



RF-R586 Series Industrial Grade Cellular Router

User Manual

Content

1 Preparation job before configuration.....	5
1.1 Learn your router version and feature.....	5
1.2 Prepare SIM Card and working condition.....	6
2 Hardware Installation	7
2.1 Overall Dimension.....	7
2.2 The Ports.....	7
2.3 Installment.....	9
2.4 SIM/UIM card installed.....	10
2.5 The installation of terminal blocks.....	10
2.6 Grounding.....	12
2.7 Power Supply.....	12
2.8 LED and Check Network Status.....	12
3 Software configuration	14
3.1 Overview.....	14
3.2 How to log into the Router	14
3.3 How to configure web	18
3.3.1 Main Menu as below Picture	18
3.3.2 Operation Mode.....	19
3.3.3 WAN Settings.....	20
3.3.3.1 WAN – Cellular Network.....	20
3.3.3.2 Cell ICMP Check.....	24
3.3.3.3 AP Client mode (WiFi Client).....	25
3.3.3.4 WAN – PPPoE (xDSL).....	28
3.3.3.5 WAN – STATIC (fixed IP).....	30
3.3.3.6 WAN – DHCP (Auto config)	31
3.3.4 LAN Settings.....	33
3.3.4.1 Router Gateway IP.....	34
3.3.4.2 MAC binding.....	35
3.3.4.3 DNS Proxy.....	36
3.3.5 DHCP Client.....	36
3.3.6 Configure Static Routing	36
3.3.7 VPN.....	37
3.3.7.1 IPSEC.....	37
3.3.7.2 PPTP	40
3.3.7.3 L2TP	42
3.3.7.4 Tunnel.....	42
3.3.8 DTU Settings (Serial to Cellular Gateway Feature).....	43
3.3.9 SMS/Voice Control.....	45
3.3.9.1 SMS.....	45
3.3.9.2 Voice.....	49
3.3.9.3 Alarm via SMS.....	50
3.3.10 Link Backup (Route Redundancy)	51

3.3.11 GPS	55
3.3.12 WiFi Wireless Settings	57
3.3.12.1 Basic Wireless Settings	57
3.3.12.2 WiFi Advanced Settings	59
3.3.12.3 Wireless Security/Encryption Settings	60
3.3.12.4 WDS	61
3.3.12.5 WPS	61
3.3.12.6 Station List	61
3.3.12.7 Statistics	62
3.3.13 Firewall	62
3.3.13.1 MAC/IP/Port Filter Settings	62
3.3.13.2 Port Forwarding (Virtual Server Settings)(NAT/NAPT)	63
3.3.13.3 DMZ Host	64
3.3.13.4 System Security	65
3.3.13.5 Content Filter Settings	66
3.3.14 Administration	68
3.3.14.1 Management	68
3.3.14.1.1 Router web port	70
3.3.14.1.2 Language, password and NTP settings	70
3.3.14.1.3 DDNS settings	71
3.3.14.2 Upload Firmware (Upgrade Firmware)	72
3.3.14.3 Settings Management	72
3.3.14.4 System Command	73
3.3.14.5 System Log	73
3.3.14.6 Statistics	74
3.3.14.7 Reboot	76
3.3.14.8 Status	77
3.3.15 SNMP (For version with SNMP only)	80
4 FAQ	83
4.1 Open Device Error	83
4.2 Read Error	83
4.3 Signal Strength has right number, but cannot dialup	83
4.4 Signal Strength shows 99	83
4.5 The router cannot be remote web visited	84
4.6 Signal shows 99 but still can connect to internet and get WAN IP	84
4.7 Router shows sim card and network info, but cannot connect to internet	84
4.8 DDNS not working	84
4.9 Cannot Connect Router via RJ45 LAN	84
4.10 Cannot Connect RF-R586 WiFi	85
4.11 Can Connect RF-R586 WiFi via Manual IP but cannot via DHCP	85
4.12 Cannot get Cell WAN IP	86
4.13 Can not power on	87
4.14 Sys log shows "connect script failed"	87
4.15 RF-R586 Router is online, but cannot visit website.	87

