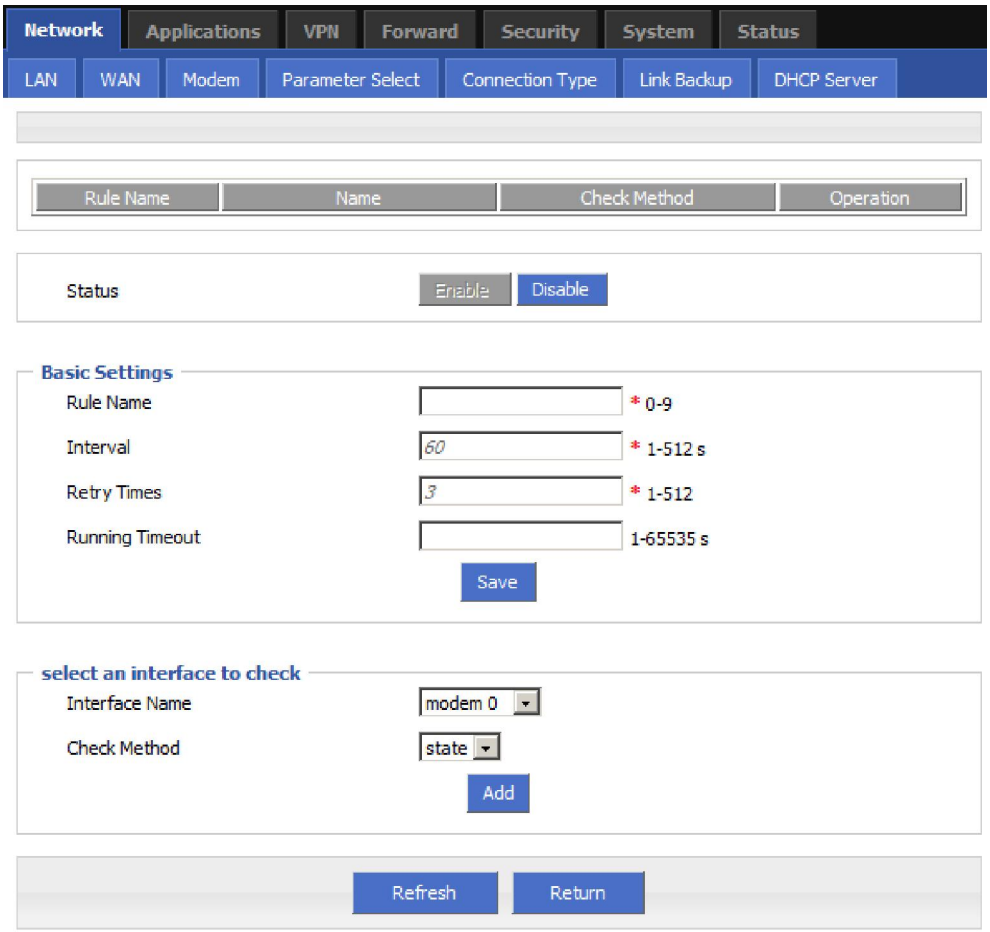


Table 5-5 Parameter instruction

Parameter	Details	Operation
Status	For enabled rule: Only one rule is running at one time, when it checks failed, next rule start running For disabled rule: all related interface also disabled	• Enable • Disable
Basic settings		
Rule name	Name value decided running order	Value area ： [0,9]
Interval/Retry Times	Check interval and retry time, if all check failed, switch to next rule	Value area ： 1~512 Units: seconds/time Default: 60/3
Running timeout	• Not available for rule 0 • This parameter restrict current rule running time, when timeout,	Value area ： 1~65535 Units: seconds

Parameter	Details	Operation
	switch to rule0, if do not set, switch to next rule	
Select a interface to check		
Interface name	Set related modem interface	Dropdown List to choose, current available option will show below
Check method	If state, router will check link state If ICMP, router will ping the ICMP IP address to check	Dropdown List • state • icmp

CAUTION

This function is control how the router online & offline, and use which modem to online.
Please notice timing task execute an operation and keep the status, but parameter select only execute an operation. So they do not conflict.
But Link backup function may conflict with parameter select function, if you set both, final running result may not as you presume.

---END

5.2.6 Network type

Step 1 Login H8951-NA WEB GUI.

Step 2 Single click “Network > Network type”.

Figure 5-12 Connection type window

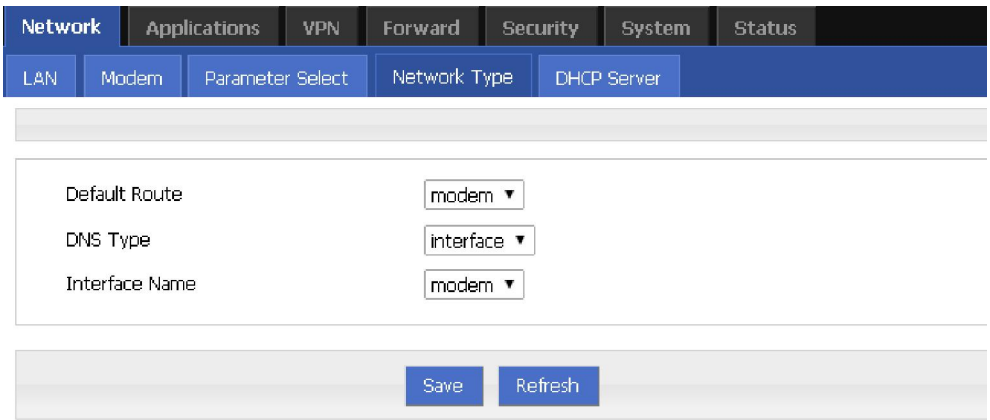


Table 5-6 Network type parameter instruction

Parameter	Details	Operation
Default route	Default route	Dropdown List
Gateway	If default route is wan static IP, need specify gateway and DNS	Example: 192.168.10.254
DNS type	If Interface, will get DNS automatically	Dropdown List • interface • custom
DNS1/DNS 2	Manual set DNS	Example: 8.8.8.8
Interface name	Router will get DNS address from this interface	Dropdown List • modem • eth0

Step 3 Single click “save” icon.

---END

5.2.7 Link Backup

This function used to set how to backup network among modem1 and WAN port, to secure network availability.

There are hot backup and cold backup, hot backup means the backup link will always connect, so switch time is less, but cost extra flow fee.

Please note, when using this feature need to other operation:

The default route in Forward>>Route need to be delete.

The Masq of each link need to be added in Forward>>NAT>>MASQ.

Step 1 Login H8951-NA WEB GUI.

Step 2 Single click “network > Link Backup”.

