User Manual

---Apply to WL-G500 Series Industrial 4G/3G Router

V2.3

http://www.wlink-tech.com

Feb, 2019

Caution

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

Shenzhen WLINK Technology Company Limited

Add：	3F, Yiben Building, Chaguang Road, Xili, Nanshan District, China, 518054
Web：	http://www.wlink-tech.com
Service Email：	support@wlink-tech.com
Tel：	86-755-86089513
Fax：	86-755-26059261

Contents

1 Product Introduction

1.1 Product overview

WL-G500 is the rugged industrial cellular router which can work on 4G/3G cellular network to provide reliable, secure and high speed wireless connectivity, it is built-in one of the world's leading ARM Cortex A9 Dual Core 800MHz CPU, supporting Wi-Fi 802.11N and A/C. G500's heavy-duty design caters for transportation and mobile deployments such as Wi-Fi bus, Wi-Fi on board and other Public transit.

WLINK G500 equips with 4xGigabit Ethernet switch, serial port, I/O, USB as well as a variety of configuration option including GPS, SD Slot. It offers redundant SIM Slot for automatic switching for reliable network, plus terminal block power capability. VPN features also can be configured in WLINK router, allowing you to utilize virtual private network service through a 4G/3G wireless router and built for stresses and workload of a modern industrial or commercial environment.

1.2 Product Appearance

Table 1-1 WLINK Router Appearance

Series	R200	R210	R520	G500
Appearance				
Ports	1*LAN 1*WAN	2*LAN 3*I/0	1*WAN + 4*LAN + GPS or WLAN(11n 1T1R)	4*LAN 1*SD 1*USB

1.3 Typical Application Diagram

WL-G500 4G router is installed in bus/boat/train to provide stable and fast Wi-Fi N&AC network. The captive portal page will be pop-up in mobile phone/Pad/laptop when passengers connect Wi-Fi SSID. Passengers might browse local advertisements and watch local video in the captive port page. If completed Wi-Fi authentication in captive portal page, passengers will be easily and conveniently surf internet to browse news, share journey beauty in Facebook, listen to music, watch movies and so on.

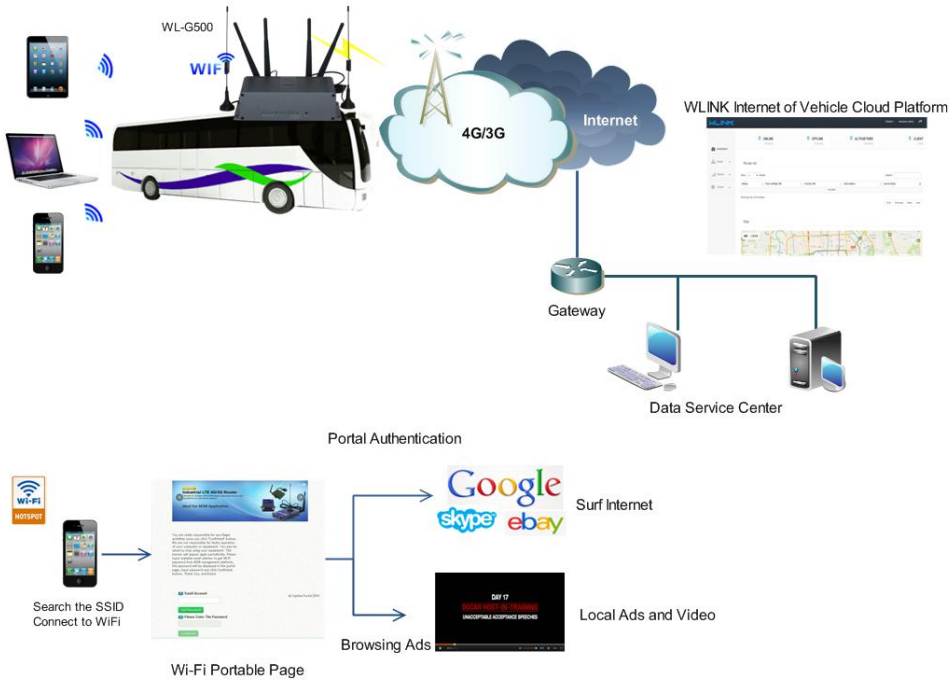


Figure 1-1 Network Topology

1.4 Features

- Various cellular module optional, LTE/HSPA+/EVDO optional
- Support IEEE802.11b/g/n&802.11a/c 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）
- 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

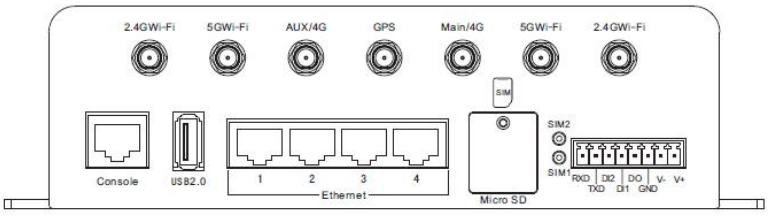
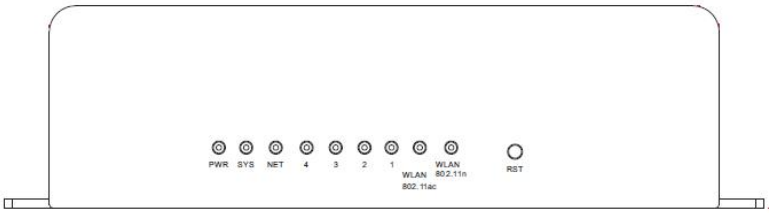
- Support VPN Client（PPTP, L2TP）,optional support Open VPN, IPSec, HTTPs, SSH, etc. advanced VPN function
- Provide friendly user interface, use normal web internet explorer to easily configure and manage, long-distance configure Telnet/SSH + CLI
- Optional IPv6 protocol stack
- Optional support M2M 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-G500 Structure

WLINK Tech.	WL-G500 series
Front	
Rear	

NOTE

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

Table 2-2 Router Interface

Port	Instruction	Remark
USIM	Plug type SIM Slot, support 1.8/3V/5V automatic detection	
SD	Extra SD, 8G~128G optional	

Port	Instruction	Remark
Main/Aux 4G	4G antenna, SMA connector, 50Ω	
WIFI	2.4&5G Wi-Fi antenna, SMA connector, 50Ω	
GPS	GPS antenna, SMA connector, 50Ω	Optional
LAN	10/100Base-TX，MDI/MDIX self-adaption,	G500: 4*LAN
RST	Reset button,(press on button 5 seconds)	
PWR	Power connector	5 ～ 26V DC
USB	USB2.0	
Console	Debugging information	
RS232/RS485	Four pin serial port, suitable for collection device with RS-232 or RS-485 interface, for wireless data transmission, CON for debug test.	R20 serial port and WAN port multiplex

2.2 LED Status

Table 2-3 Router LED indictor Status

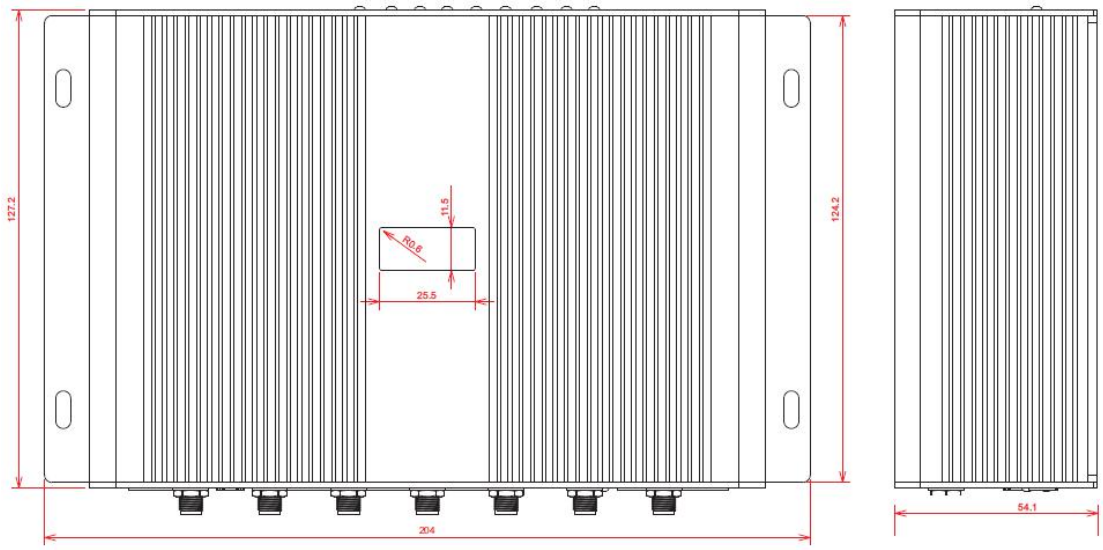
silk-screen	Indicator		Note
NET	Color	Green	Strong Signal
		Orange	Normal Signal
		Red	Weak Signal
	Status	Quick Blinking (0.5s)	Dialing
		Slow Blinking (2s)	3G online
		Solid light	4G online
WLAN	Green	Solid light	WLAN port enable, but no data sending.
	Green	Blinking quickly	Data is in transmitting
	Green	Off	WLAN port disable
LAN	Green	Solid light	Connection ok
	Green	Blinking	Data Sending
	Green	Off	Not connection
PWR	Green	Solid light	Power supply

silk-screen	Indicator		Note
SYS	Green	Solid light	System operation

NOTE

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

2.3 Dimension



G500 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.

CAUTION

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

CAUTION

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 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 3-2 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 Interneft Explorer and input “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 3-3 User Identify Interface

----END

3.2 Basic Configuration

NOTE

Different software version have different web configuration interface, below take G500 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.

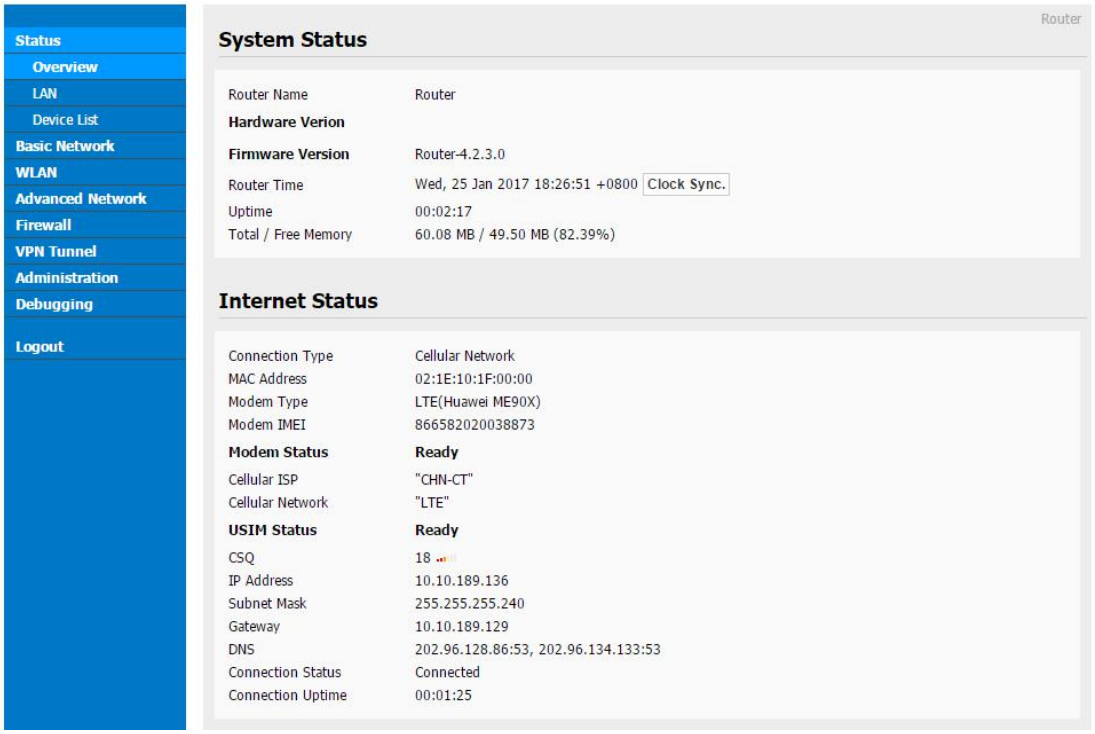


Figure 3-4 Router Status GUI

3.2.1 Cellular Network Configure

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

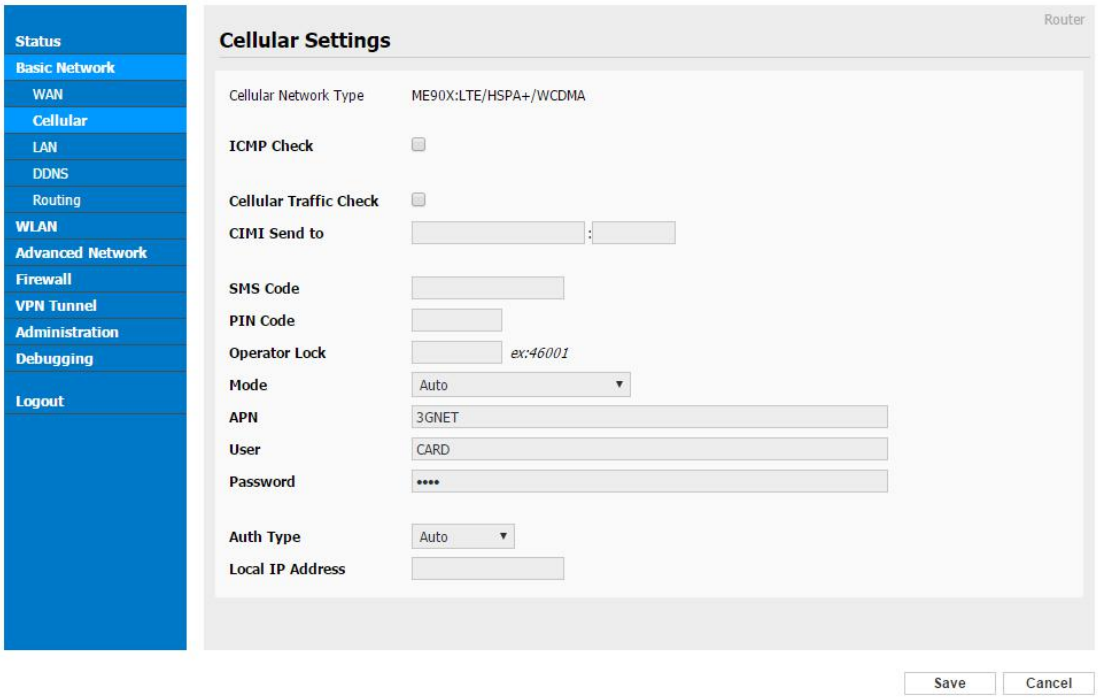


Figure 3-1 Cellular Settings GUI

Table 3-1 Cellular Setting Parameter Instruction

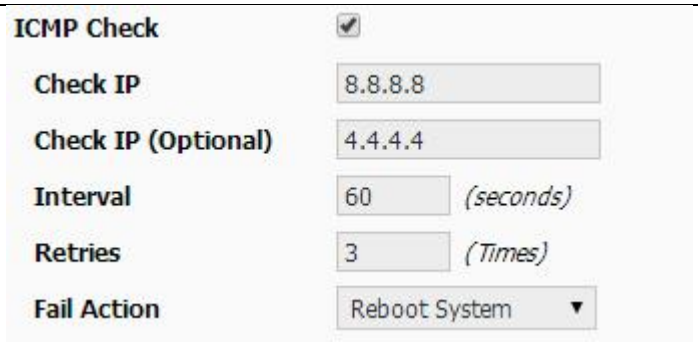
Parameter	Instruction
ICMP check	To enable or disable ICMP check rules. Enable the ICMP check and setup a reachable IP address as destination IP. Once ICMP check failed, router will reconnect/reboot system as optional.
Cellular Traffic Check	There is Rx/Tx as options. Once no Rx/Tx data, router will router will reconnect/reboot system as options.
CIMI Send	Send CIMI to defined IP and port by TCP protocol.
SMS Code	Remotely control router by SMS. Router just identify the correct SMS code as configured.
Pin Code	Some SIM cards are locked with a Personal Identification Number (PIN) code to prevent misuse if they are lost or stolen.
Operator Lock	Lock router for a specified operator via MCC/MNC code.
Connect Mode	● Auto.Router will automatically connect 3G/4G network and keep 4G in prior. ● LTE. Router will connect 4G only. ● 3G. Router will connect 3G only.
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
Auth Type	Support PAP/Chap/MS-Chap/MS-Chapv2
Local IP Add	Assigned SIM IP from operator.