4.16 Port forwarding not working.....	88
4.17 Serial DTU point-to-point solution not working	88
4.18 Can't open device /dev/ttyUSBx.	88
4.19 PPTP is on, but cannot be through to PPTP Server.....	89
5 Test Samples.....	91
5.1 Two RF-R586 make WiFi hotspot and WiFi client.....	91
5.2 GPS feature (For version with GPS feature only)	96
5.3 Port Forwarding (NAT, NAPT) test.....	99
5.4 Remote Web Login.....	105
5.5 WAN RJ45 Static (fixed IP) and Cellular Fail Over backup redundancy.....	108
5.6 WAN RJ45 DHCP and Cellular Fail Over backup redundancy	112
5.7 WAN RJ45 PPPoE and Cellular Fail Over backup redundancy.....	114
5.8 SMS Reboot/Cell UP/Cell Down control.....	118
5.9 PPTP client connection	121
6 OBTAINING DOCUMENTS.....	123

Chapter 1

1 Preparation job before configuration

1.1 Learn your router version and feature

1) RF-R586 series contains different version and option feature. Please learn it before using it.

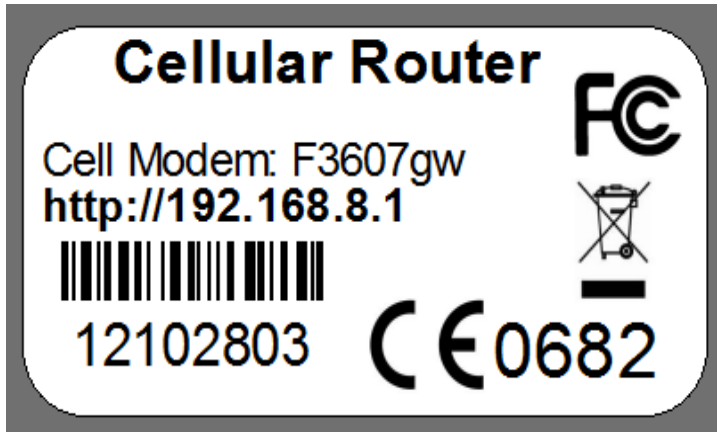
Notes: please be informed the following features are option. Please indicate with your orders.

- 1) cellular diversity receiving
- 2) WiFi Feature
- 3) GPS feature
- 4) Serial to cellular feature, RS232 or RS485 can choose one
- 5) Voice/SMS control
- 6) DC7V~50V
- 7) BGP, OSPF.

2) Find the modem type info at the back cover of the router. This will be used while do configuration.

For example: the following label indicates the version, type and inside module modem.

The module modem name is "EM820w", remember this and will select this module name while do configuration.



1.2 Prepare SIM Card and working condition

- 1) For GSM/GPRS/EDGE/HSDPA/HSUPA/HSPA/HSPA+/4G LTE networks or TD-SCDMA networks, please get a SIM card with data business.
- 2) For CDMA2000 EVDO/CDMA1x networks, please get a UIM card with data business or inform us before order if the network uses non-ruim (nam-flashing).
- 3) Make sure the sim card or uim card is with enough data business and balance.
- 4) Make sure the signal is good enough where you test or install the router. Weak signal will make the router no work. If you find your signal strength is not good, please contact us for high gain antenna.