Figure 5-13 Link Backup

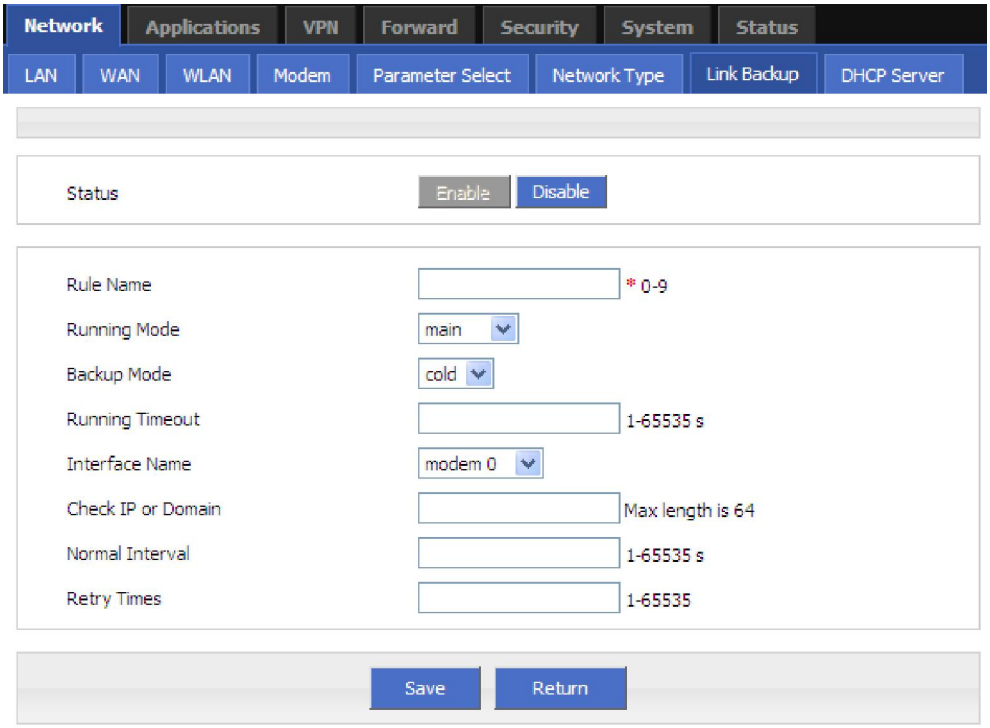


Table 5-7 Link Backup Parameter

Parameter	Details	Operation
Status	Enable or Disable Link Backup feature	• Enable • Disable
Rule Name	Link Backup rule name identification Note: 0 can act as chain link or backup link, 1-9 only can act as backup link 1-9 can take the priority according to the number, the smaller the number the greater the priority	• Value area: 0-9
Running Mode	Link operate mode include: main： Link operate mode is main link backup： Link operate mode is backup link	Dropdown List • main • backup
Backup Mode	Backup mode include: cold and hot Hot refers to the corresponding link treatment enabled, the advantage of hot backup is switching fast, deficiency is when the link online will increase the cost of network overhead and charges. Cold refers to only the interface of current working link is enabled, and the	• Dropdown List • cold • hot

Parameter	Details	Operation
	others, as the interfaces of non-working link, are in offline state.	
Running Timeout	• If the current link is main link, shows the main link stability time • if the current link is backup link, shows the shortest working time • Note: • Running timeout is only suitable for switching between master and slave	Value area:1-65535 Units: seconds
Interface Name	Interface used for link switching	• Dropdown List • modem 0 • eth1 • eth0
Check IP or Domain	Detection by ping packets IP address or domain name, if not the general principles means the failed test	WORD type, up to 64 characters, please refer to parameters regulation format
Normal Interval/Retry Times	• Normal interval means the interval time of the link normal detection. • Retry times means the maximum failure times of the link detection. • When the failure times reach to its maximum, the link will be switched to another.	• Value area:1-65535 • Units: seconds/times

Step 3 Single click “save” icon.

---END

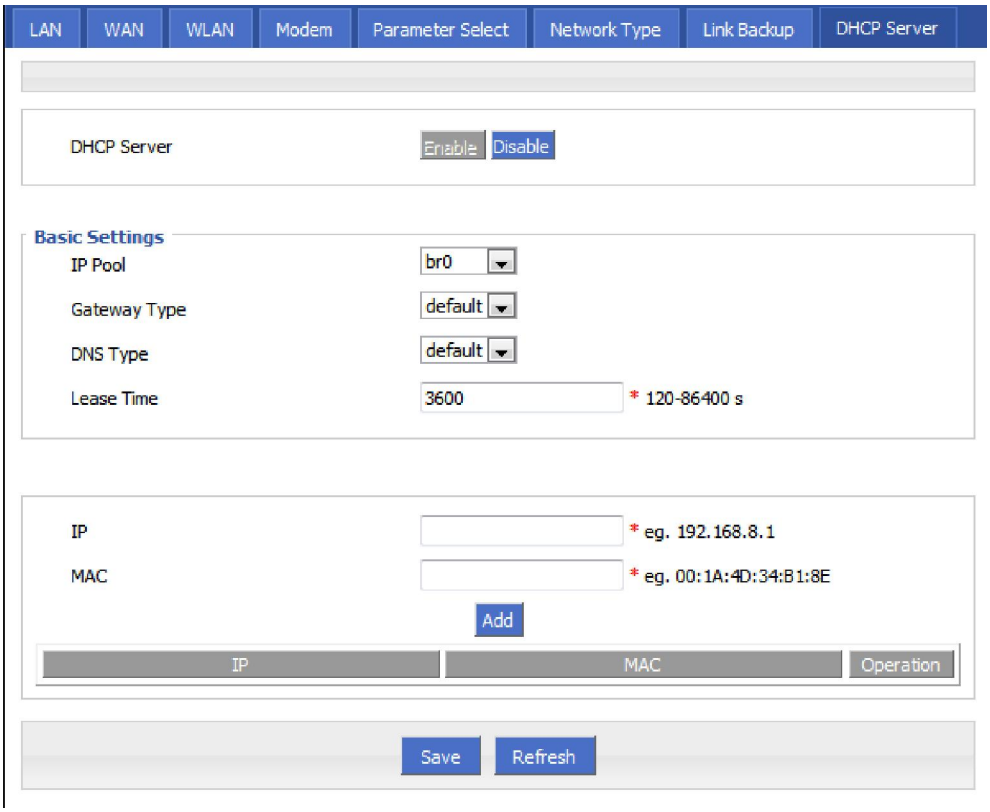
5.2.8 DHCP Service

DHCP(Dynamic Host Configuration Protocol) is a LAN network protocol, enable the DHCP function, a function automatically can obtain the dynamic IP.

Step 1 Login H8951-NA WEB GUI.

Step 2 Single click “Network > DHCP Server”.

Figure 5-14 DHCP



Step 3 Configure DHCP parameter.

Step 4 DHCP parameter instructions are as Table 5-8.

Table 5-8 DHCP Parameter

Parameter	Details	Operation
DHCP Server	Enable or Disable DHCP feature	• Enable • Disable
Basic Settings(DHCP is not recommended configure in the case of no special network requirement)		
IP Pool	The DHCP client can get the scope of IP address. Selecting interface represents using network segment that the interface belongs to. This option can be configured to specify the IP address range of the lower place machine, for example: only hope at most four machine can automatically obtain the IP	• Dropdown List • br0 • custom
Start IP	When IP pool select custom configuration, configure the DHCP pool start IP address	Manual input Format：A.B.C.D/Mask

Parameter	Details	Operation
		Example：192.168.8.2
End IP	When IP pool select custom configuration, configure the DHCP pool end IP address	Manual input Format：A.B.C.D/Mask Example：192.168.8.254
Gateway Type	DHCP client access gateway IP source, divided into default, br0, eth0, custom four categories, associated interface, the interface IP assigned to the DHCP client as a gateway	• Dropdown List Default value：default
DNS Type	DHCP client access to the DNS IP source, has a default, modem, eth0, br0, custom and so on, generally do not recommend to modify the configuration.	• Dropdown List • default • modem • eth0 • br0 • custom • Configuring for the default • is based on DNS address • which is allocated by the • router itself
Lease Time	After the DHCP client obtain an IP on IP lease time, the client usually renegotiates obtain an IP address lease time in more than half the time. IP lease time is mainly used to release idle IP to avoid that IP address resources are also occupied after the DHCP client shutdown	Value area：120-86400 Units：seconds Default value：3600
IP, MAC binding is used to assign a fixed MAC within the specified range of IP addresses		
IP	Binding with the specified MAC: when a DHCP client sends a DHCP request, the IP address with the client's MAC binding will be assigned to the DHCP client. The IP address will not be assigned to the other client with different MAC address even if it is not in use.	Manual input Format：A.B.C.D/Mask Example：192.168.8.2
MAC	Configure DHCP to obtain an IP need to specify the DHCP client's MAC address	WORD Type MAC Format Example: 00:1A:4D:34:B1:8E

---END

5.3 Application program configuration

Based on years of customer experience for different applications, besides SNMP, DDNS, H8951-NA Cellular Wi-Fi Router has developed many functions for wireless network equipment, such as ICMP check, interface flow check function, M2M terminal management function, task management function and waking on demand function.