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.

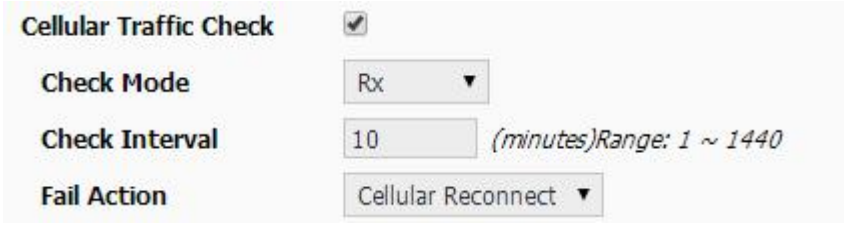
The ICMP Check IP is a public IP or company server IP address.



【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.



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

----End

3.2.2 LAN Setting

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

Figure 3-2 LAN Setting GUI

Table 3-2 LAN Setting Instruction

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

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

----End

3.2.3 Dynamic DNS Setting

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

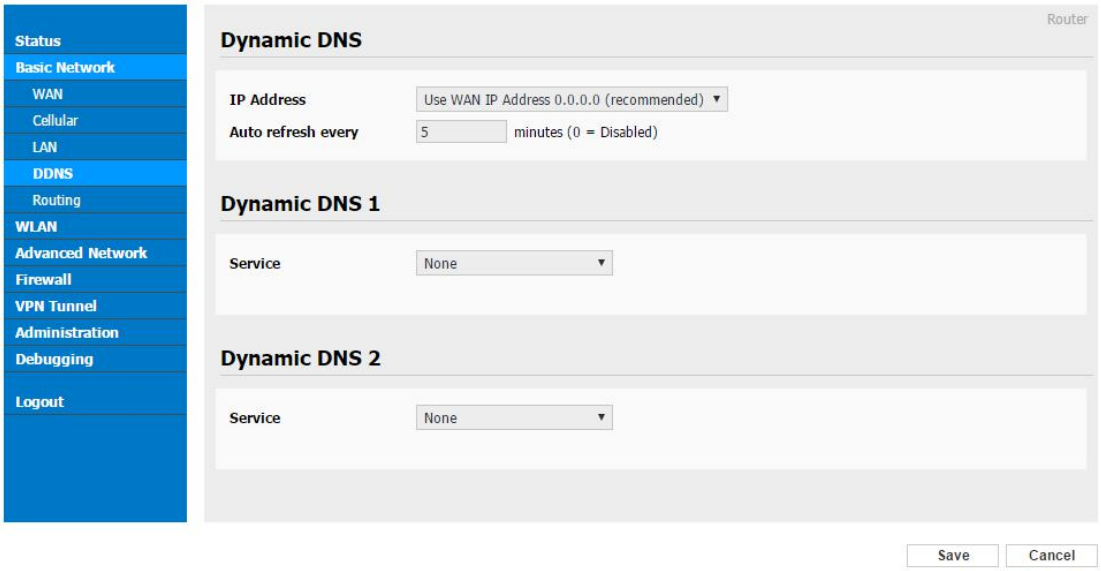


Figure 3-3 Dynamic DNS Setting

Table 3-3 DDNS Setting Instruction

parameter	Instruction
IP address	Default is standard DDNS protocol, for customized protocol, please contact WLINK engineer. use default IP 0.0.0.0 as usually.
Auto refresh time	Set the interval of the DDNS client obtains new IP, suggest 5mins 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.

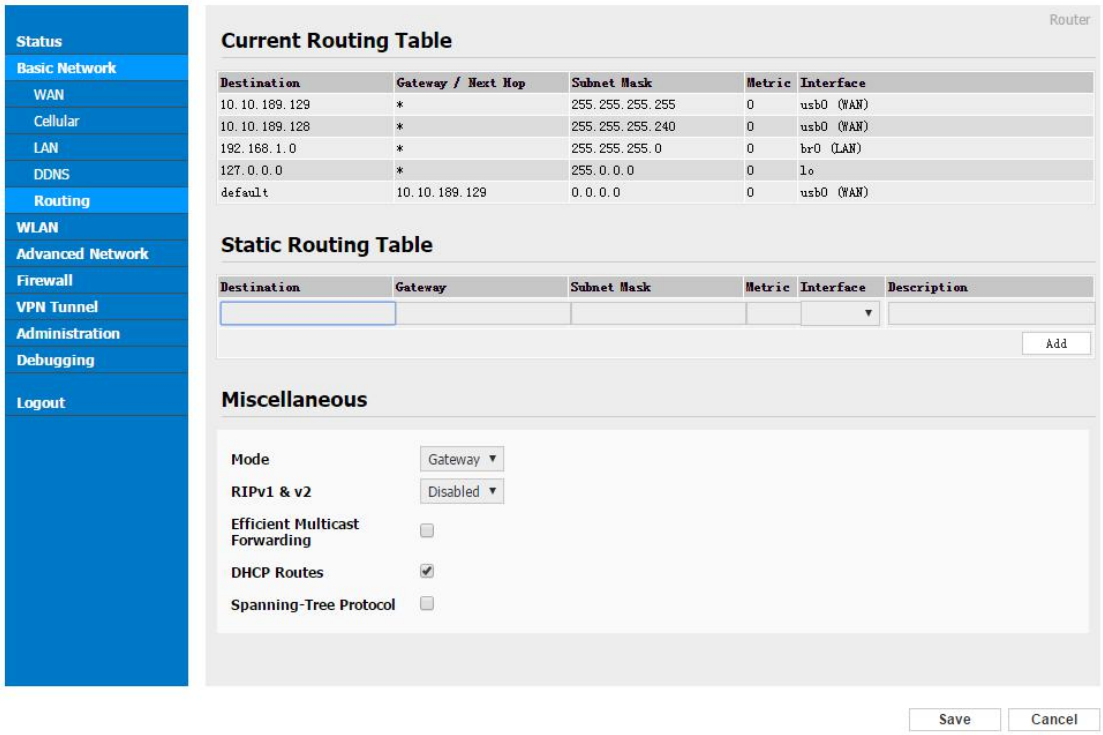


Figure 3-4 Routing Setting

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

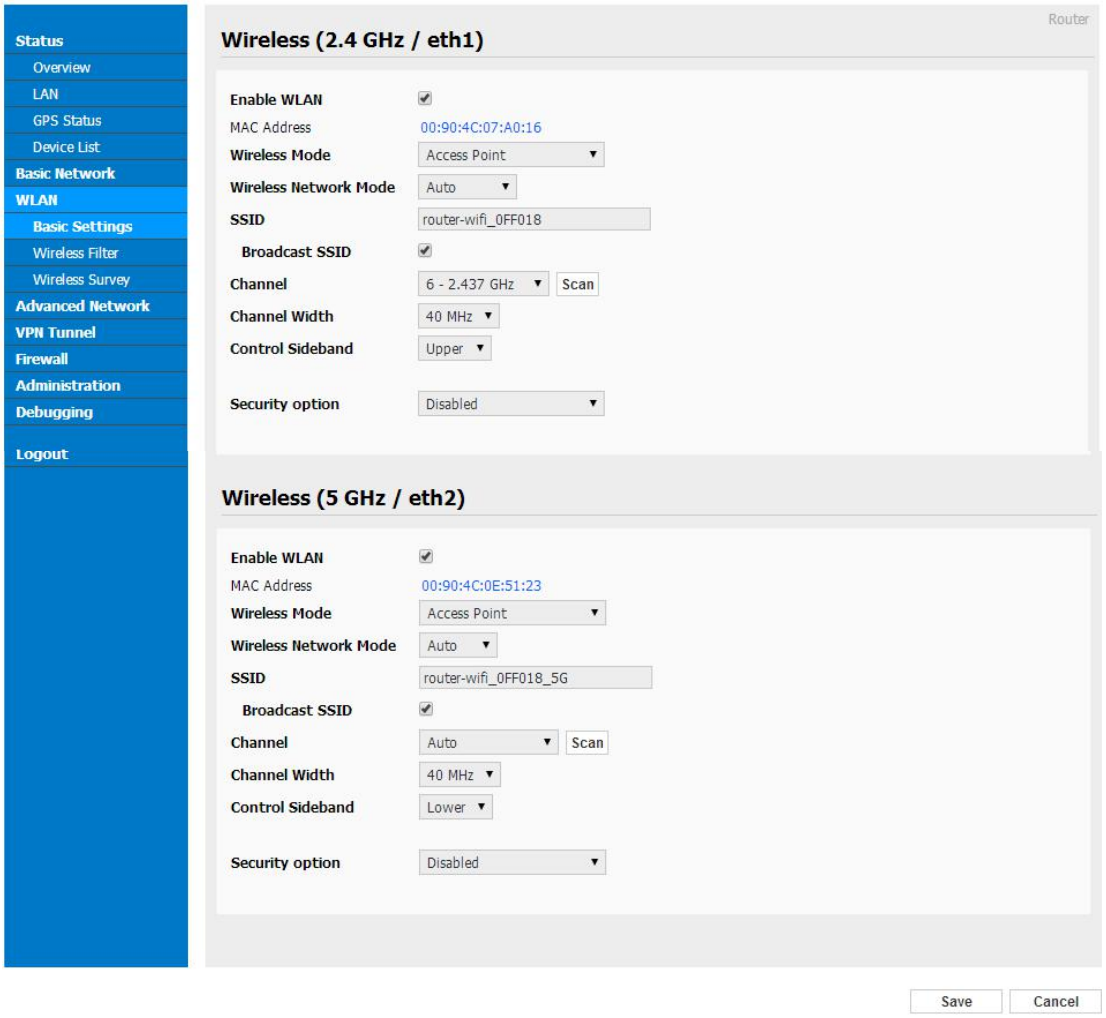


Table 3-10 Basic Setting Instruction

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 optional
SSID	The default is router, can be modified as per application.
Channel	The channel of wireless network, suggest keep the default
Channel Width	20MHZ and 40MHZ alternative
Security	Support various encryption method

Step 2 Please click “Save” to finish.

----End

3.3.2 Wireless Filter Setting

Step 1 Single click “WLAN > Wireless Filter”.

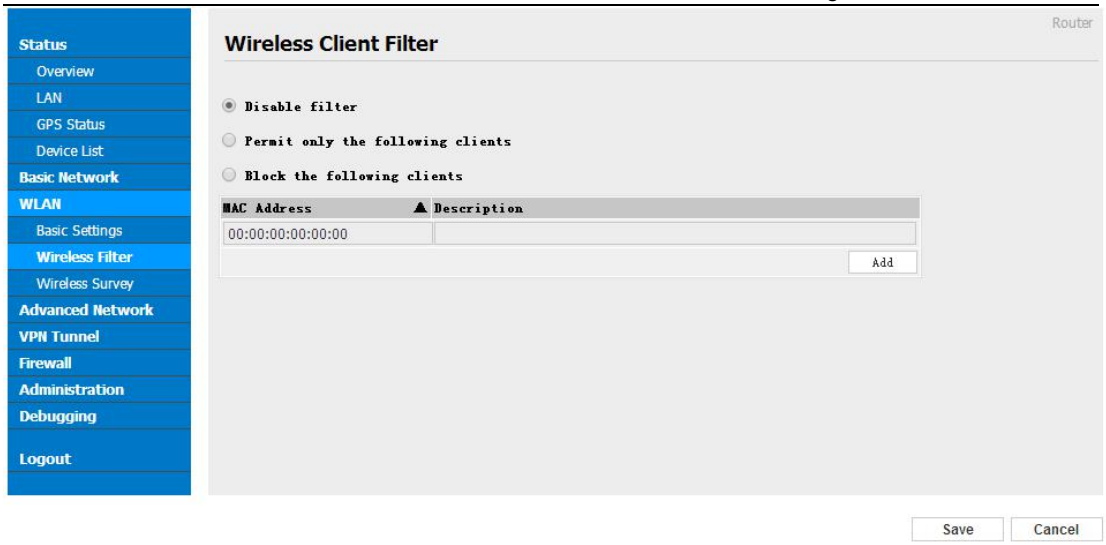


Figure 3-6 Wireless Client Filter Setting GUI

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

Table 3-11 "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 Wireless Survey

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

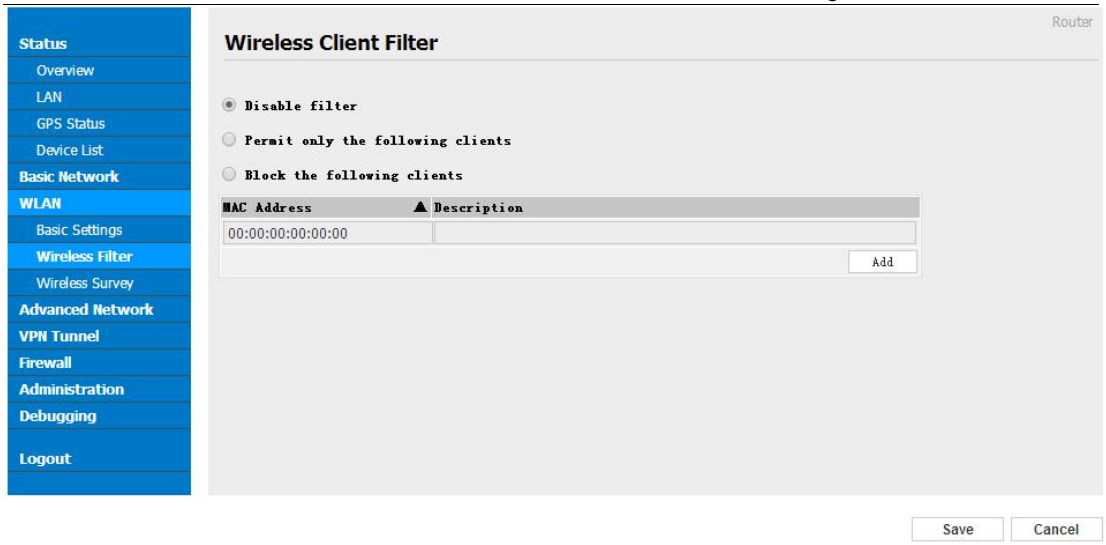


Figure 3-7 Wireless Survey Setting GUI

----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.