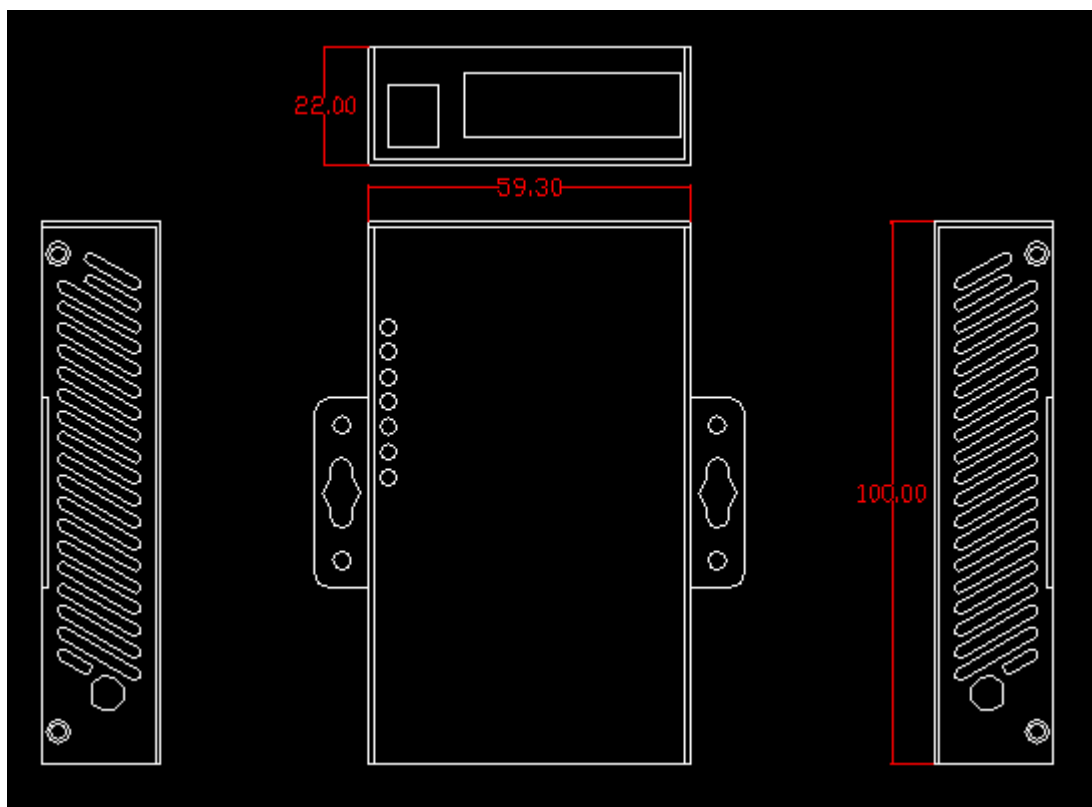
Chapter 2

2 Hardware Installation

This chapter mainly describes the appearance, model and function of RF-R586 series and how to install and set the configurations.

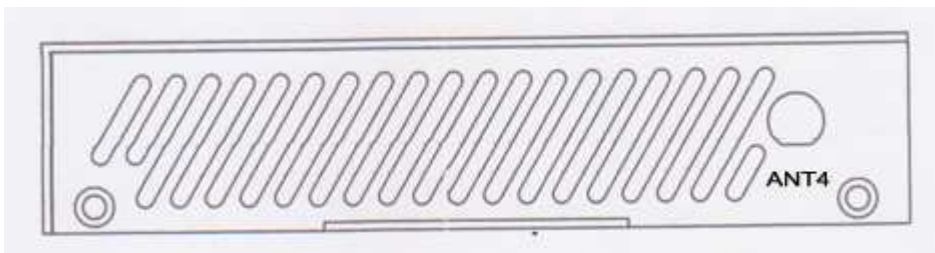
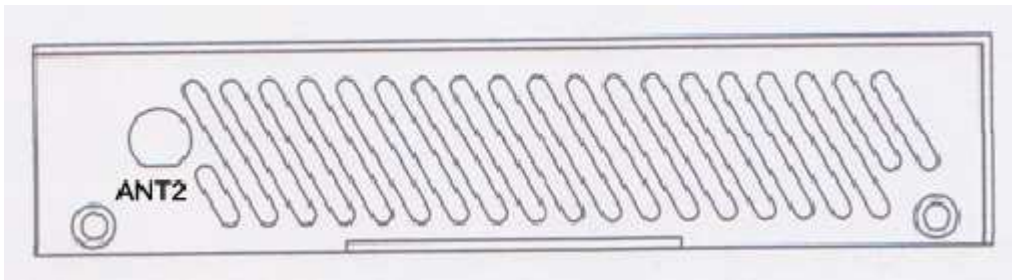
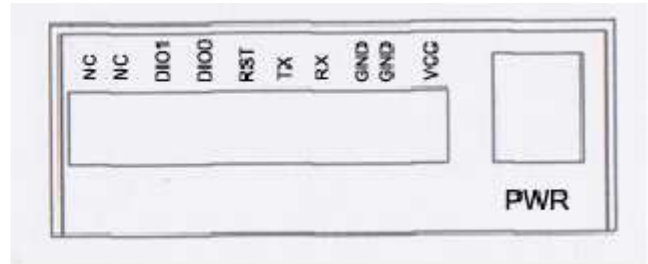
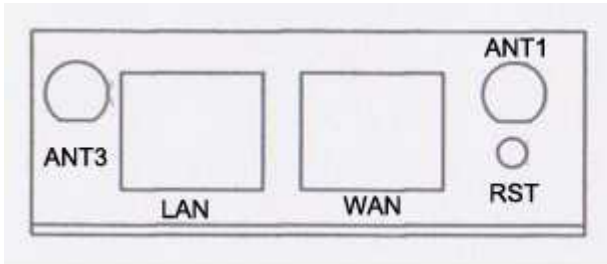
1. *Overall Dimension*
2. *Accessories Description*
3. *Installment*

2.1 Overall Dimension



2.2 The Ports

Picture:



LAN: LAN RJ45 Ethernet ports.