5.3.1 ICMP check

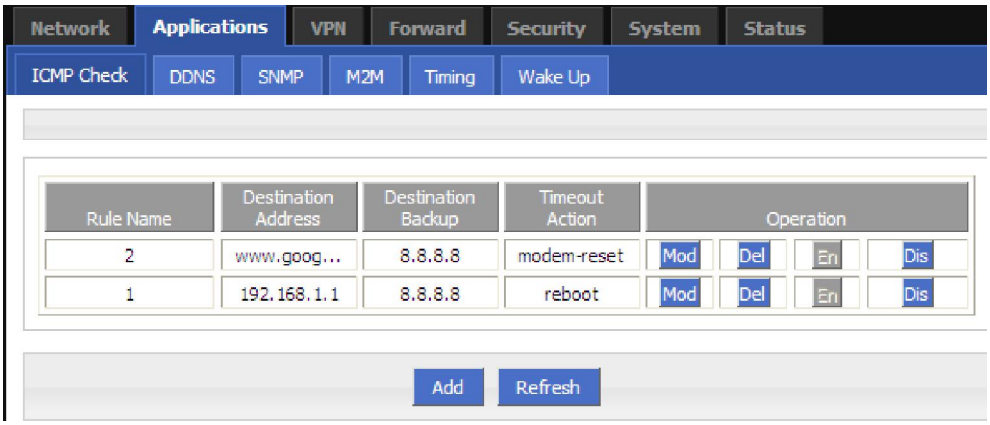
There is fake link (can get IP after dialing, but cannot link to destination address). Usually LCP is used to avoid this. Besides LCP, H8951-NA Cellular Wi-Fi Router can use another more reliable checking way ICMP which check the link by PING. When abnormal link is checked, the preset action will be executed to recover the link and systems quickly. Initially ICMP is to check wireless link, and now it can be used to check VPN link and supports simultaneous check in different rules. It supports maximum 10 ICMP check rules.

Step 1 Log-on WEB GUI of H8951-NA Cellular Wi-Fi Router.

Step 2 Click “applications > ICMP Check”.

Open “ICMP Check” tab.

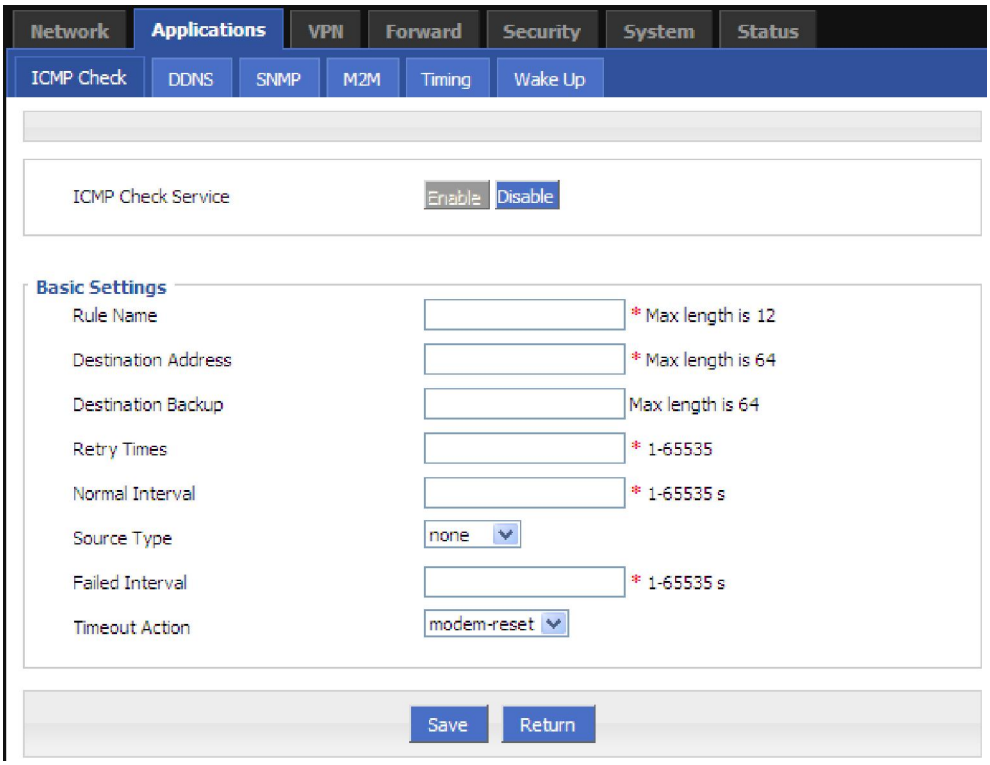
Figure 5-15 ICMP Check tab



Step 3 “Add”, “Modify”, “Delete”, “Enable” “Disable” the function of “ICMP Check”.

- Add

Figure 5-16 ICMP adding page



1. Configure the ICMP check parameter.

Table 5-9 ICMP check rules Parameter instruction

Parameter	Details	Operation
ICMP check service	To enable or disable ICMP check rules, multiple rules can be used simultaneously, and one specific rule can be disabled	Button • Enable • Disable
Basic Config		
Rule Name	ICMP Check rule name, just to distinguish different rules	WORD type, max 12 bytes
Destination address	Destination address of ICMP check, can be domain name and also can be IP address. If domain name, DNS of the router shall be configured correctly	WORD type, max 64 bytes
Destination backup	A backup destination address of ICMP check, if “destination address” cannot be linked by ICMP check, the “destination backup” address will be checked, if still cannot linked, the router will	WORD type, max 64 bytes

Parameter	Details	Operation
	recognize ICMP check fails	
Retry times/normal interval	Check time interval and max check failure times when link is OK, if check failure times reaches the max times, then “timeout action ” will be executed, e.g. “modem reset”	Value area ： 1~65535 Unit: second/time
Source Interface	Router sends an ICMP detected packet's source address	Dropdown List options • br0 • modem
Timeout action	An action when check failure times reach max failure times. Can be modem-reset, reboot, custom	Dropdown List options • modem-reset： modem redials • reboot： router reboots • custom ： customized action
Run commands	If “Timeout action” is “custom”, this shall be configured. Commands are BGO operation. It is not suggested to use, if need, please contact our technical engineers	WORD type, max 64 bytes

2. Single click “save” to finish a ICMP check rule.

NOTE

If ICMP is normal, ICMP packet is sent at “normal interval”. When abnormal, packet will be sent continuously at “failed interval”. If “destination address” cannot be linked and checking times reach “retry times”, “destination backup” will be checked. if “destination address” can be linked in checking “destination backup”, “destination address” will be checked again. If “destination backup” cannot be linked and checking times reach “retry times”, “Timeout action” will be executed.

- Modify
- Delete
- Enable

NOTE

If already enabled, the button “EN” is gray.

- Disable

NOTE

If already disabled, the button “DIS” is gray

- Refresh

  Click “refresh” to refresh the page.