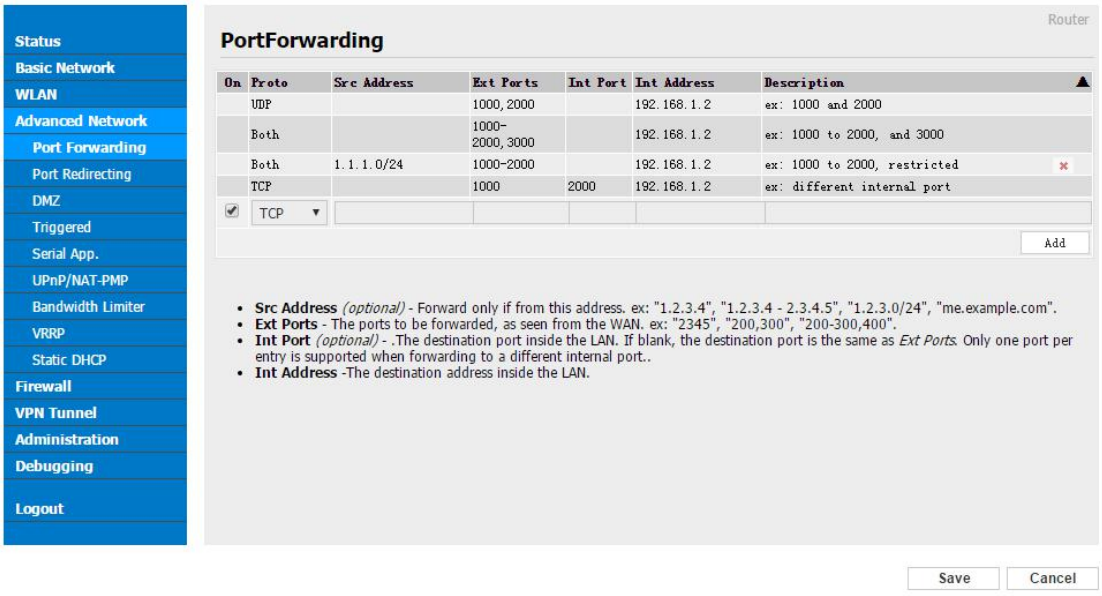


Figure 3-8 Port Forwarding GUI

Table 3-12 "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 Port Redirecting

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

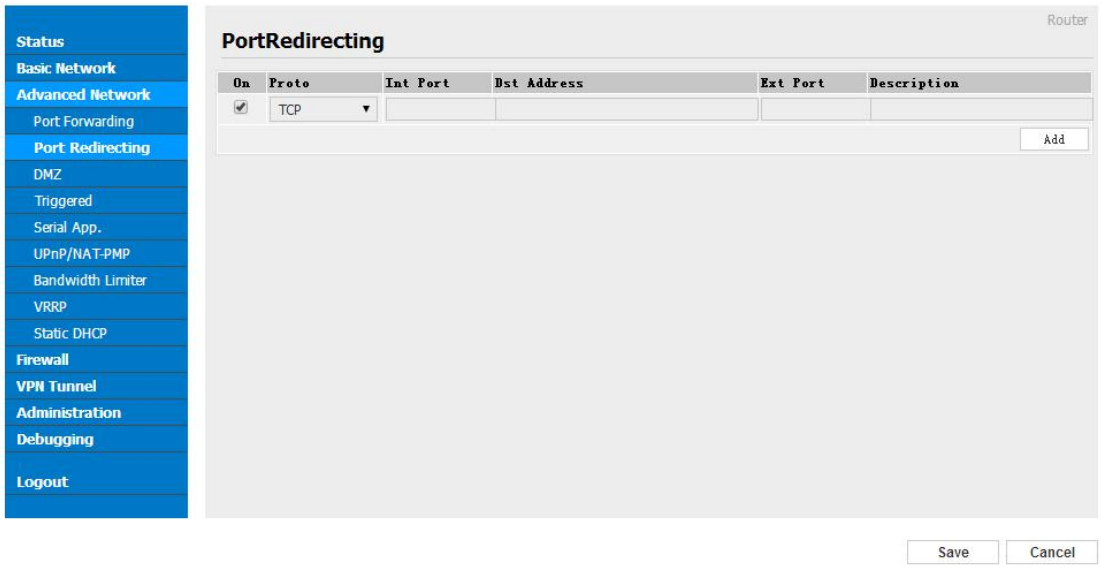


Figure 3-9 Port Forwarding GUI

Table 3-13 "Port Redirecting" Instruction

Parameter	Instruction
Protocol	Support UDP, TCP, both UDP and TCP
Int Port	Internal port.
Dst. Address	The redirecting IP address.
Ext. Ports	External port for redirection.
Description	Remark the rule

Step 2 Please click "save" to finish

----End

3.4.3 DMZ Setting

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

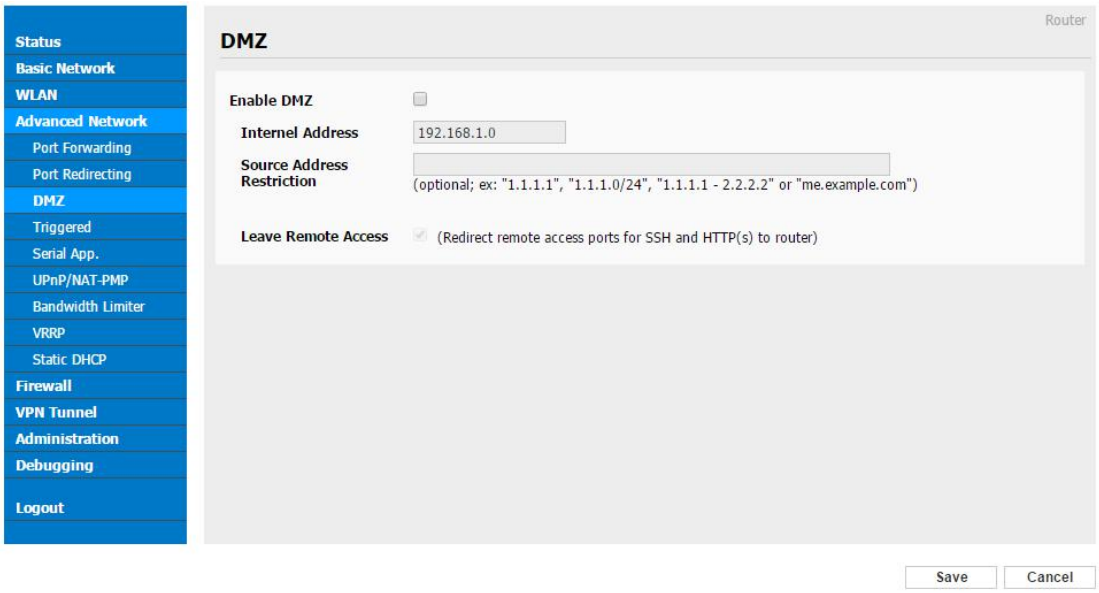


Figure 3-10 DMZ GUI

Table 3-14 "DMZ" Instruction

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

parameter	Instruction
Leave Remote Access	

Step 2 Please click ”save” to finish

----End

3.4.4 Triggered Setting

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

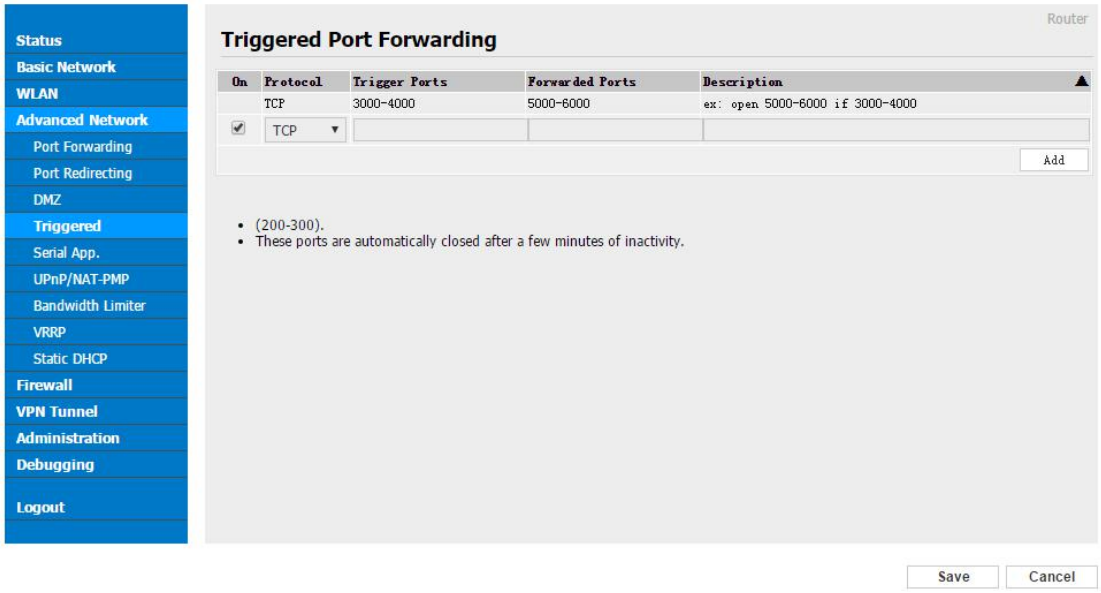


Figure 3-11 Triggered GUI

Table 3-15 “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

3.4.5 Captive Portal Setting

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

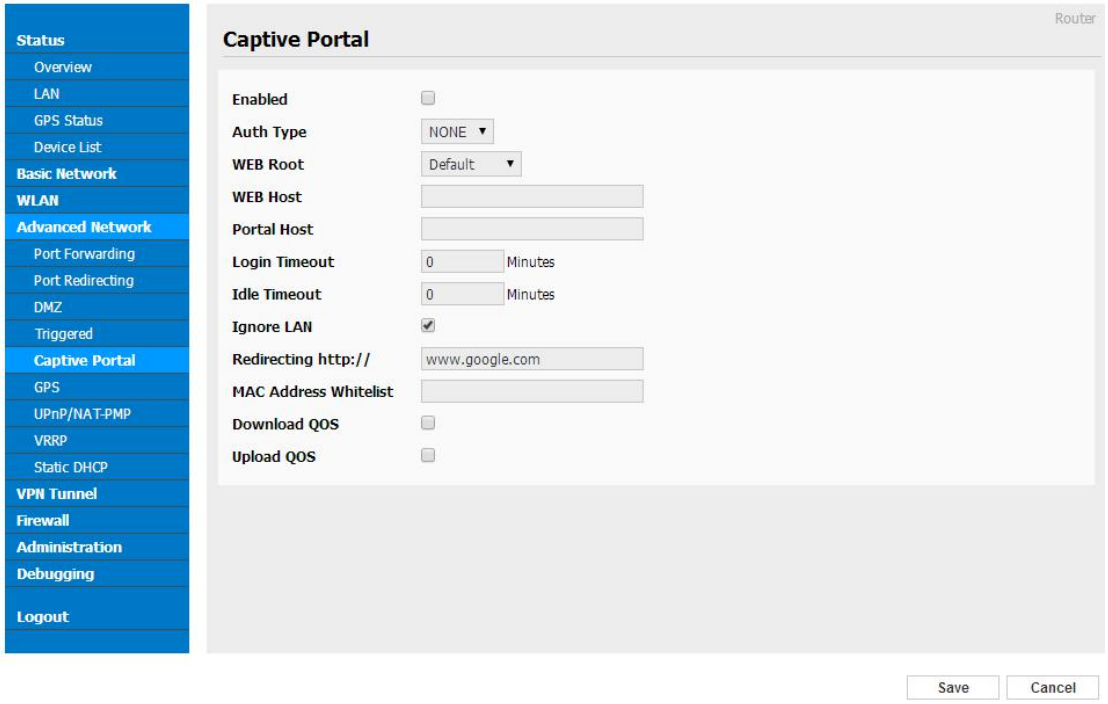


Figure 3-12 Captive Portal Setting GUI

Table 3-16 “Serial App” Instruction

Parameter	Instruction
Enable	Enable Captive portal feature.
Auth Type	Reserved.
Web Root	Choose captive portal file storage path. Default: Captive portal file is in the firmware as default. In-storage: Captive portal file is in router’s Flash. Ex-storage: Captive portal file is in extended storage such as SD card.
Web Host	Configure domain name for the captive portal access. For example, Configure as wlink.tech.com, we might directly access to captive portal page in the website as wlink.tech.com
Portal Host	Reserved.
Logged Timeout	Maximum time user has connectivity. User need to re-login Captive Portal page after defined time.
Idle Timeout	Maximum time user has connectivity if no network activity from Wi-Fi User.If User need to re-login Captive page to surf internet.

Parameter	Instruction
Ignore LAN	If enabled, LAN devices will bypass the Captive Portal page.
Redirecting	Router will redirect to the defined link after accepting the terms and conditions on the Captive Portal page.
MAC Whitelist	No captive portal page for Wi-Fi device.
Download QoS	Enable to apply the Download and Upload per user limits.
Upload Qos	Maximum download speed available to each user.

----End

3.4.6 GPS Setting

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

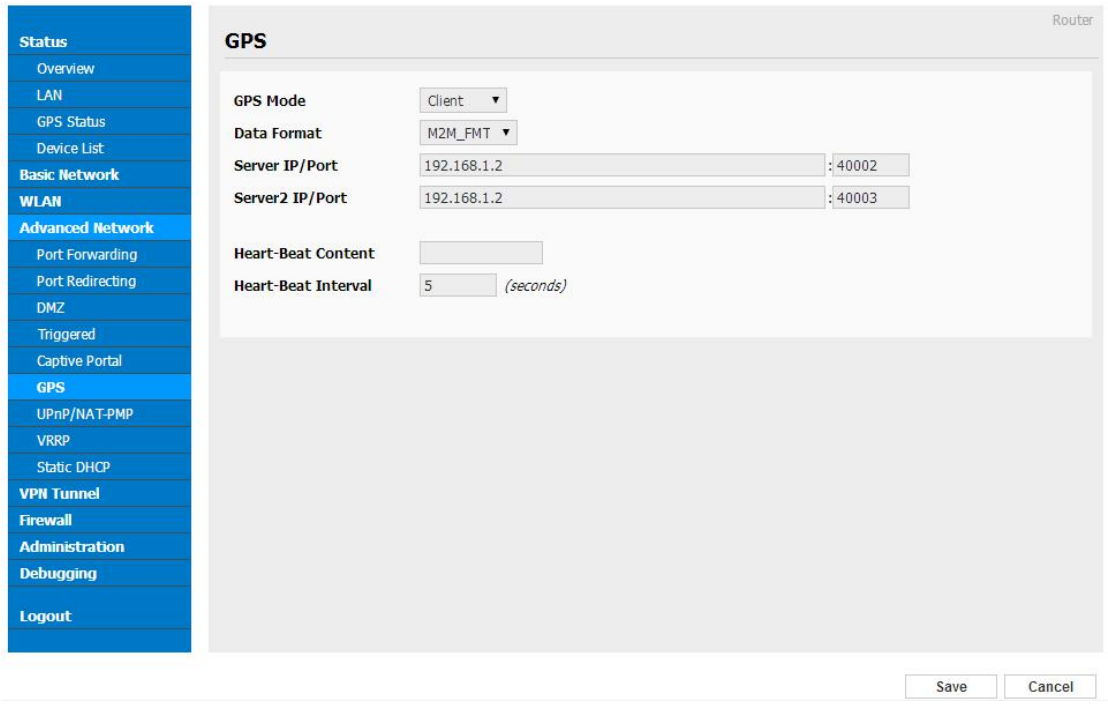


Figure 3-13 GPS Setting GUI

Table 3-17 “GPS” Instruction

parameter	Instruction
GPS Mode	Enable/Diable
GPS Format	NMEA and M2M_FMT(WLINK)
Server IP/Port	GPS server IP and port

parameter	Instruction
Heart-Beat	If choose M2M_FMT format, heart-beat ID will be packed itnto GPS data.
Interval	GPS data transmit as the interval time.