WAN: WAN RJ45 Ethernet ports.

RST: sys reset button

PWR: DC power socket. DC5~40V, DC5~50V option depends on the router version.

VCC: DC wire positive pole. DC5~40V, DC5~50V option depends on the router version

GND: DC wire ground

GND: Serial ground

RX: serial receiving

TX: serial transmission

RST: reset router

DIO0: digit I/O port 0

IDO1: digit I/O port 1

NC: not connection

Antenna Connection Table (please refer the corresponding table to connect the antennas with your Router version)

Feature	ANT1	ANT2	ANT3	ANT4
Main Cellular	●			

Feature	ANT1	ANT2	ANT3	ANT4
---------	------	------	------	------

Main Cellular	●			
Cellular Diversity Receiving			●	

Feature	ANT1	ANT2	ANT3	ANT4
Main Cellular	●			
WiFi			●	

Feature	ANT1	ANT2	ANT3	ANT4
Main Cellular	●			
GPS			●	

Feature	ANT1	ANT2	ANT3	ANT4
Main Cellular	●			
WiFi			●	
GPS		●		

Feature	ANT1	ANT2	ANT3	ANT4
Main Cellular	●			
Cellular Diversity Receiving		●		
WiFi			●	

Feature	ANT1	ANT2	ANT3	ANT4
Main Cellular	●			
Cellular Diversity Receiving		●		
GPS			●	

Feature	ANT1	ANT2	ANT3	ANT4
Main Cellular	●			
Cellular Diversity Receiving		●		
WiFi			●	
GPS				●

Notes: ● means connect related antenna.

2.3 Installment

RF-R586 series should be installed and configured properly before putting in service. The installation and configuration should be done or supervise by qualified engineer.

Attention:

Do not install RF-R586 series or connect/disconnect its cable when it is power on.

2.4 SIM/UIM card installed

If your router has SIM/UIM card protector, please remove it, insert the sim card correctly, and fix the protector.

If your router has no SIM/UIM card protector, please insert the sim card correctly.

Attention: *SIM/UIM card does not reach the designated position, the equipment can not find a card, can't work normally, therefore inserted a try to check again for a SIM card is stuck fast.*

2.5 The installation of terminal blocks

This chapter is for version with terminal blocks only. Default, the RF-R586 is with DB9 connector. Please use DB9 cable to connect RF-R586 and the equipment directly.

The following is for version with terminal blocks only:

RF-R586 uses pluggable terminals to connect the user's data and the power supply. Spacing: 3.81mm, 10 Pin; User data and power supply suggestion: 14~24AWG. Please refer to the table 2-4 for the interface definition of the power cable and connection sequence. Specific interface definition of the power cable and connection sequence you can read on the labels of RF-R586 products. Using 14~24AWG cable and referring to RF-R586 products labels or the bellowed interface definition and connection sequence, you need to use the oblate screw driver to fix the cable to the connecting jacks of the pluggable terminal. After successfully connection, you need to insert the terminal into the corresponding position in the bottom of the RF-R586 products.

Notes: Connection sequence should be accurate. Cable's insulating striping length is about 7mm. (For safety, insulating striping length should be too long). Please refer to the



picture.

Attention:

1. The power cable should be connected correctly. We "suggestion double check before switch it on .Wrong connections may destroy the equipment.
2. Power terminals: Pin 1 and Pin 2;
3. Here: Pin 2 is "GND", PIN 1 is power input "Vin"(DC5~40V, or DV5~50V).

PIN	Signal	Description	Note
1	VCC	+7-30V DC Input	Current: 12V/1A
2	GND	Ground	
3	TX	Transmit Data	
4	RX	Receive Data	
5	PGND	Ground	
6	RST	Reset	Reset Pin has the same function with reset button. In the usage, it needs to be short connected to the GND. After giving the device a 1 sec low level, it will reboot.3 seconds, the device will restore factory settings
7	DIO0	General Purpose I/O	
8	DIO1	General Purpose I/O	
9	NC	Not connect	

I/O Terminal on router	DB9 Serial port (RS485 or RS232)
Port 3 (GND)	Pin 5
Port 4 (RX)	Pin 3
Port 5 (TX)	Pin 2

Notes: If not through, can switch Port4 and port5.