---END

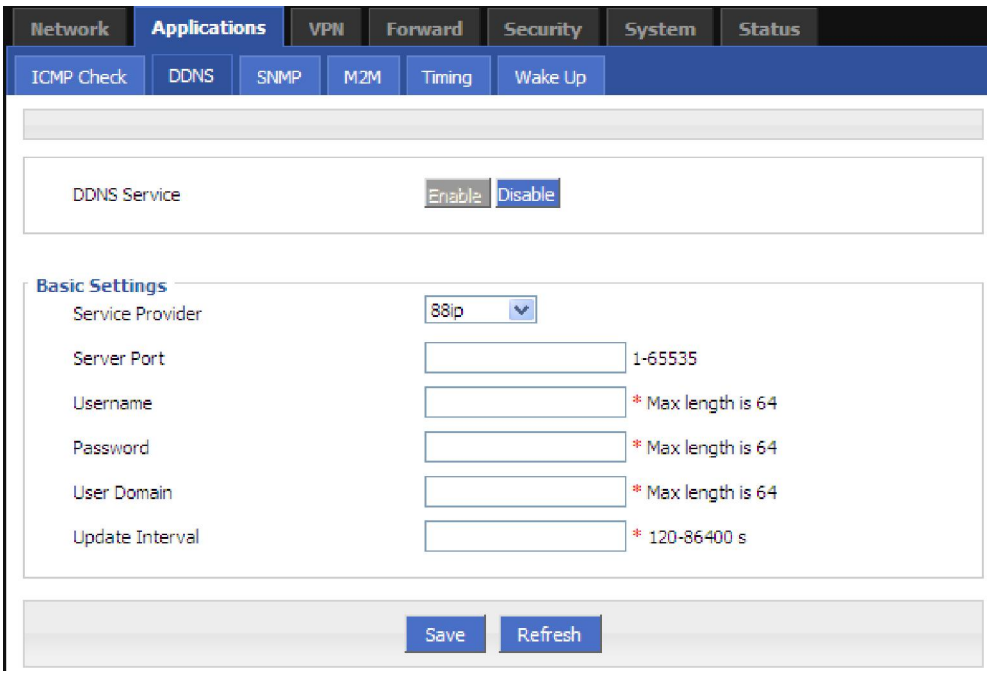
5.3.2 DDNS configuration

Network of SIM/UIM shall be a public address so that router can be visited for a DDNS.

Step 1 Log-on WEB GUI of H8951-NA Cellular Wi-Fi Router.

Step 2 Click “Applications” > “DDNS”.

Figure 5-17 DDNS configuration



Step 3 Configure DDNS parameter.

Table 5-10 DDNS Parameter instruction

Parameter	Details	Operation
DDNS Service	Set whether enable DDNS service function	Button • Enable • Disable
Basic Config		
Service Provider	Select the DDNS service provider that router currently supports, don’t support other providers	Dropdown List options • 3322 • 88ip • Dnsexit • Dyndns • Zoneedit • changeip • custom
	When “custom” in “service provider” is	WORD type, max 64 bytes

Parameter	Details	Operation
	selected, “Server IP or Domain” will be configured. Default is standard DDNS protocol. for customized protocol, please contact our engineer	
Server Port	Set the port number of the DDNS server provided by the service provider. The default port number is 80	Value area: 1~65535 If empty, it means 80 port
User name/Password	Set user name/password of the DDNS service registered in the service provider	Normal WORD type/CODE type, max 64 bytes
User Domain	Set the domain of the DDNS service provided by the service provider	Normal WORD type, max 64 bytes
Update Interval	Set the interval of the DDNS client obtains new IP, suggest 240s or above	Value area: 120~86400 Unit: seconds

Step 4 Click “Save” to complete DDNS configuration

NOTE

DDNS in China: 88IP (www.88ip.net), 3322 (www.3322.org)
DDNS outside of China: DNSEXIT (www.dnsexit.com), ZONEEDIT(www.zoneedti.com), CHANGEIP(www.changeip.com), DYNDNS(www.members.dyndns.org)
After router reboots, IP address which SIM/UIM gets from ISPs will change. If user uses DDNS in remote login, no matter the IP address changes, he can Log-on the router.

---END

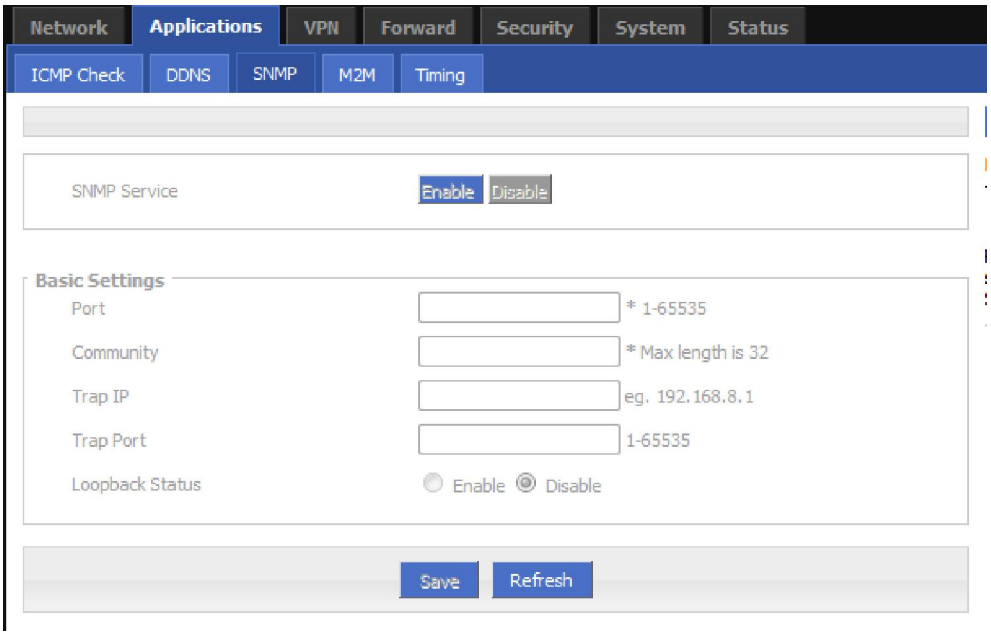
5.3.3 SNMP configuration

SNMP(Simple Network Management Protocol)can monitor routers remotely and get to know the status of routers (Support interface status check, like VPN, modem etc. MIB of our company shall be used).

Step 1 Log-on WEB GUI of H8951-NA Cellular Wi-Fi Router.

Step 2 Click “Applications >SNMP” to open the “SNMP” tab.

Figure 5-18 SNMP configuration



Step 3 Configure SNMP parameter.

Table 5-11 SNMP Parameter instruction

Parameter	Details	Operation
SNMP service	To enable or disable SNMP service	Options: • Enable • Disable
Basic Config		
Port	SNMP port, suggest to be default port161	Value area: 1~65535 Default: 161
Community	Community Password of SNMP client to router SNMP, Used for identification	WORD type, max 16 bytes
Trap IP	Link-state router report server address	Manual input Format：A.B.C.D/Mask

Parameter	Details	Operation
Trap Port	Link-state router report server address's port	Value area：1~65535 Default：162
Loopback Status	Match with "LAN" page loopback address, in the "Loopback Status" to "Enable", means loopback address configuration successfully, the router reported Trap IP packet source address is the loopback address, If the "Loopback Status" to "Disabled" means router IP packet source address for the LAN port address	Options: • Enable • Disable

Step 4 Single click "save" icon to finish SNMP configuration.

NOTE

MIB for SNMP can be downloaded from our website, if necessary, please contact our technical engineers.