Step 2 Please click ”save” to finish

NOTE

M2M_FMT Format as below.

1. GPS data structure.

Router ID, gps_date, gps_time, gps_use, gps_latitude, gps_NS, gps_longitude, gps_EW, gps_speed, gps_degrees, gps_FS, gps_HDOP, gps_MSL

2. Example

0001_R081850ac,150904,043215.0,06,2234.248130,N,11356.626179,E,0.0,91.5,1,1.2,97.5

3. GPS data description

Field No.	Name	Format	Example	Description
1	Router ID	String	0001_R081850ac	0001 customizable product ID. _R router indicator. 081850ac Last 8digits of routers MAC address.
2	gps_date	yymmdd	150904	Date in year,month,day
3	gps_time	hhmmss.sss	043215.0	UTC Time, Time of position fix.
4	gps_use	numeric	06	Satellites Used, Range 0 to 12.
5	gps_latitude	ddmm.mmmm	2234.248130	Latitude, Degrees + minutes.
6	gps_NS	character	N	N/S Indicator,N=north or S=south.
7	gps_longitude	ddmm.mmmm	11356.626179	Longitude, Degrees + minutes.
8	gps_EW	character	E	E/W indicator, E=east or W=west.
9	gps_speed	numeric	0.0	Speed over ground, units is km/h.
10	gps_degrees	numeric	91.5	Course over ground, unit is

				degree.
11	gps_FS	digit	1	Position Fix Status Indicator,
12	gps_HDOP	numeric	1.2	HDOP, Horizontal Dilution of Precision
13	gps_MSL	numeric	97.5	MSL Altitude, units is meter.

3.4.7 UPnp/NAT-PMP Setting

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

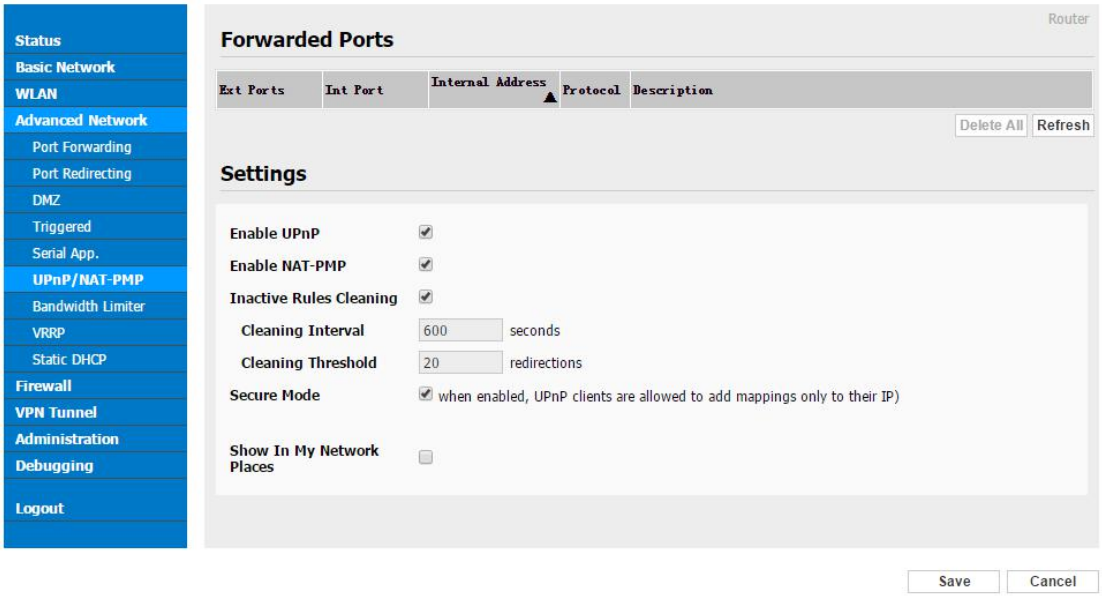


Figure 3-14 UPnp/NAT-PMP Setting GUI

Step 2 Please click ”save” to finish.

3.4.8 VRRP Setting

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

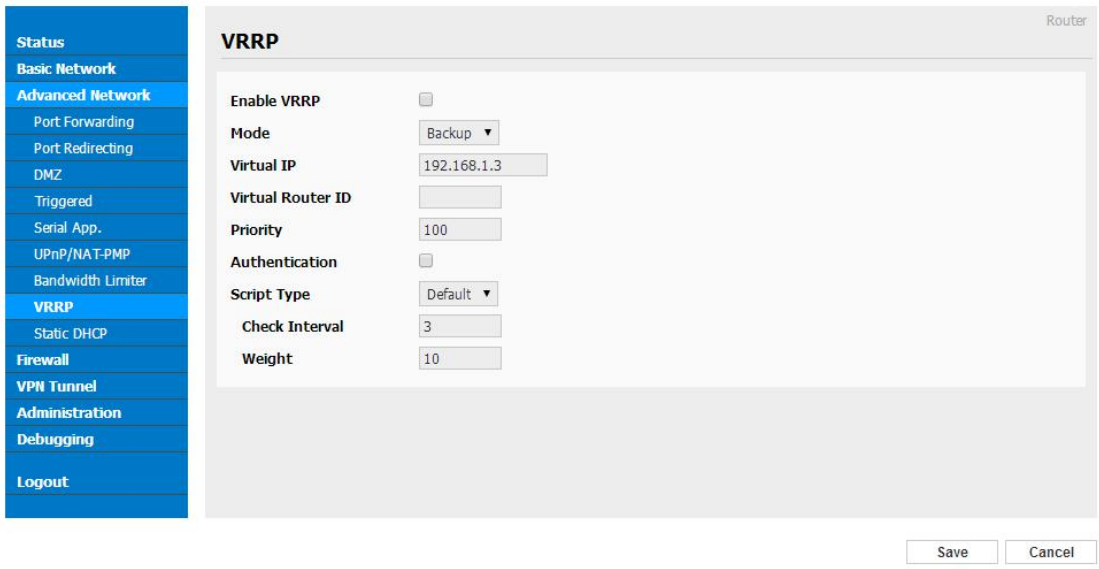


Figure 3-15 VRRP Setting GUI

Step 2 Please click ”save” to finish.

----End

3.4.9 Static DHCP Setting

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

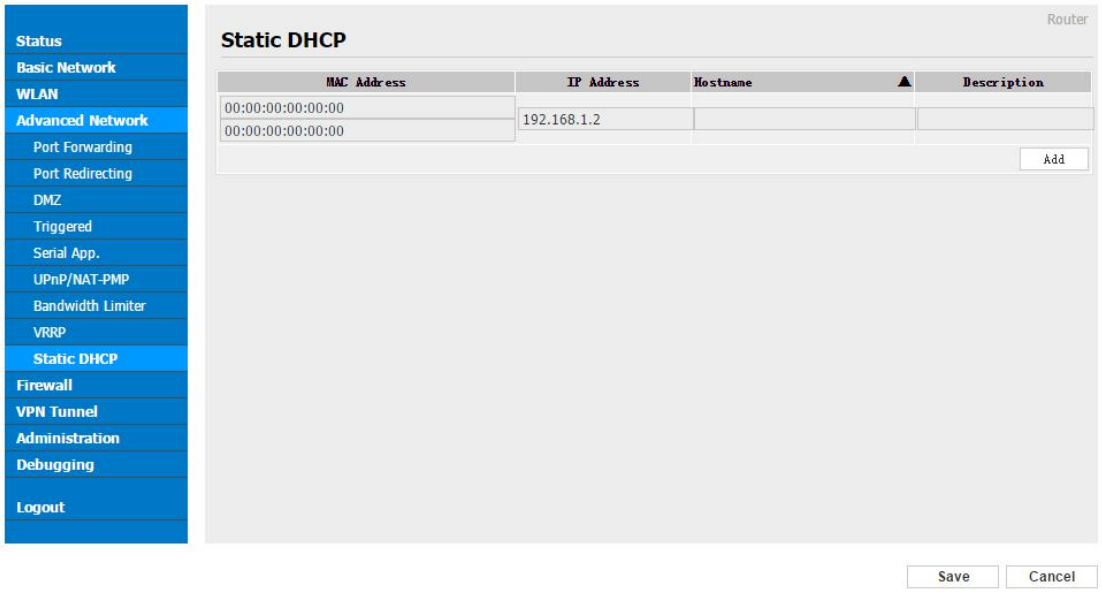


Figure 3-16 Static DHCP Setting GUI

Step 2 Please click ”save” to finish.

----End

3.5 VPN Tunnel

3.5.1 GRE Setting

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

Figure 3-17 GRE Setting GUI

Table 3-18 “GRE” Instruction

Parameter	Instruction
Idx	GRE tunnel number
Tunnel Address	GRE Tunnel local IP address which is a virtual IP address.
Tunnel Source	Router’s 3G/WAN IP address.
Tunnel Destination	GRE Remote IP address. Usually a public IP address
Keep alive	GRE tunnel keep alive to keep GRE tunnel connection.
Interval	Keep alive interval time.
Retries	Keep alive retry times. After retry times, GRE tunnel will be re-established.
Description	

Step 2 Please click ”save” to finish.

----End

3.5.2 VPN Client Setting

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

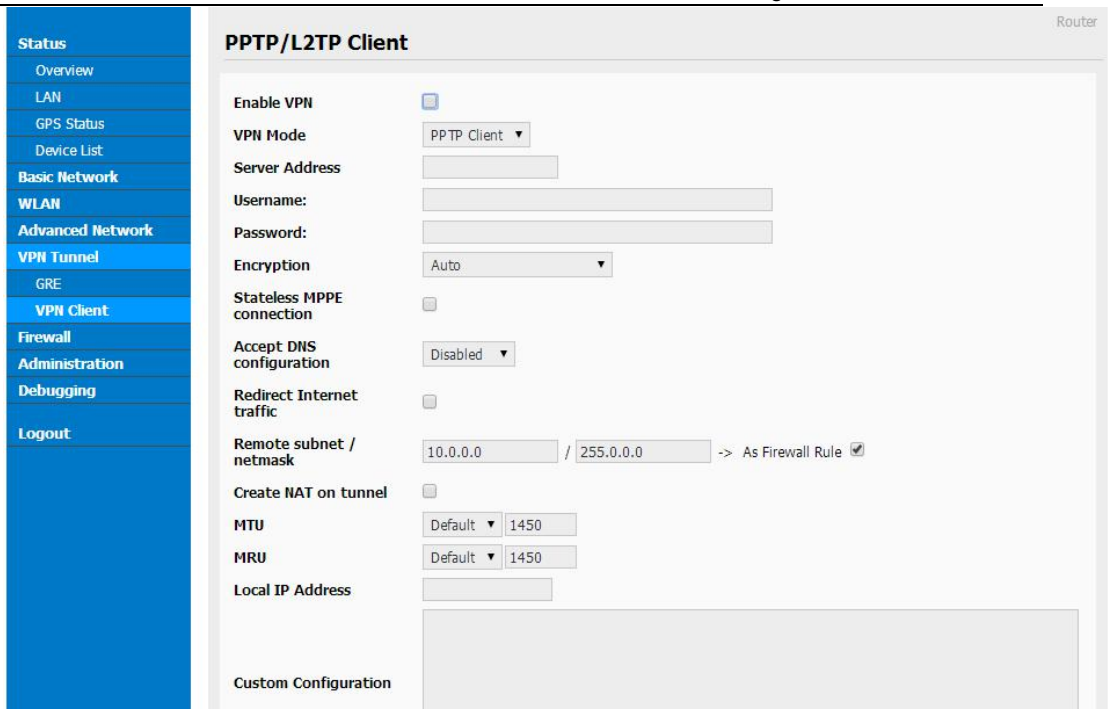


Table 3-19 "VPN Client" Instruction

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 Tunnel	As the configuration requested.
MTU	MTU is 1450bytes as default
MRU	MRU is 1450bytes as default
Local IP Address	Defined Local IP address for tunnel

Step 2 Please click "save" to finish.

----End

3.6 Firewall

3.6.1 IP/URL Filtering

Step 1 Please click “Firewall> IP/URL Filtering” to check or modify the relevant parameter.

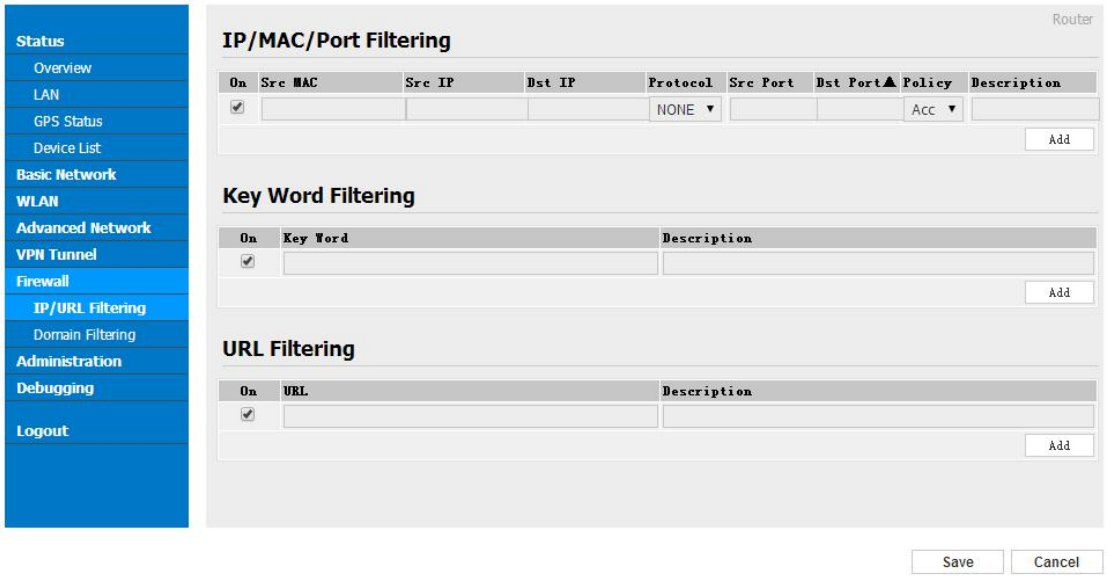


Table 3-20 “IP/URL Filtering” Instruction

Parameter	Instruction
IP/MAC/Port Filtering	Support IP address, MAC address and port filter.
Key Word Filtering	Support key word filter.
URL Filtering	Support URL filter.

Step 2 Please click ”save” to finish.