2.6 Grounding

To ensure a safe, stable and reliable RF-R586 series operation, Router cabinet should be grounded properly.

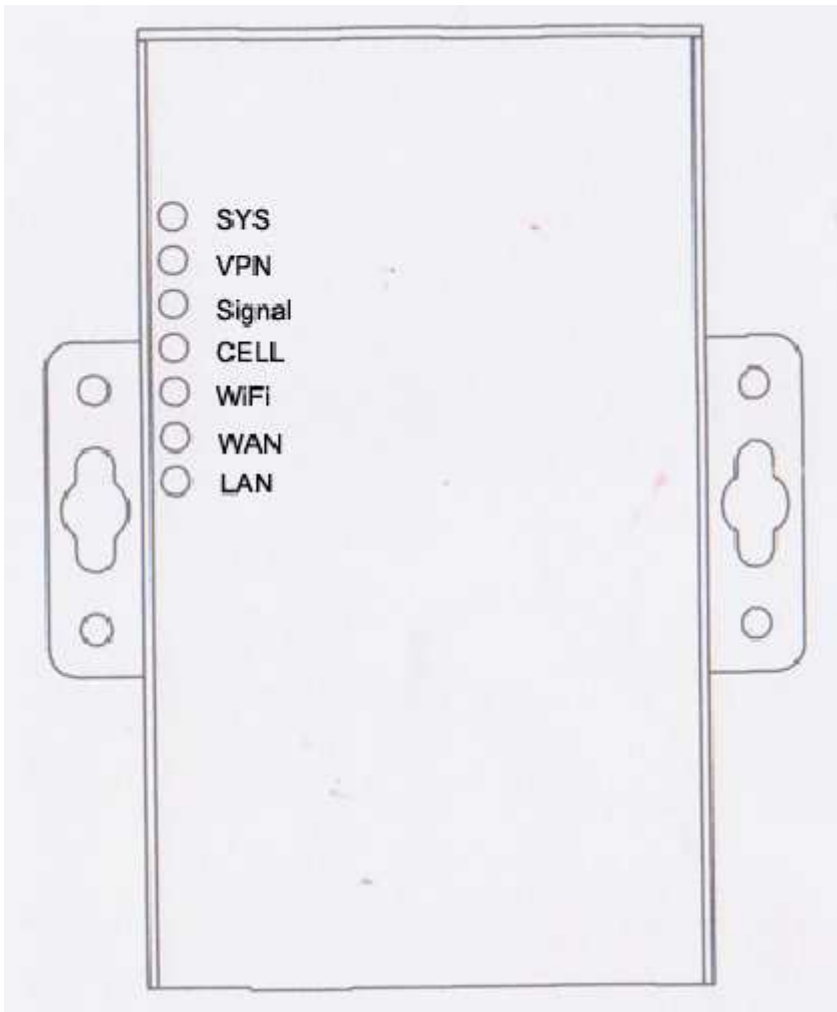
2.7 Power Supply

RF-R586 series can be applied to complicated external environment and usually the power range is very large. So in order to fit the complicated application environment and improve the stability of the system, RF-R586 series is designed with advanced power management technology. The DC power supply electronic to the device via the pluggable terminal PIN 2(GND) and PIN 1(Vin). Please refer to the above table for the detail definition of the terminal.

Normally, RF-R586 series input powers supply is +5~+40V (if your RF-R586 support 50V, the option is +5~+50V). In most cases, the standard configuration is 12V/1A.

2.8 LED and Check Network Status

Please connect the antenna after you successfully connect to the cable. And then insert the valid SIM/UIM card and provide the power to the RF-R586 series via the cable. After provide the power to RF-R586, if the SYS LED starts to blink in a few seconds, that means the system start-up is normal; if the CELL LED works, that means the network is online; if the VPN light works, that means VPN tunnel has been set up. Please refer to the below table for the situation of the indication lights.