---END

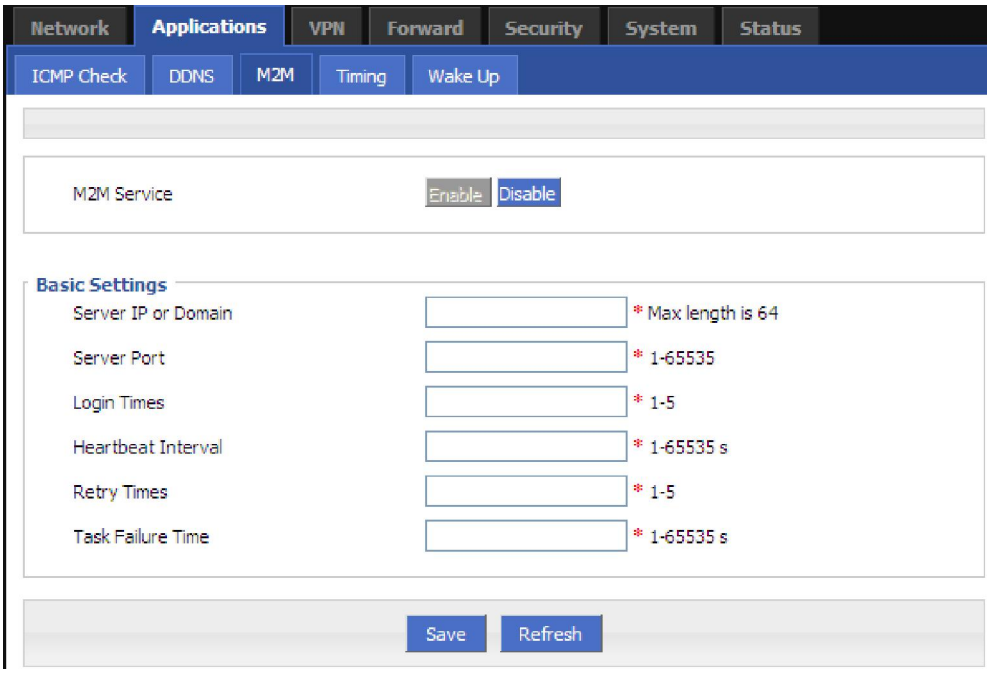
5.3.4 M2M configuration

H8951-NA Cellular Wi-Fi Router has embedded a WMMP (Wireless Machine-to-Machine Protocol) protocol to realize communication with M2M (Machine-to-Machine) platform which can remotely monitor and manage the routers and its network, e.g. visit the router, patch upgrading, firmware upgrading, parameter configuration, monitor the network strength, time delay, flow. Its configuration is as follows:

Step 1 Log-on WEB GUI of H8951-NA Cellular Wi-Fi Router.

Step 2 Click "Applications > M2M" to open M2M configuration tab.

Figure 5-19 M2M configuration



Step 3 Configure M2M parameter.

Parameter instruction is shown.

Table 5-12 M2M Parameter instruction

Parameter	Details	Operation
M2M service	To enable or disable M2M function. This function shall be used with our M2M platform	Button • Enable • Disable
Basic Config		
Server IP or Domain	Set the server IP or domain of M2M platform	Normal WORD type, max 64 bytes
Server Port	WMMP port No, shall be the same with Port No of M2M platform server	Value area: 1~65535
Login Times	Max retry-times of router to login M2M platform. If login times reach max times, the router will reboot, M2M will initialize and login again	Value area: 1~5 Unit: times
Heartbeat Interval	Time interval to send heartbeat which maintains the like with M2M platform server. The heartbeat includes the network status info which will update the network info of the M2M platform	Value area: 1~65535 Unit: seconds

Parameter	Details	Operation
Retry Times	There is a retry mechanism for package exchange between router and M2M platform. When exchange times reach retry times, router will judge the exchange fails and usually no operation will be made	Value area: 1~5 Unit: seconds
Task Failure Time	The time to judge an exchange fails, if an exchange uses time which exceeds the “task failure time”, router will judge the exchange fails and will retry to send the exchange	Value area: 1~65535 Unit: seconds

Step 4 Single click “save” icon to finish the configuration.

---END

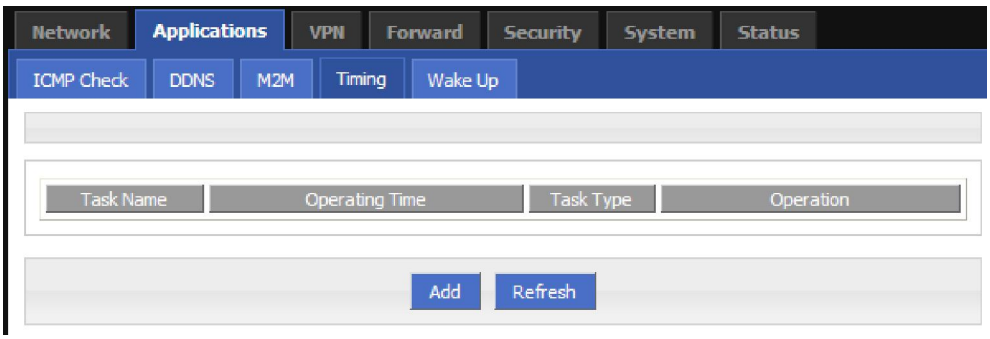
5.3.5 Timing configuration

This application is to control the online time of the router to better manage network and save 3G/4G flow. H8951-NA can add several online periods as per the user’s requirement (e.g. hours of some day). in addition, this application can support to begin some tasks at a time point (e.g. redial or reboot at 00:00). 10 tasks max.

Step 1 Log-on WEB GUI of H8951-NA Cellular Wi-Fi Router.

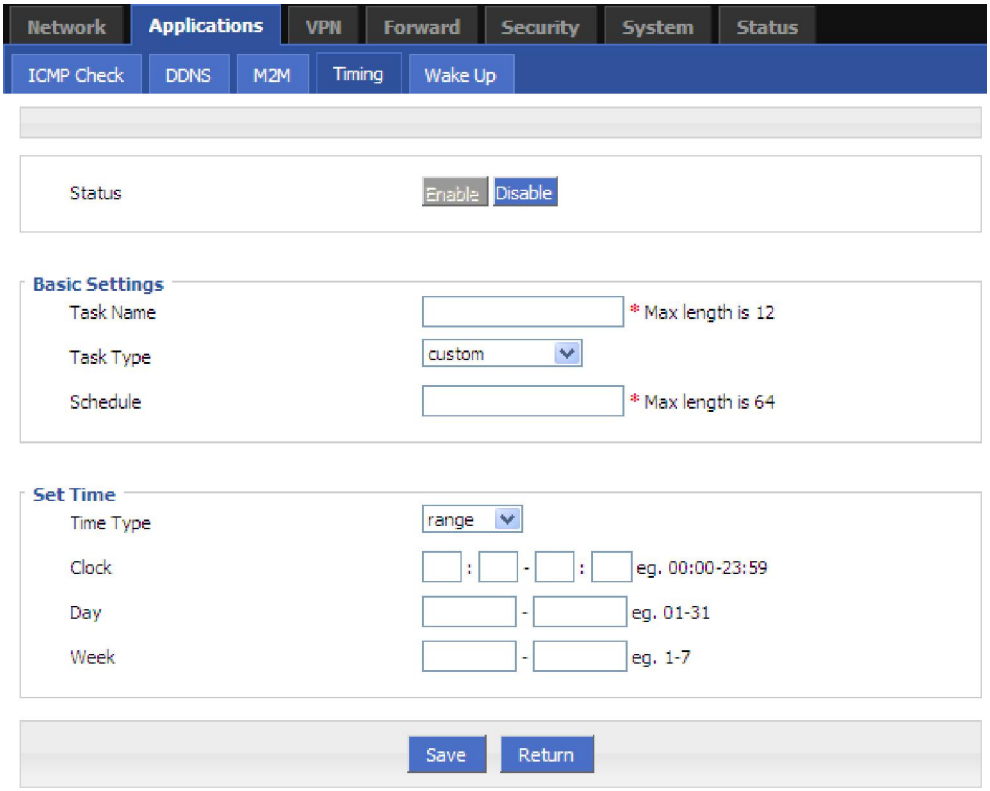
Step 2 Click “Applications > M2M” to open M2M configuration tab.

Figure 5-20 Timing configuration



Step 3 To add a timing task, please click “Add”.

Figure 5-21 To add timing task



Step 4 Configure timing task parameter.