3.6.2 Domain Filtering

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

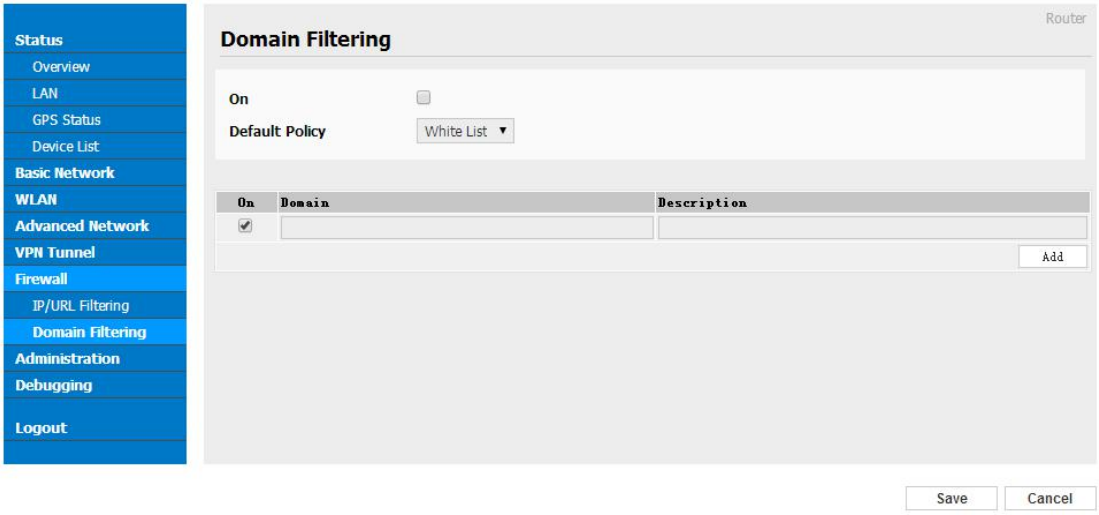


Figure 3-18 Domain Filtering Setting GUI

Table 3-21 "GRE" Instruction

Parameter	Instruction
Default Policy	Support black list and white list
Local IP Address	Local IP address for LAN.
Domain	Support Domain filter.

Step 2 Please click "save" to finish.

----End

3.7 System Management

3.7.1 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.

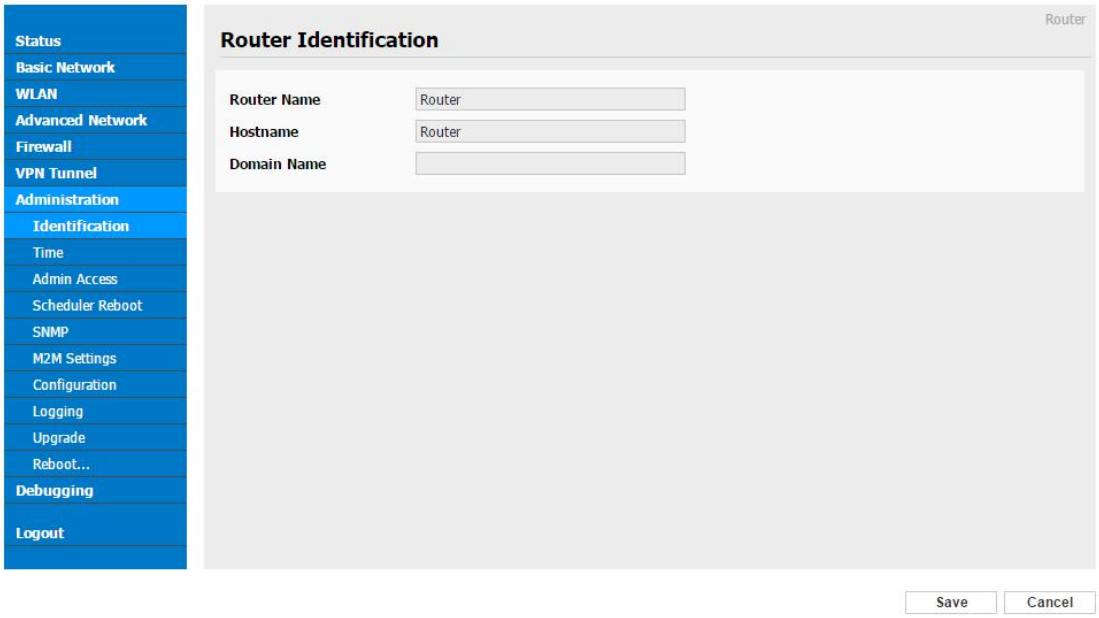


Figure 3-19 Router Identification GUI

Table 3-22 "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

3.7.2 Time Setting

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

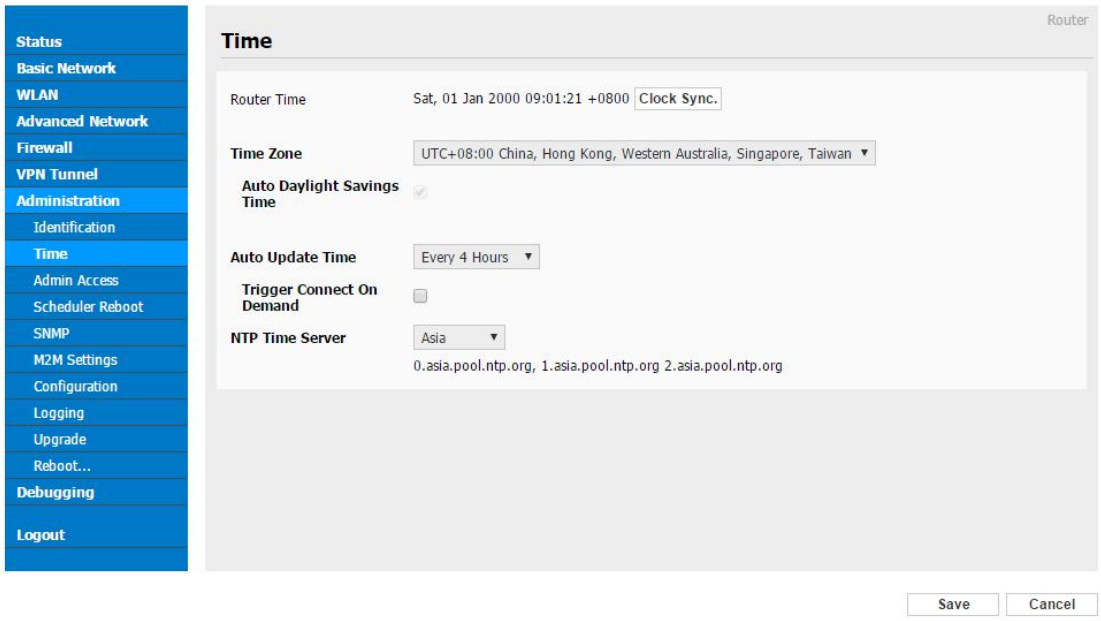


Figure 3-20 System Configuration GUI

CAUTION

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

Step 2 Please click “save to finish.

----End

3.7.3 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.

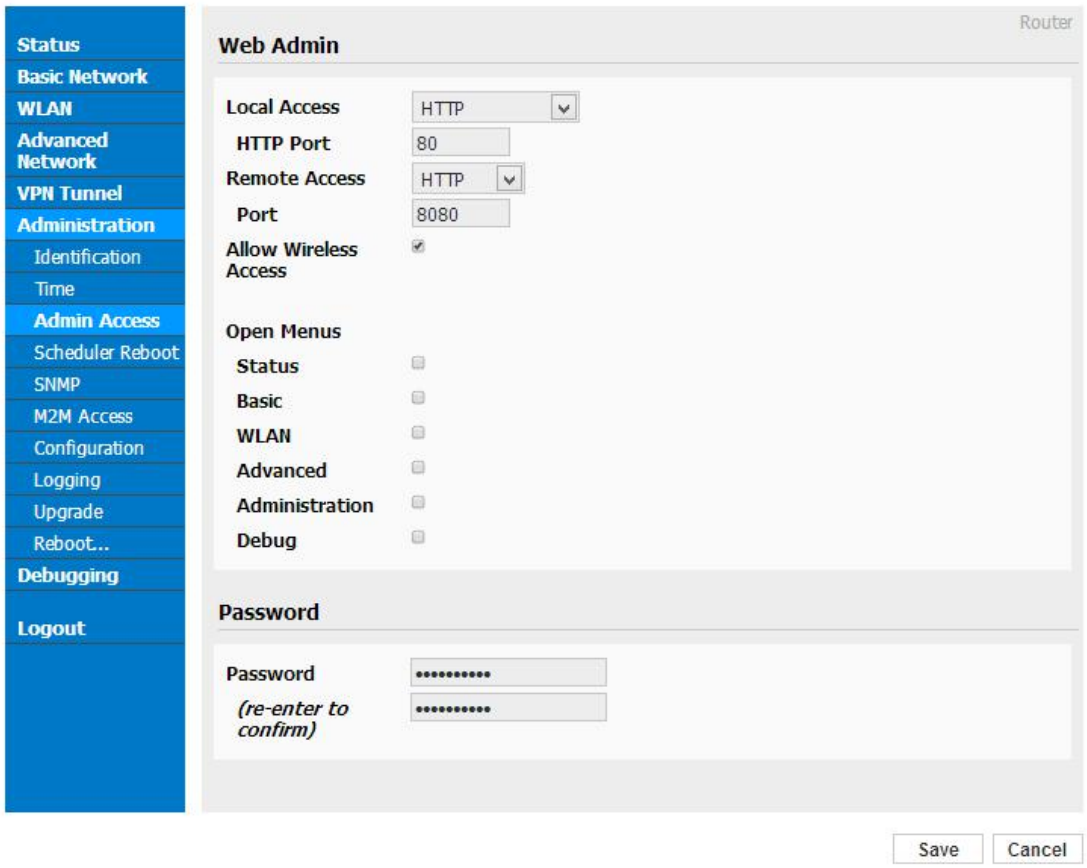


Figure 3-21 Admin Setting GUI

Step 2 Please click save iron to finish the setting

----End

3.7.4 Schedule Reboot Setting

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

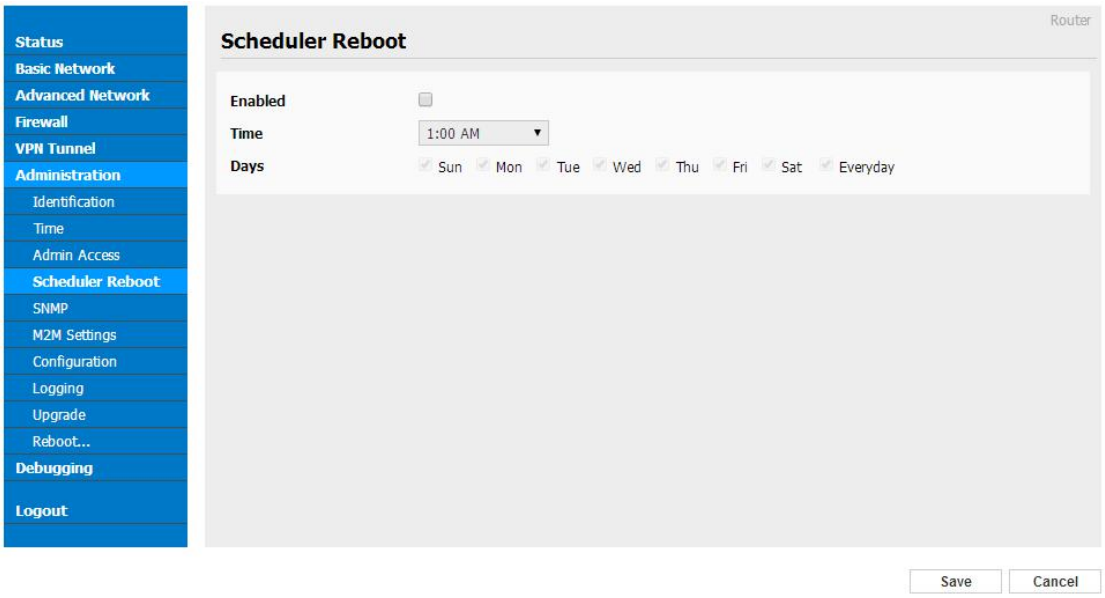


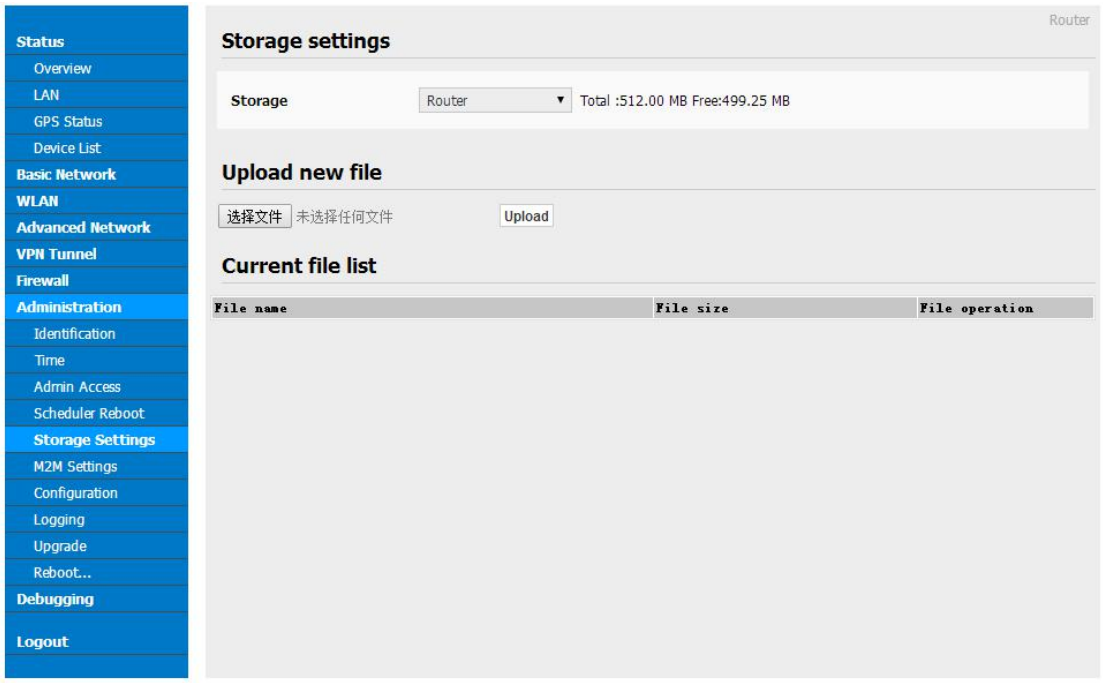
Figure 3-22 Scheduler Reboot Setting GUI

Step 2 Please click save iron to finish the setting

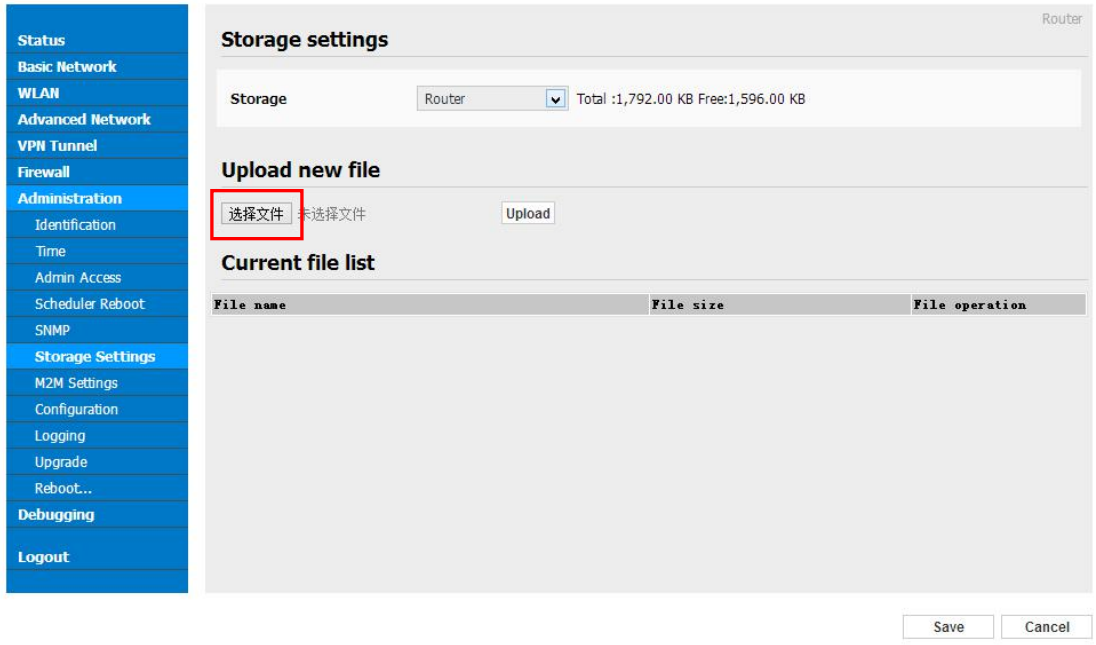
----End

3.7.5 Storage Setting

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



Upload the portal images for the Slider (0001_portal.png, 0002_portal.png, and 0003_portal.png) to the Router under the "Administration / Storage Settings" menu. Furthermore, also might upload splash with images together.