LED	Indication Light	Description
SYS	On for 25 seconds	On for 25 seconds after power supply
	blink	System set-up normally
	Off or still on after 25 seconds	System set-up failure
LAN	blink	Data transmission in Ethernet
	Off	Ethernet connection abnormal
	On	Ethernet is connected
VPN	On	VPN tunnel set-up
	Off	VPN tunnel set-up failure or unactivated
CELL	On	Access to the Internet
WIFI	On	Enable
	Off	Disable

WAN	blink	Data transmission in Ethernet
	Off	Ethernet connection abnormal
	On	Ethernet is connected
Signal	Off	No signal, or signal checking is not ready
	4s blink 1 time	Signal bar is 1
	3s blink 1 time	Signal bar is 2
	2s blink 1 time	Signal bar is 3
	1s blink 1 time	Signal bar is 4
	1s blink 2 times	Signal bar is 5

Chapter 3

3 Software configuration

1. *Overview*
2. *How to log into the Router*
3. *How to config web*

3.1 Overview

RF-R586 series routers with built-in WEB interface configuration, management and debugging tools, user should configuration the parameters first; and it could be altered the parameters flexibility and software upgrades and simple testing. User can set up and manage the parameters of the router on its interface, detail step are bellow:

3.2 How to log into the Router

3.2.1 Network Configuration of the Computer.

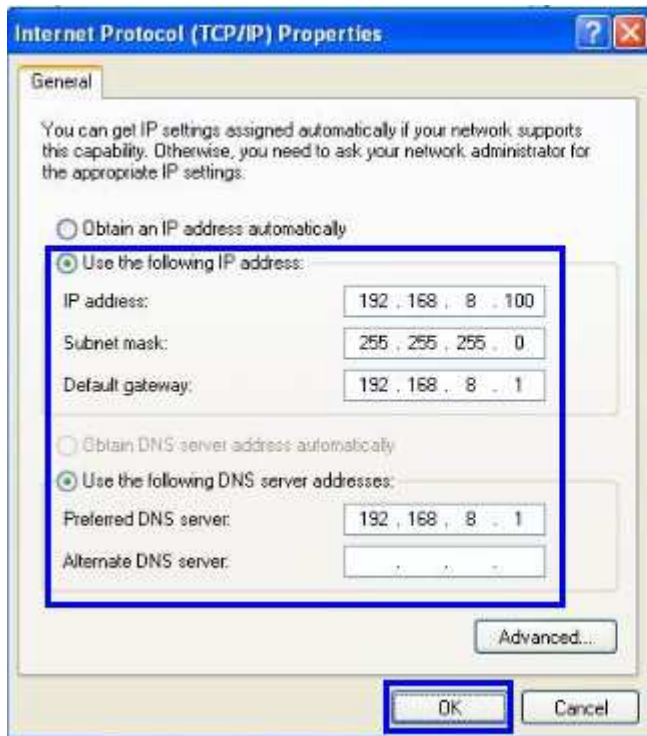
The router default parameters as follow

Default IP: 192.168.8.1, sub mask: 255.255.255.0.

There are two ways to set the PC's IP address.