Table 5-13 Timing task parameter instruction

Parameter	Details	Operation
Status	To enable or disable a timing task. Some task shall be enabled together with NTP	options • Enable • Disable
Basic Config		
Task name	Name of a timing task	Max 12 digits
Task type	Task type has action task and status task. Action task is for time point or time interval, while status task is for time period (for "modem-online", which means that the modem will be online (if down, modem will automatically redial) during the configured time	Dropdown List options: • modem-online • reboot • custom if select "custom", "schedule" will be shown to input command (can be dialup or other command). Max 64 bytes

Parameter	Details	Operation
	period. Modem will be offline (no dialing) for other time	
Schedule	This is Linux shell command. Usually suggested not to use it. In case of need, please contact our technical engineers	WORD type. Max 64 digits
Set time		
Time type	Range or interval for status task or action task	Dropdown List options: • range • interval
When “time type” select “range”		
Clock	To input hour and minute. When beginning and end hour and minute are the same, it means a time point for action task	Value area: [00:00,23:59] Format: HH:mm-HH:mm
Day	Days in a month for task	Value area: [01,31] Format: XX-XX
Week	Days in a week for task. When “day” and “week” are both input, it means only if both conditions meet, the task will begin	Value area: [1,7] Format: X-X 1 for Monday
When “time type” select “Interval”		
Interval	Time interval for action task	Value area: 1~65535 Unit: minutes

Step 5 Single click “save” icon to finish “Timing” configuration

The “range” selection requires system clock enable (that is to say the NTP server), while the “interval” selection does not require. For the system clock configuration, see the section “5.6.4 Clock”.

---END

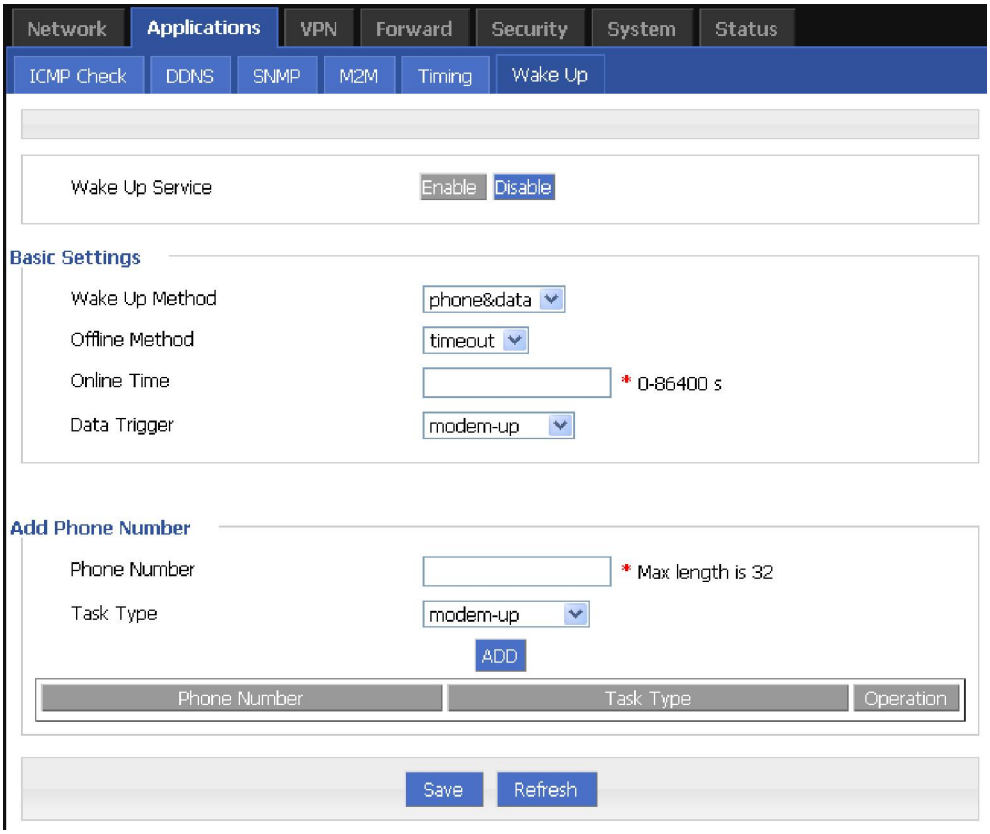
5.3.6 Wake up configuration

3G/4G fee is mostly based on flow. H8951-NA Cellular Wi-Fi Router can get on/off line on demand. It supports on/offline or reboot triggered by voice, SMS or data. It supports max 10 cell phone Nos.

Step 1 Log-on WEB GUI of H8951-NA Cellular Wi-Fi Router.

Step 2 Click “Applications > Wake up” to open “Wake up” tab.

Figure 5-22 Wake up configuration



Step 3 Configure “wake up” parameter.

CAUTION

Click “Save” to write in the flash memory, after finishing “basic setting” parameter.

Table 5-14 Wake up Parameter instruction

Parameter	Details	Operation
Wake up service	To enable or disable the service.	Options: • Enable • Disable

Parameter	Details	Operation
Add phone Number		
Phone Number	Phone No to trigger the router action. One phone No for one action of one modem.	WORD type. Max 32 digits.
Task type	• Triggered action includes modem-up, modem-down, reboot.	Dropdown List options • modem-down • modem-up • reboot
Basic setting		
Wake up method	To configure actions triggered, it supports phone and data. If choose phone, please be sure that the SIM card has opened voice or SMS service. Usually recommend voice wakeup with high efficiency and don't need SMS charge.	Dropdown List options • phone/data • phone
Offline method	Support "timeout" and "idle". "timeout" means router will get offline once time reaches the configured time commencing from online time. "idle" means if idle (no data transmission) time is as long as the configured time, the router will get offline.	Dropdown List options • timeout • idle
Online time	Online time of router, for "idle", online time will recalculated if there is data transmission.	Value area ： 0~86400 Unit: second
Data trigger	Configured as wakeup by data. When router receives data from external network, the modem will be triggered to be online, LAN data and broadcast data will not trigger actions. If configured as "phone&data", either phone or data can trigger actions	Dropdown List options • modem-up •

Step 4 Click "ADD" to add a new wake up rule.

After add a new rule, the rule will be shown on the bottom, click "Del" to delete the rule.

NOTE

One phone number be set for actions of different modems, but cannot be set as different actions of one modem.

It's OK for either SIM of the two SIMs of H8951-NA Cellular Wi-Fi Router to open SMS or voice function, no matter which slot to be installed.

"Data" will trigger only actions: modem-up

If "online time" is set as 0, it means router will be always online. To get the router offline, pls choose actions to trigger offline.

"Online time" in "wake up" will affect other functions like SIM switch, network backup, task management. So when users set wakeup parameter, please note whether there is conflict with other factions.

Voice trigger: router will begin the action after 5 seconds of the sound "du".

5.4 Security

5.4.1 Overview

"Security" will control where the data can pass through by analyzing IP address and port of ICMP, TCP/IP package from the destination end or source end. H8951-NA Cellular Wi-Fi Router supports IP filter, domain filter and MAC filter.

5.4.2 Configuration

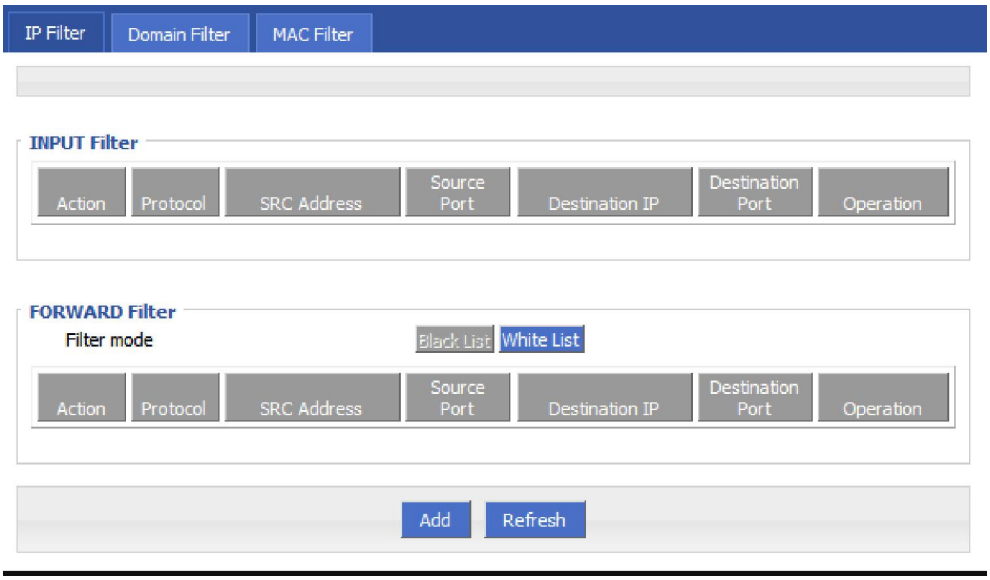
IP Filter

IP filter refers to judgment whether to allow router to forward the data according to filter rules, thus to manage internet surfing of PC in LAN. IP filter is used to allow part of PCs in LAN to visit external WAN network or forbidden some PCs from visiting specific website.