NOTE

Picture format should be .png and Picture size is less than 100Kbytes and resolution is 800*600. Picture name is 0001_portal.png, 0002_portal.png and 0003_portal.png.

Figure 3-23 SNMP Setting GUI

Step 2 Please click save iron to finish the setting

----End

3.7.6 M2M Access Setting

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

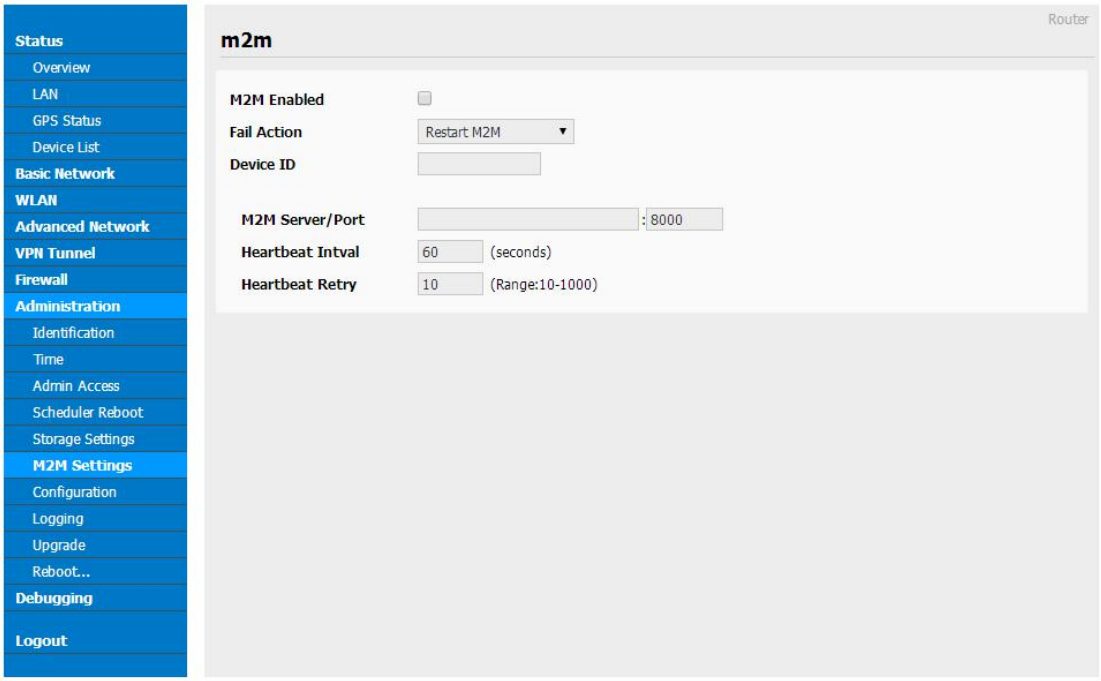


Figure 3-24 M2M Access Setting GUI

Parameter	Instruction
M2M Enable	Please tick M2M option if you need this feature.
Fail Action	Restart M2M, Reboot and Redial
Product ID	Identity product in M2M platform, the Max length is 14bytes.
M2M Server IP/Port	Configure M2M platform IP and port. The router will log in M2M platform and establish a connection between router and M2M platform. The connection protocol is UDP.
Heartbeat Interval	WLINK router send a heartbeat to M2M platform as report interval time.
Heartbeat Retry	After retry times, router will implement the Fail Action.

Step 2 Please click save iron to finish the setting

----End

3.7.7 DI/DO Setting

Step 1 Please click “Administrator>DI/DO Setting” to check and modify relevant parameter.

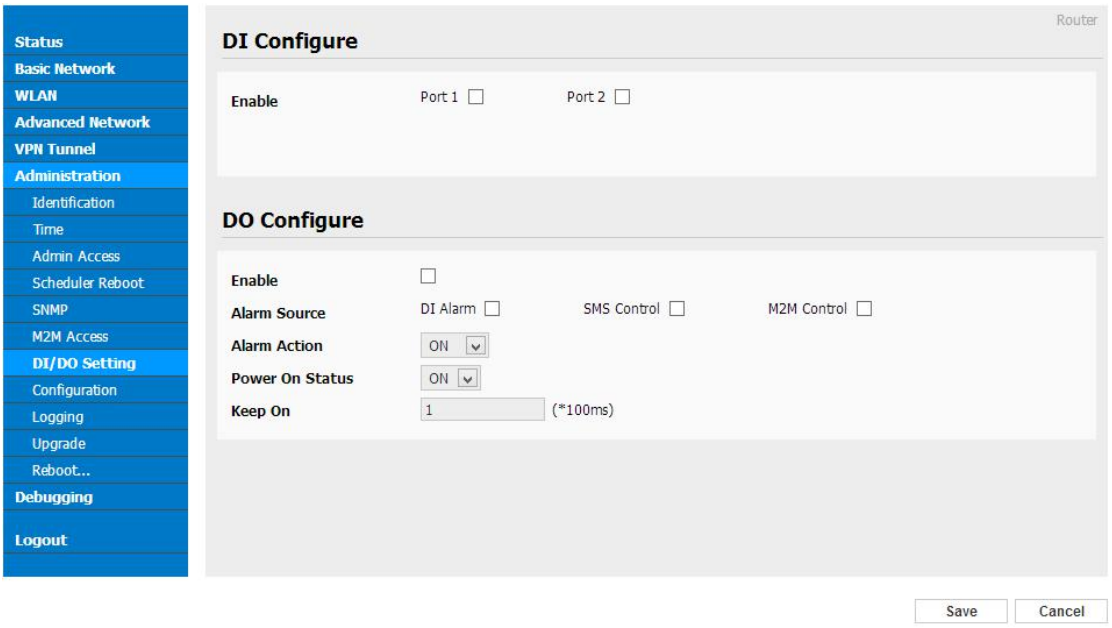


Figure 3-25 DI/DO Setting GUI

3.7.7.1 DI Configure

Table 3-23 "DI" Instruction

Parameter	Instruction
Enable	Enable DI. Port1 is for I/O1 and Port2 is I/O2. Both I/O1 and I/O2 are DI ports
Mode	Selected from OFF, ON and EVENT_COUNTER modes. OFF Mode: When I/O connects to GND, it will trigger alarm. ON Mode: When I/O does not connect to GND, it will trigger alarm. EVENT_COUNTER Model: Enter EVENT_COUNTER mode.
Filter	Software filtering is used to control switch bounces. Input (1~100)*100ms. Under OFF and ON modes, WL-R210 detects pulse signal and compares with first pulse shape and last pulse shape. If both are the same level, WL-R210 will trigger alarm. Under EVENT_COUNTER mode, if first pulse shape and last pulse shape are not the same level, WL-R210 will trigger alarm according to Counter Action setting.
Counter Trigger	Available when DI under Event Counter mode Input from 0 to 100. (0=will not trigger alarm) It will trigger alarm when counter reaches this value. After triggering alarm, DI will keep counting but no trigger alarm again.
Counter Period	It's a reachable IP address. Once the ICMP check is failed, GRE will be established again.
Counter Recover	it will re-count after counter trigger alarm. The value is 0~30000(*100ms). 0 means no counter.
Counter Action	HI_TO_LO and LO_TO_HI is available when DI under Event Counter mode. In Event Counter mode, the channel accepts limit or proximity switches and counts events according to the ON/OFF status. When LO_TO_HI is selected, the counter value increase when the attached switch is pushed. When HI_TO_LO is selected, the counter value increases when the switch is pushed and released.
Counter Start	Available when DI under EVENT_COUNTER mode. Start counting when enable this feature.
SMS Alarm	The alarm SMS will send to specified phone group. Each phone group include up to 2 phone numbers.
SMS Content	70 ASCII Char Max
Number 1	SMS receiver phone number.
Number 2	SMS receiver phone number.

Step 2 Please click "save" to finish.

3.7.7.2 DO Configure

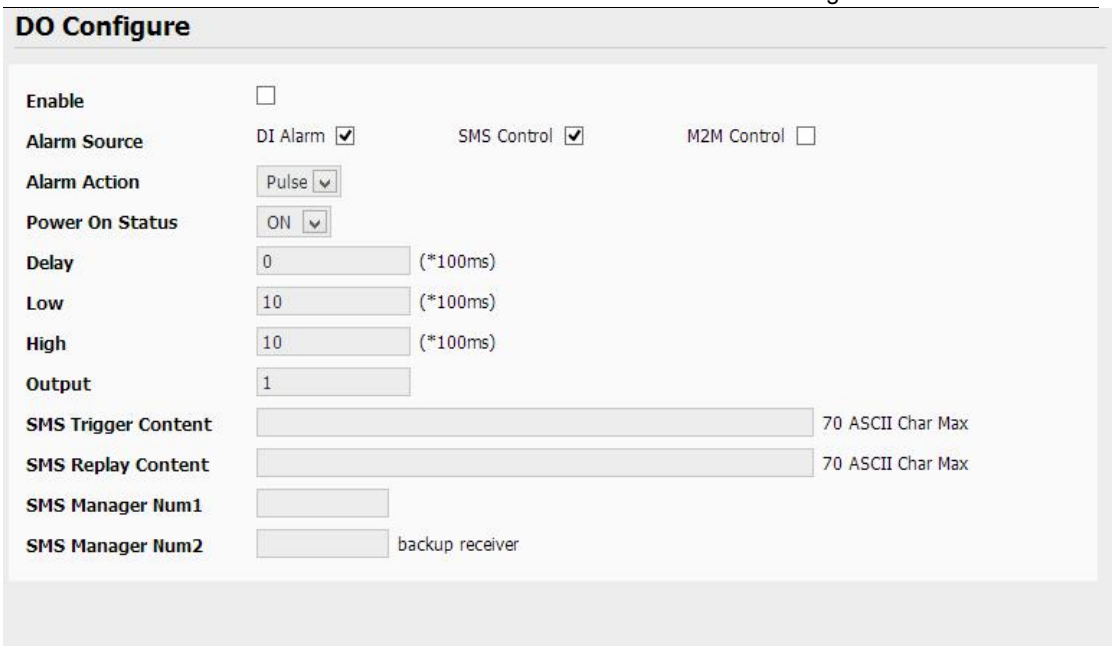


Table 3-24 “DO” Instruction

Parameter	Instruction
Enable	1 DO as selected
Alarm Source	Digital output initiates according to different alarm source. Select from DI Alarm, SMS Control and M2M Control. Selections can be one or more. DI Alarm: Digital Output triggers the related action when there is alarm from Digital Input. SMS Control: Digital Output triggers the related action when receiving SMS from the number in phone book. M2M Control: it’s not ready.
Alarm Action	Digital Output initiates when there is an alarm. Selected from “OFF”, “ON”, “Pulse”. OFF: Open from GND when triggered. ON: Short contact with GND when triggered. Pulse: Generates a square wave as specified in the pulse mode parameters when triggered.
Power on Status	Specify the digital Output status when power on. Selected from OFF and ON. OFF: Open from GND. ON: Short contact with GND.
Keep On	Available when digital output Alarm On Action/Alarm Off Action status is ON, input the Digital Output keep on status time. Input from 0 to 255 seconds. (0=keep on until the next action)
Delay	Available when enable Pulse in Alarm On Action/Alarm Off Action. The first pulse will be generated after a “Delay”.

Parameter	Instruction
	Input from 0 to 30000ms. (0=generate pulse without delay)
Low	Available when enable Pulse in Alarm On Action/Alarm Off Action. In Pulse Output mode, the selected digital output channel will generate a square wave as specified in the pulse mode parameters. The low level widths are specified here. Input from 1 to 30000 ms.
High	Available when enable Pulse in Alarm On Action/Alarm Off Action. In Pulse Output mode, the selected digital output channel will generate a square wave as specified in the pulse mode parameters. The high level widths are specified here. Input from 1 to 30000 ms.
Output	Available when enable Pulse in Alarm On Action/Alarm Off Action. The number of pulses, input from 0 to 30000. (0 for continuous pulse output)
SMS Trigger Content	Available when enable SMS Control in Alarm Source. Input the SMS content to enable “Alarm On Action” by SMS (70 ASIC II char max).
SMS Reply Content	Input the SMS content, which will be sent after DO was triggered. (70 ASIC II char max).
Number 1	SMS receiver phone number.
Number 2	SMS receiver phone number.

Step 3 Please click ”save” to finish.

3.7.8 Configuration Setting

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

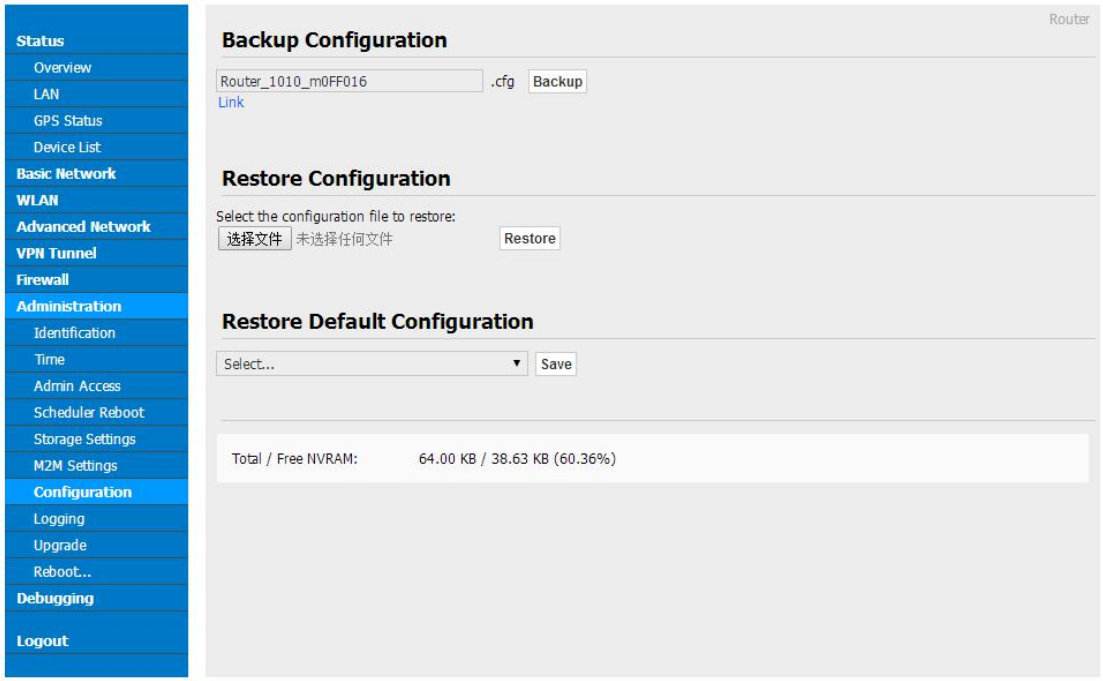


Figure 3-26 Backup and Restore Configuration GUI

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

3.7.9 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).

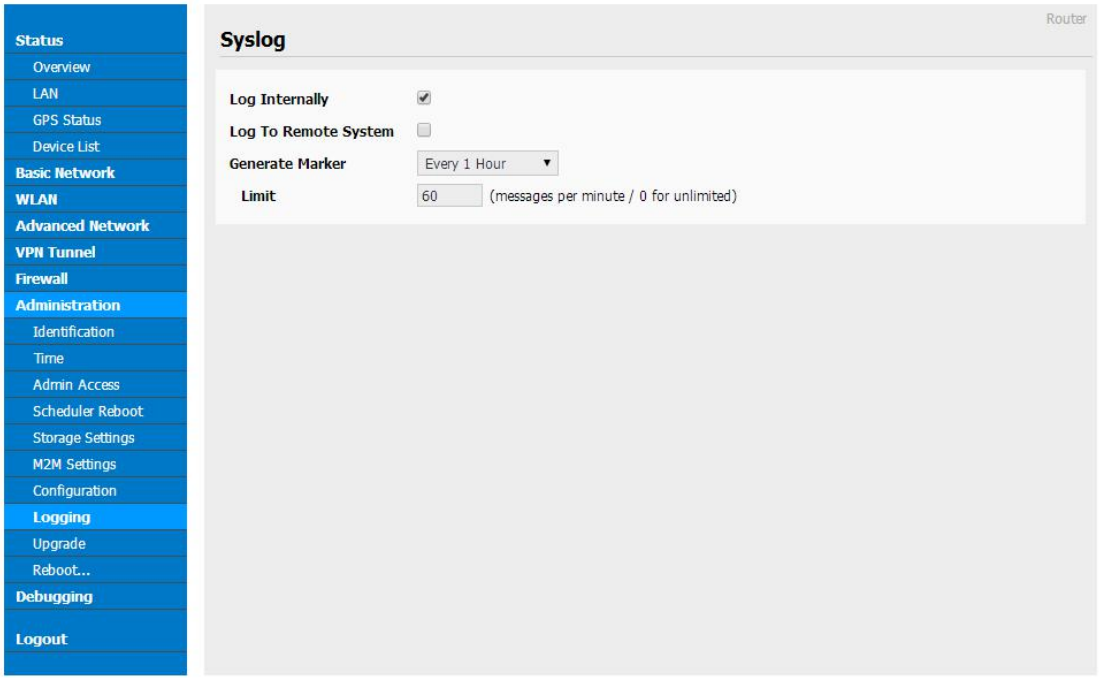


Figure 3-27 System log Setting GUI

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

----End

3.7.10 Firmware upgrade

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

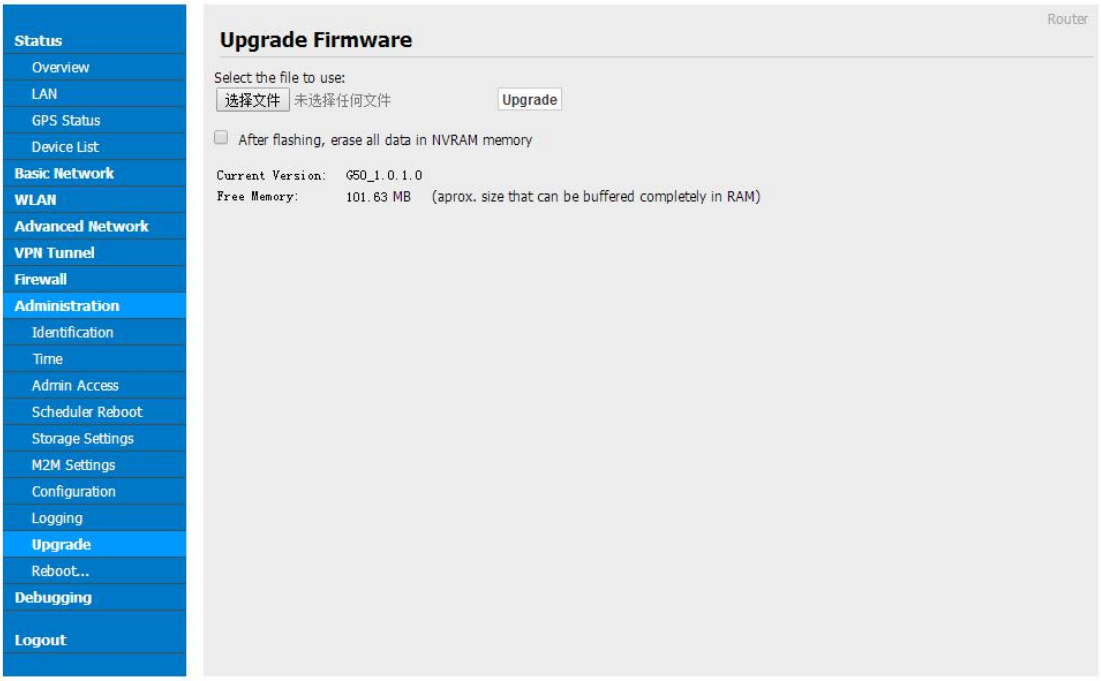


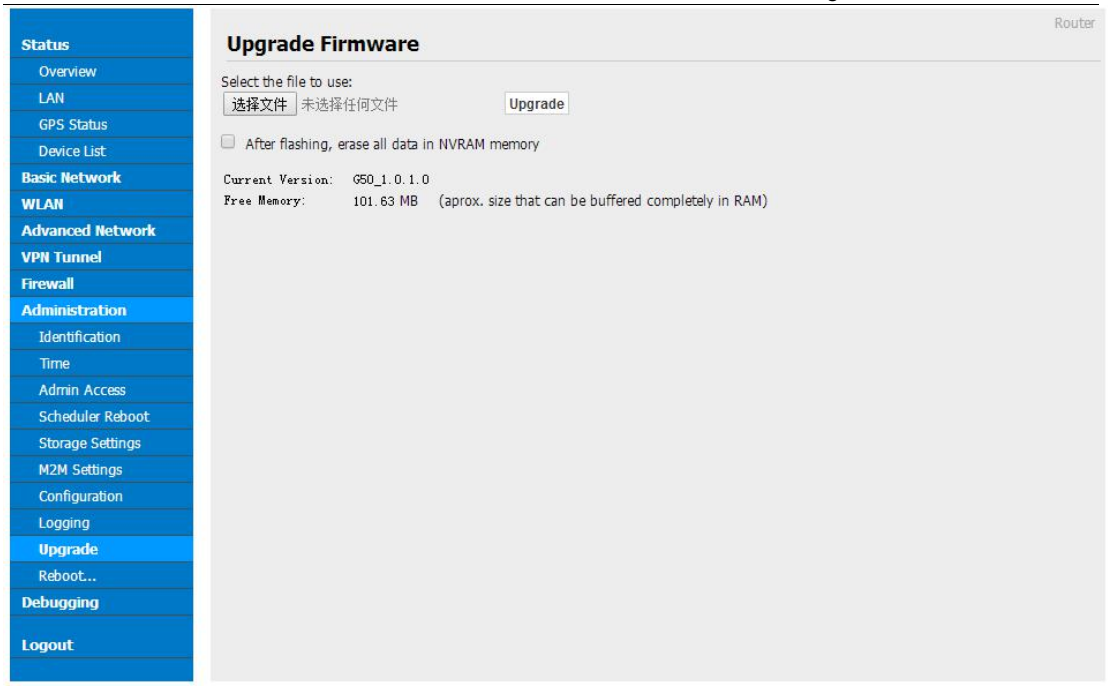
Figure 3-28 Firmware Upgrade GUI

NOTE

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

3.7.11 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

3.8 Debugging Setting

3.8.1 Logs Setting

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

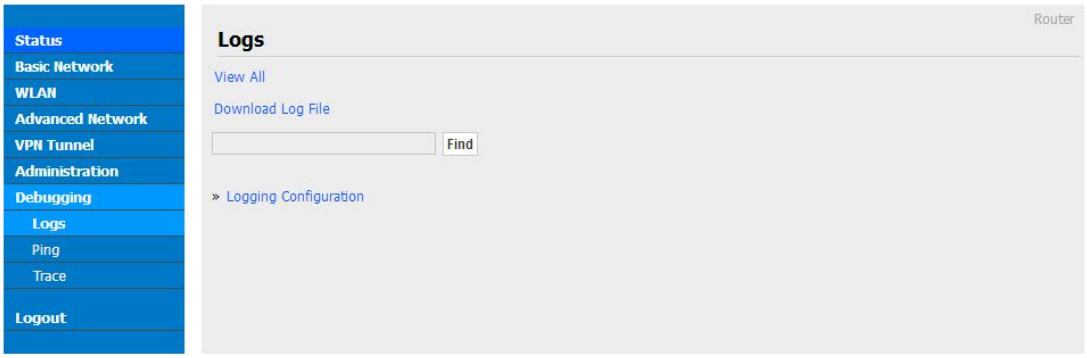


Figure 3-29 Logs GUI

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

----End

3.8.2 Ping Setting

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

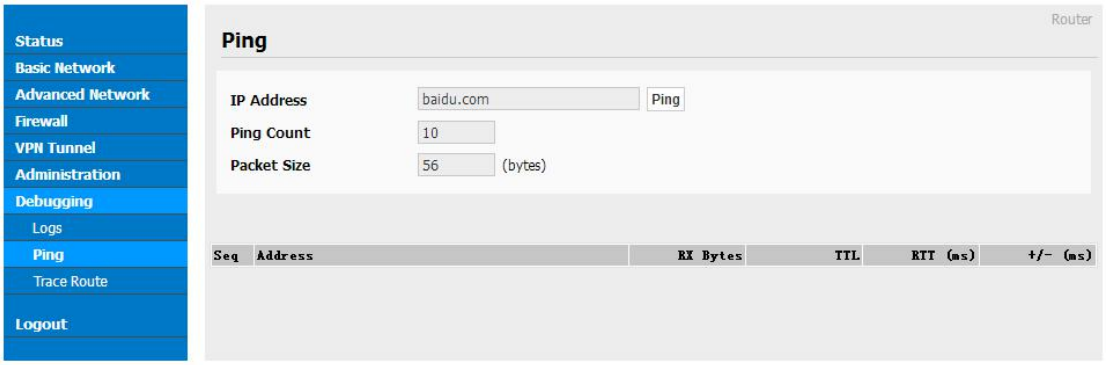


Figure 3-30 Ping GUI

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

----End

3.8.3 Trace Setting

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

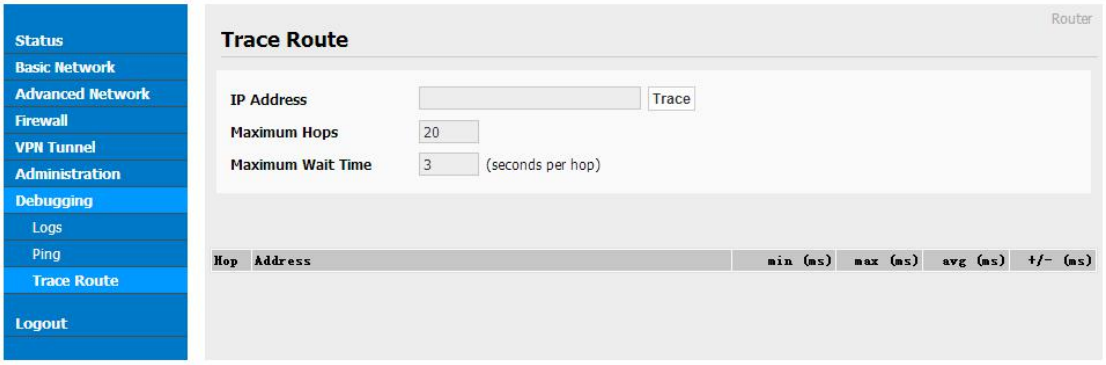


Figure 3-31 Trace GUI

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

----End

3.9 “RST” Button for Restore Factory Setting

If you couldn’t enter web interface for other reasons, you can also use this way.

For R200 Series, “RST” button is on the left or Ethernet port, for G500 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 3-25 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.

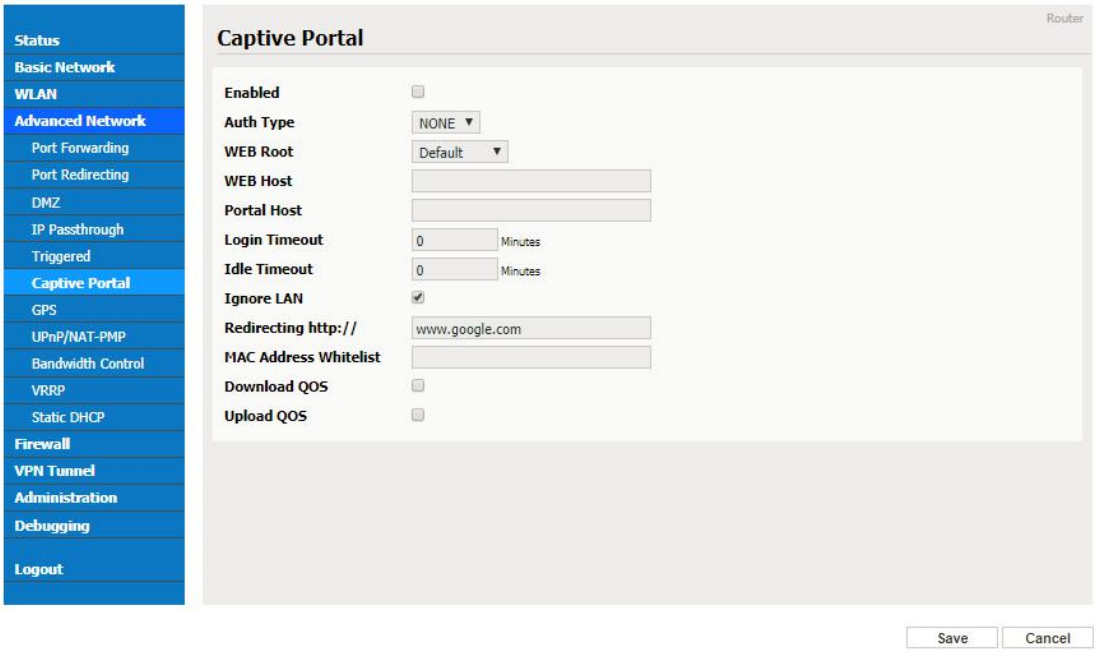
4 Configuration Instance

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

4.1 Captive Portal

This feature is suitable for Wi-Fi captive portal

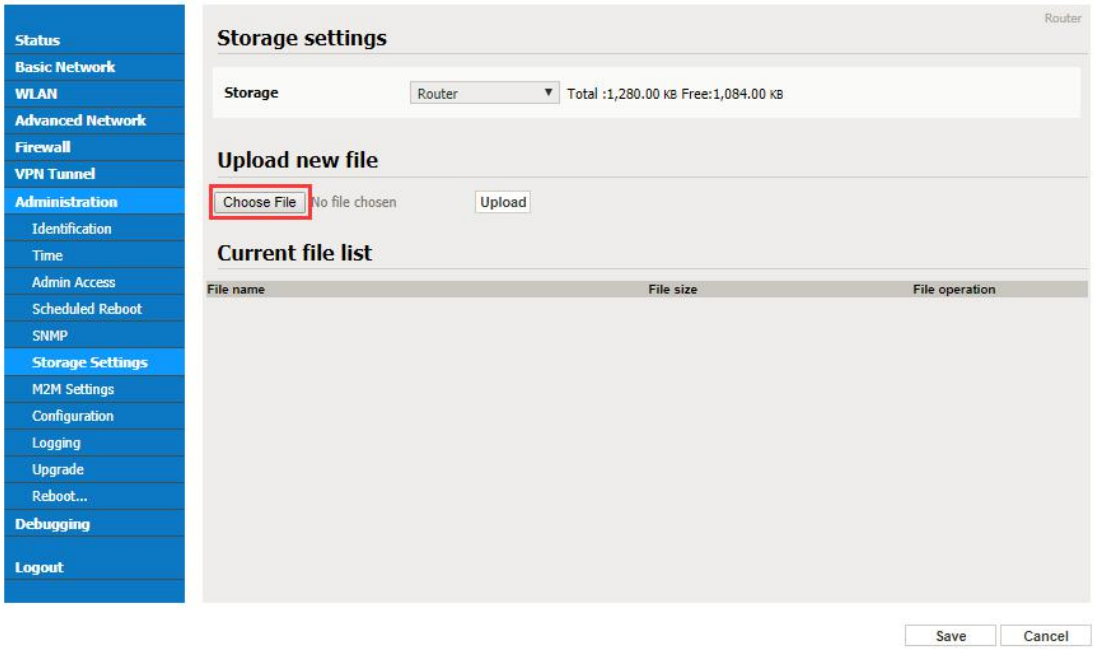
Step 1 Please click "Advanced Network> Captive Portal" to check or modify the relevant parameter.