Step 1 Log-on WEB GUI of H8951-NA Cellular Wi-Fi Router.

Step 2 Click "Security > IP Filter" to open "IP Filter" tab.

Figure 5-23 IP Filter tab



Step 3 In the forwarding filtering rules.

- Black List：The default allows packet forwarding, in line with the list of "discarded" rules packet cannot be forwarded through the router.
- White List：The default refuses packet forwarding, in line with the list of "accept" rules packet can go through router forwarding.

Step 4 Click “Add” to add a new IP filter rule and configure IP filter parameter. There are two types of IP filter: “Input” and “Forward”, as show in Figure 5-28 and Figure 5-29

Figure 5-24 IP filter “Input” type

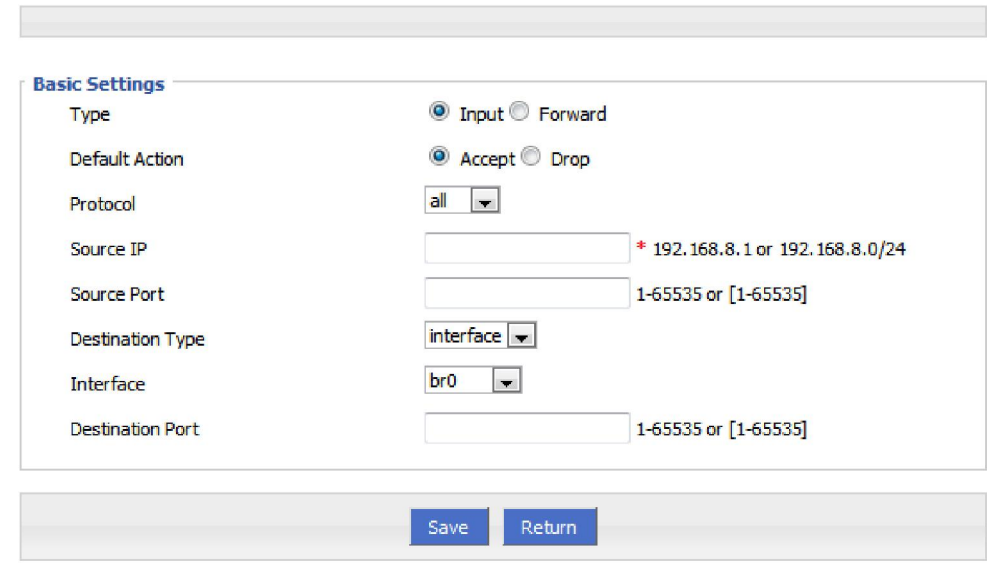


Figure 5-25 IP Filter "Forward" type

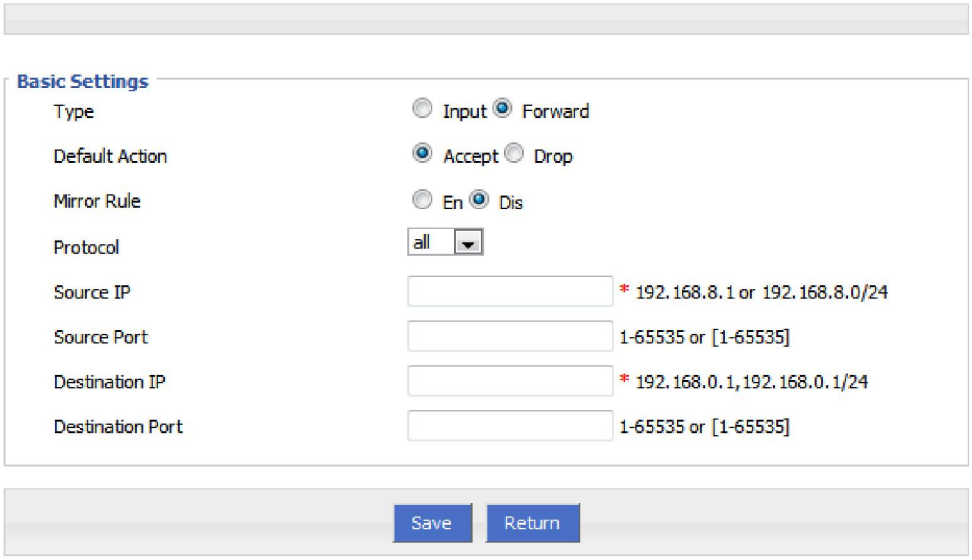


Table 5-15 IP filter parameter instruction

Parameter	Details	Operation
Type	Select a filter type, you can choose according to their needs, "Input" or "Forward" Input: whether to allow access to the router Forward: whether to allow the router forwarding	Dropdown List options
Default Action	The default action rule. You can select "Accept" or "Drop " Accept: firewall to accept the package, which can be passed Drop: firewall discards the packet directly	Dropdown List options
Mirror Rule	When the filter type selects "Forward", it needs to be configured Enable: Base on the configured rules, system auto adds totally opposite rules in addition. Opposite rules mean all the source address/port and destination address/port are reverse in the rules Disabled: no treatment	Dropdown List options

Parameter	Details	Operation
Protocol	Protocol used by IP packets	• Dropdown List options • all • tcp • udp • icmp
Source IP	• The source IP address of the packet	Manual input Format：A.B.C.D/Mask
Source Port	The source Port of the packet, when the protocol choose "icmp", it don't need to configure	Value area: 1-65535 or [1-65535], it can be a range, or a single port
When the IP Filter type select "Input"		
Destination Type	Design an IP packet access router interface	Dropdown List options • interface • any
Interface	Configure when Destination Type select "Interface", means the IP packet access the router interface	Dropdown List options • br0 • modem • eth0 • eth1
Destination Port	IP packet access router ports (when the protocol select "icmp", requires no configuration)	Value area: 1-65535 or [1-65535], it can be a range, or a single port
When the IP Filter type select "Forward"		
Destination IP	IP packet destination IP	Manual input Format：A.B.C.D/Mask
Destination Port	IP packet destination port	Value area: 1-65535 or [1-65535], it can be a range, or a single port

Step 5 Single click "save" to finish.

--END

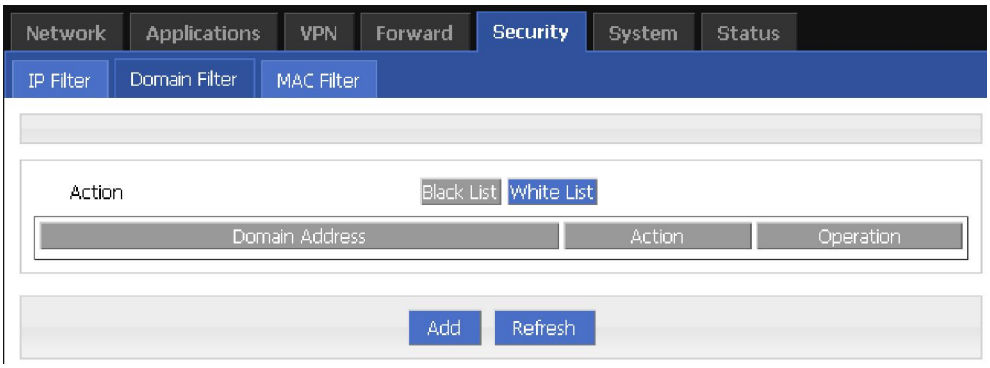
Domain Filter

Domain filter support black list and white list. It is used to forbid PCs in LAN from visit some websites or allows them to visit specific websites.