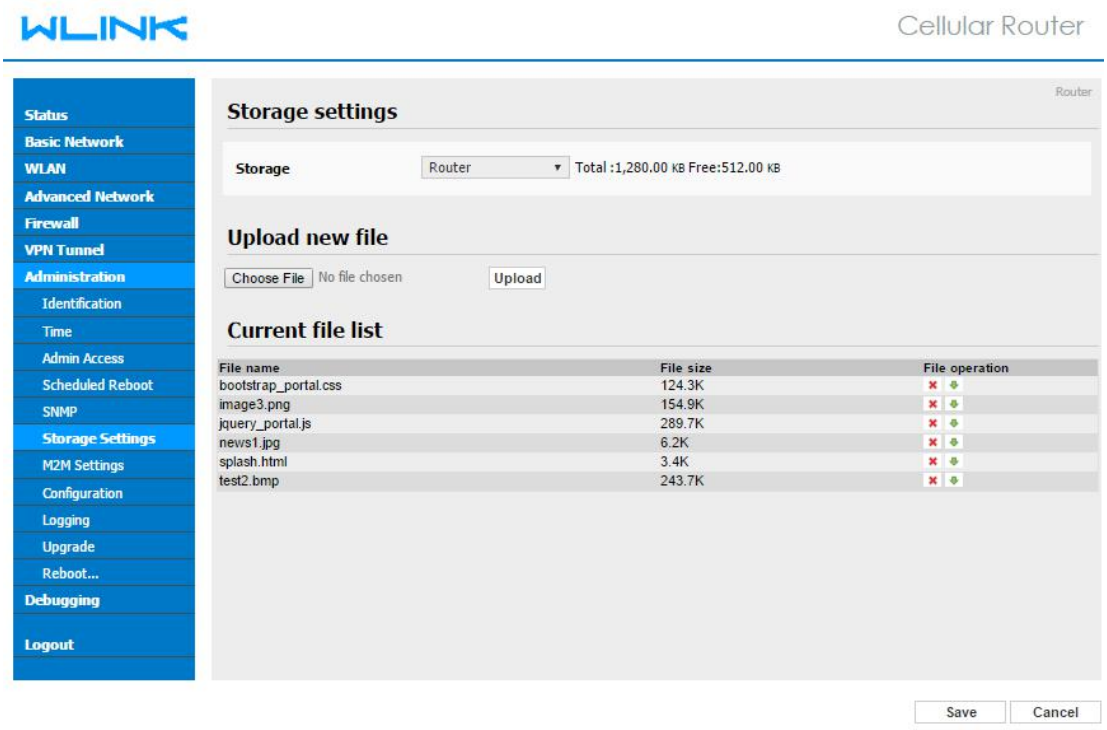
1）Upload Portal file and Splash.html by local

Upload portal images and splash.html in router for the Slider (0001_portal.png, 0002_portal.png, and 0003_portal.png) to the Router under the "Administration / Storage Settings" menu.

Furthermore, also might upload splash with images together.

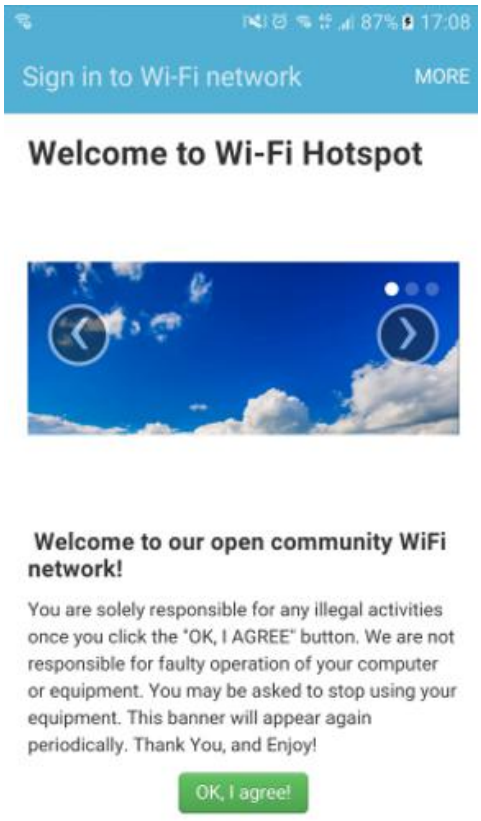


Each Ad file just supports 3 Ad portal images. Picture format is acceptable for png/jpg and image size is less than 100Kbytes and resolution is 800*600. Picture name is 0001_portal.png, 0002_portal.png and 0003_portal.png. Furthermore, please keep image names the same between portal file and splash.html.



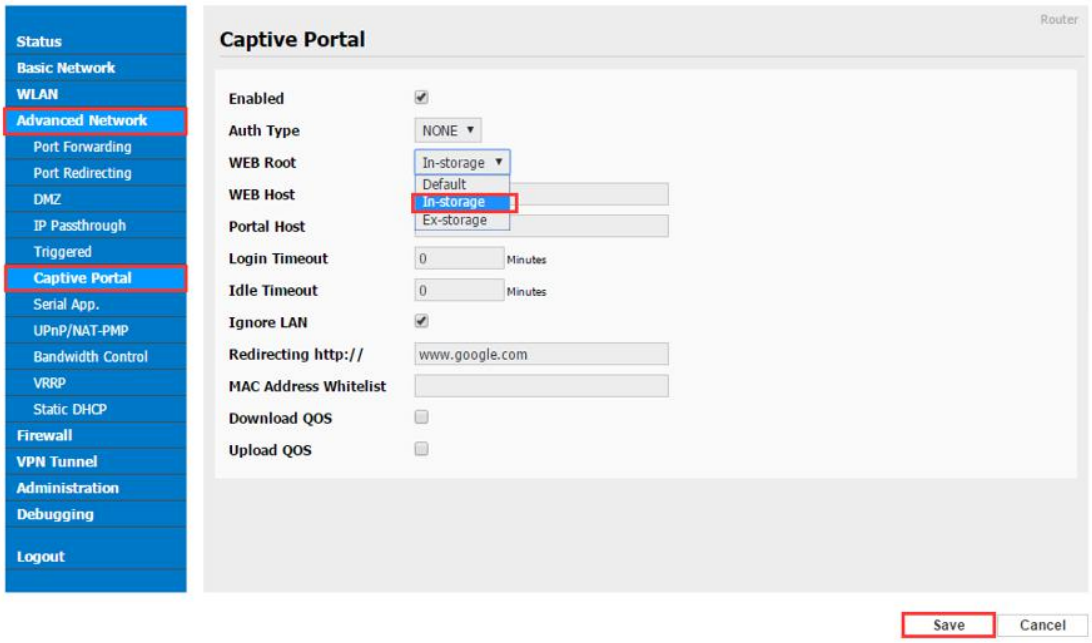
```
<!-- <hr> -->

<div id="myCarousel" class="carousel slide marketing">
    <ol class="carousel-indicators">
        <li data-target="#myCarousel" data-slide-to="0" class="active"></li>
        <li data-target="#myCarousel" data-slide-to="1"></li>
        <li data-target="#myCarousel" data-slide-to="2"></li>
    </ol>

    <div class="carousel-inner">
        <div class="item active">
            <img src="0001_portal.png" alt="">
        </div>
        <div class="item">
            <img src="0002_portal.png" alt="">
        </div>
        <div class="item">
            <img src="0003_portal.png" alt="">
        </div>
    </div>
    <a class="left carousel-control" href="#myCarousel" data-slide="prev">&lsaquo;</a>
    <a class="right carousel-control" href="#myCarousel" data-slide="next">&rsaquo;</a>
</div>

<!-- <hr> -->
```

Finally, we can see the results by connect to router WIFI



2）Modify portal file storage path

Modify portal file storage for In-storage as below.



4.2 GPS Settings

The feature is requested hardware supports GPS feature.

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

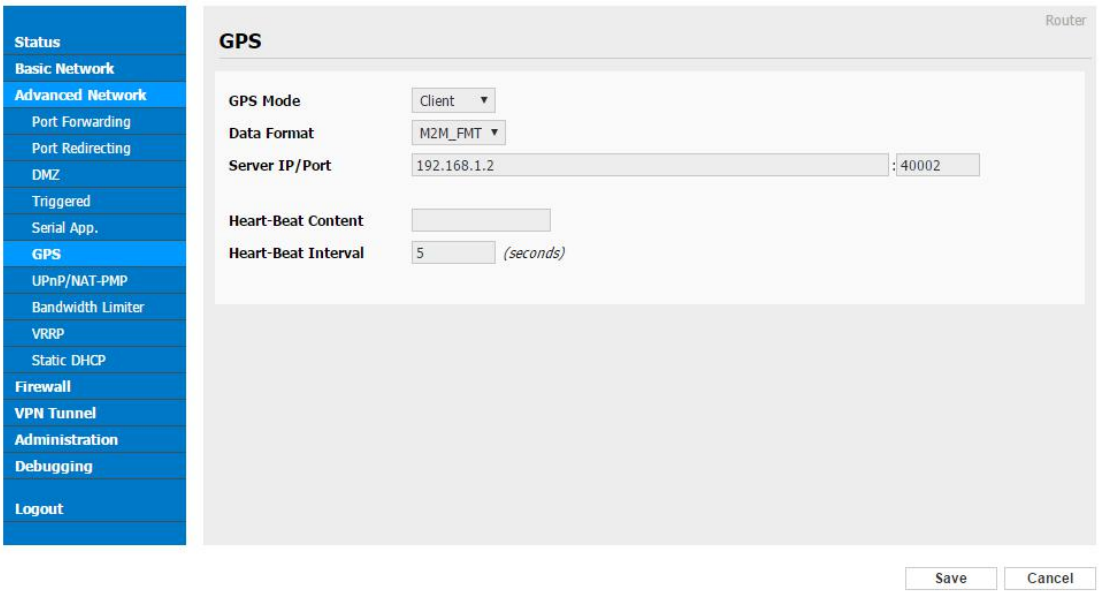


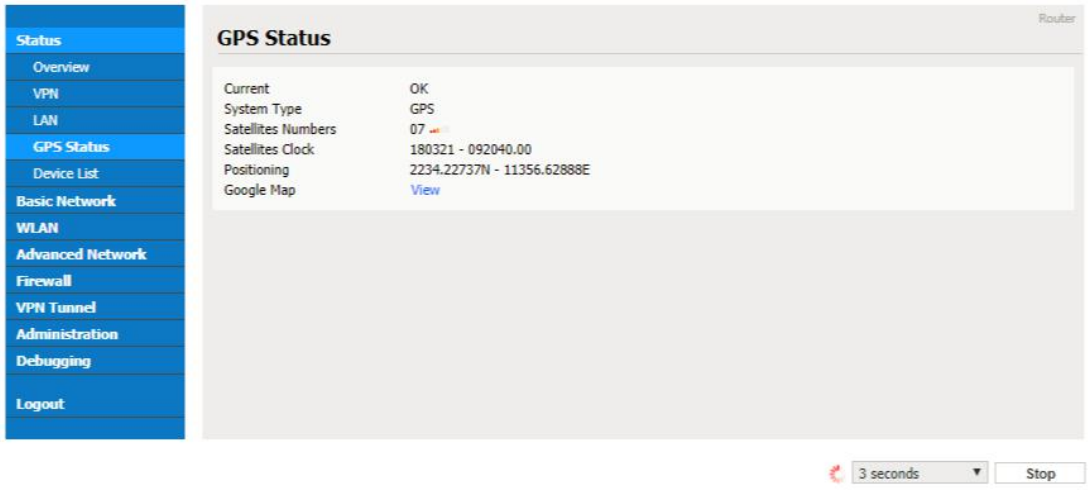
Table 4-2 “GPS” Instruction

parameter	Instruction
GPS Mode	Enable/Disable
GPS Format	NMEA and M2M_FMT(WLINK)

parameter	Instruction
Server IP/Port	GPS server IP and port
Heart-Beat	If choose M2M_FMT format, heart-beat ID will be packed into GPS data.
Interval	GPS data transmit as the interval time.

Step 2 Please click “save” to finis

Step 3 Connect the GPS antenna to router GPS interface



NOTE

M2M_FMT Format as below.

1. GPS data structure.

Router ID, gps_date, gps_time, gps_use, gps_latitude, gps_NS, gps_longitude, gps_EW, gps_speed, gps_degrees, gps_FS, gps_HDOP, gps_MSL

2. Example

0001_R081850ac,150904,043215.0,06,2234.248130,N,11356.626179,E,0.0,91.5,1,1.2,97.5

3. GPS data description

Field No.	Name	Format	Example	Description
1	Router ID	String	0001_R081850ac	0001 customizable product ID. _R router indicator. 081850ac Last 8digits of routers MAC address.

2	gps_date	yymmdd	150904	Date in year,month,day
3	gps_time	hhmmss.sss	043215.0	UTC Time, Time of position fix.
4	gps_use	numeric	06	Satellites Used, Range 0 to 12.
5	gps_latitude	ddmm.mmmm	2234.248130	Latitude, Degrees + minutes.
6	gps_NS	character	N	N/S Indicator,N=north or S=south.
7	gps_longitude	ddmm.mmmm	11356.626179	Longitude, Degrees + minutes.
8	gps_EW	character	E	E/W indicator, E=east or W=west.
9	gps_speed	numeric	0.0	Speed over ground, units is km/h.
10	gps_degrees	numeric	91.5	Course over ground, unit is degree.
11	gps_FS	digit	1	Position Fix Status Indicator,
12	gps_HDOP	numeric	1.2	HDOP, Horizontal Dilution of Precision
13	gps_MSL	numeric	97.5	MSL Altitude, units is meter.