Step 1 Log-on WEB GUI of H8951-NA Cellular Wi-Fi Router.

Step 2 Click "Security> Domain Filter" to open "Domain Filter" tab.

Figure 5-26 Domain filter tab



- Black list: websites in the blacklist cannot be visited. Click “black list” to forbid visiting the websites in the list.
- White list: only the websites in the white list can be visited, while other websites cannot be visited. Click “White list” to activate it.

Step 3 Click “ADD” to add a new domain filter rule and configure domain filtering parameter.

Figure 5-27 Domain filter tab

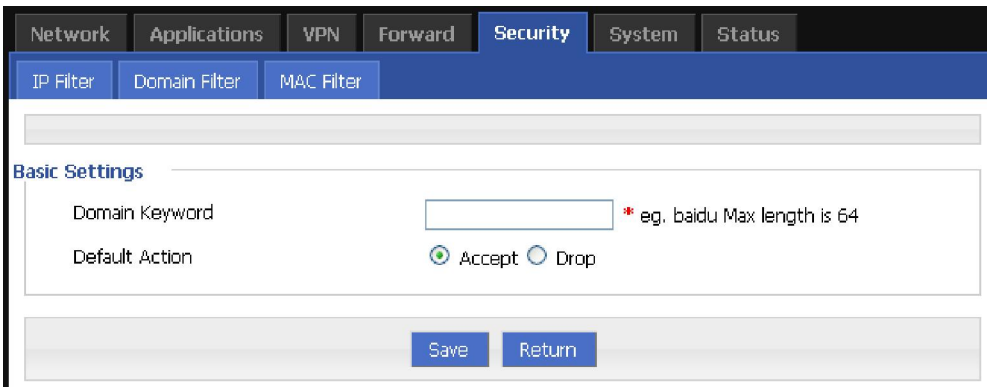


Table 5-16 Domain Filter parameter instruction

Parameter	Details	Operation
Domain keyword	Keyword of domain for filter	WORD type, max 64 digits. E.g. www.google.com, the keyword is “google”.
Default action	Actions to filter the keyword	• Accept. • Drop

Step 4 Single click “Save” to finish configuring a rule.

---END

MAC Filter

Step 1 Log-on WEB GUI of H8951-NA Cellular Wi-Fi Router.

Step 2 Click “Security> MAC Filter” to open “MAC Filter” tab.

Figure 5-28 MAC Filter tab

Table 5-17 MAC Filter explanation

Parameter	Details	Operation
Input configuration		
Action	To activate MAC input filtering black list / white list.	• Blacklist: rules in blacklist cannot visit router, other MACs can visit router. • White list: rules in white list can visit router, other MACs cannot visit router.
Forward configuration		
Action	To activate MAC forward filtering black list / white list.	• Blacklist: rules in blacklist cannot visit external network, other MACs can visit external network through router. • White list: rules in white list can visit external network, other MACs cannot visit external network through router.

Step 3 Click “Add” to add a new MAC filter rule and configure MAC filtering parameter.

Figure 5-29 MAC Filter configuration

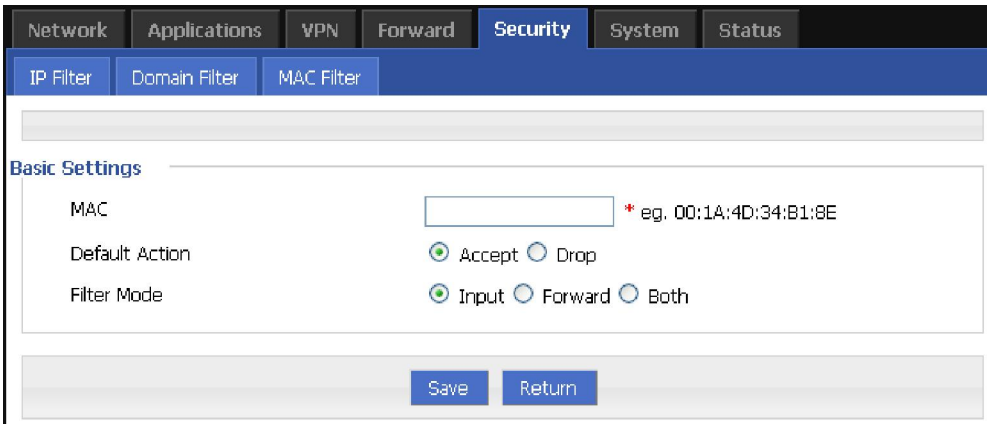


Table 5-18 MAC Filter Parameter instruction

Parameter	Details	Operation
Basic Settings		
MAC	MAC to be filtered	WORD type MAC format: XX:XX:XX:XX:XX:XX
Default Action	Default actions of the rule. Can be "accept" or "Drop": • Accept: to accept all packages from this MAC. • Drop: to drop all packages from this MAC.	To choose "accept" or "Drop"
Filter mode	To choose "Input", "Forward" or "Both". • Input: all packages visiting router. • Forward: all packages forwarded by router. • Both: both Input and forward.	To choose "Input", "Forward" or "Both".

Step 4 Single click "save" icon to finish.

---END

5.5 Forward configuration

5.5.1 Overview

Forward function of H8951-NA Cellular Wi-Fi Router includes NAT, Routing, dynamic routing (RIP, OSPF) (optional) and QoS (optional).

5.5.2 NAT

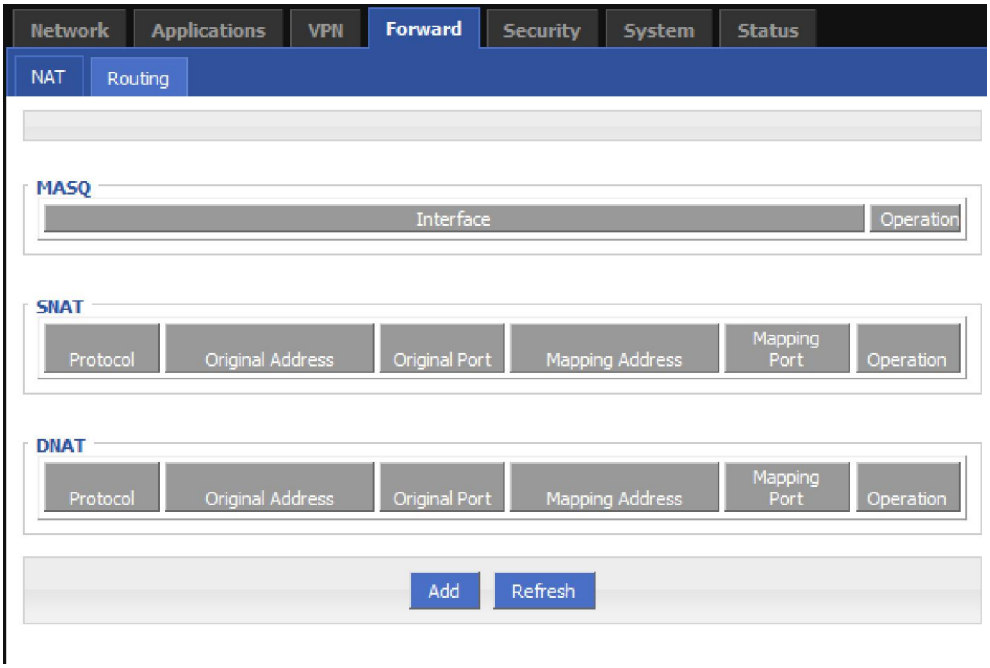
DNAT configuration rule

DNAT is used to replace the destination address of packets accessing external network, router will replace the destination address of packet accessing external network into the user custom settings.

Step 1 Log-on WEB GUI of H8951-NA Cellular Wi-Fi Router.

Step 2 Click “Forward > NAT” to open “NAT” tab.

Figure 5-30 NAT tab



Step 3 Click “Add” to add a new NAT rule.