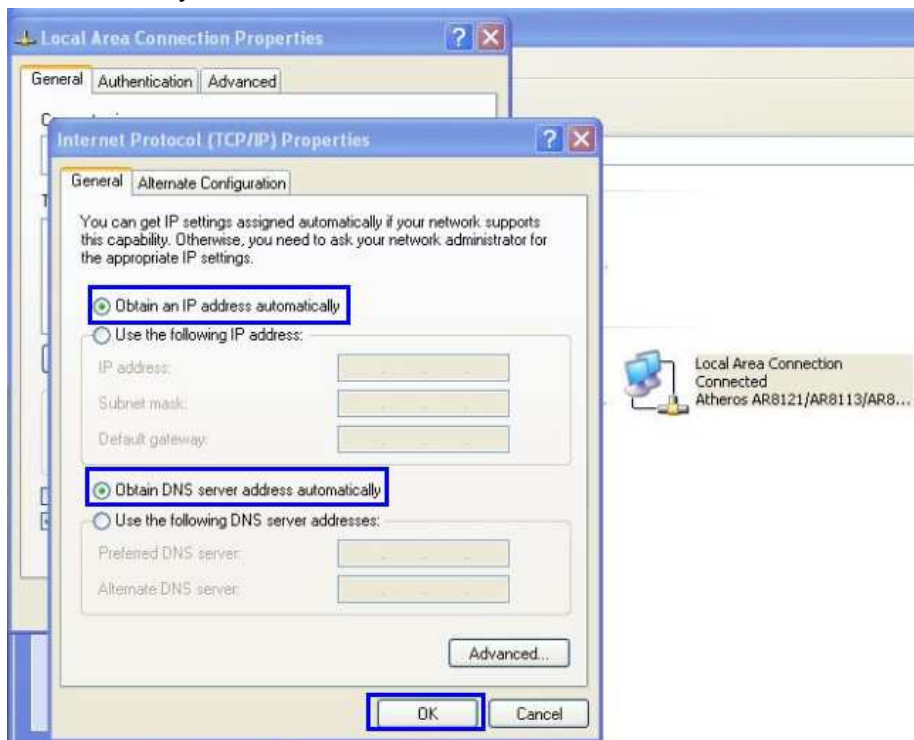
Way 1) Manual setting

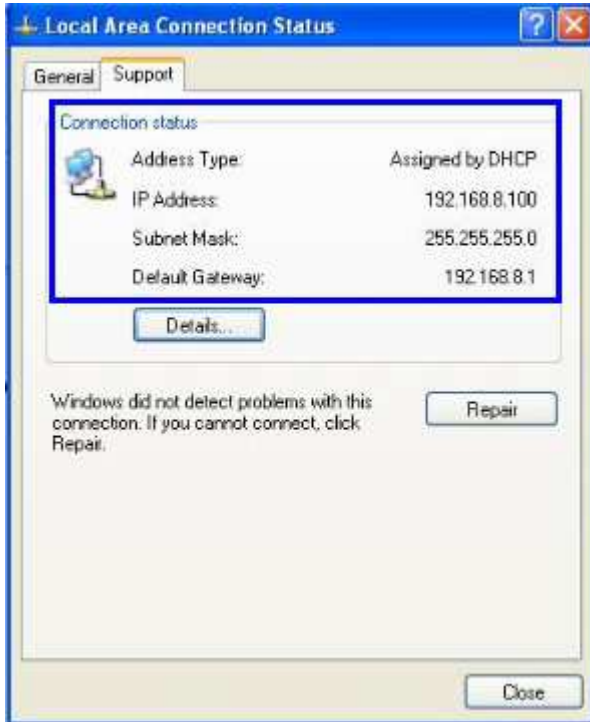
Set the PC IP as 192.168.8.xxx (xxx = 2~254), subnet mask: 255.255.255.0, default gateway: 192.168.8.1, primary DNS: 192.168.8.1.



Way 2) DHCP

Choose “Obtain an IP address automatically” and “Obtain DNS server address automatically”.





After IP setting, check it by ping. Click Windows start menu, run, execute “cmd” command. Input “ping 192.168.8.1” in the DOS window.

```
D:\Documents and Settings\ttt>ping 192.168.8.1
Pinging 192.168.8.1 with 32 bytes of data:
Reply from 192.168.8.1: bytes=32 time<1ms TTL=64
Reply from 192.168.8.1: bytes=32 time<1ms TTL=64
Reply from 192.168.8.1: bytes=32 time<1ms TTL=64
Reply from 192.168.8.1: bytes=32 time<1ms TTL=64
Ping statistics for 192.168.8.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

This information means the connection is work.

```
Pinging 192.168.8.1 with 32 bytes of data:
Destination host unreachable.
Destination host unreachable.
Destination host unreachable.
Destination host unreachable.
Ping statistics for 192.168.8.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

```
Request timed out.
Request timed out.
Request timed out.
Request timed out.
```

This information means the connection is failure. If so, please check the network cable connection and IP address setting, and can refer to *Chapter 4.9*.

3.2.2 Log into Router

- Open the Web Browser, and type <http://192.168.8.1> into the address field and

RF-R586 Series Industrial Grade Cellular Router

press Enter bottom in your computer keyboard.

- Type User Name “admin” and Password “admin” in the pop-up Login Window, and then press the “Apply” button.



- If you type into the correct User Name and Password, you will get the access into the Router’s Web Management Page.

Ethernet Port Status



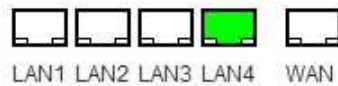
Access Point Status

System Info	
Series	RF-R586
SN	086412100296
Software Version	2.2.11 (Oct 20 2012)
Hardware Version	1.0.0
System Up Time	22 min
Operation Mode	Gateway Mode
Cell Network Info	
Cell Modem	HUAWEI-EM770_820_Series
IMEI/ESN	354283040340808
Sim Status	SIM ready
Selected Network	AUTO
Registered Network	Registered on Home network: "46001",2

3.3 How to configure web

3.3.1 Main Menu as below Picture

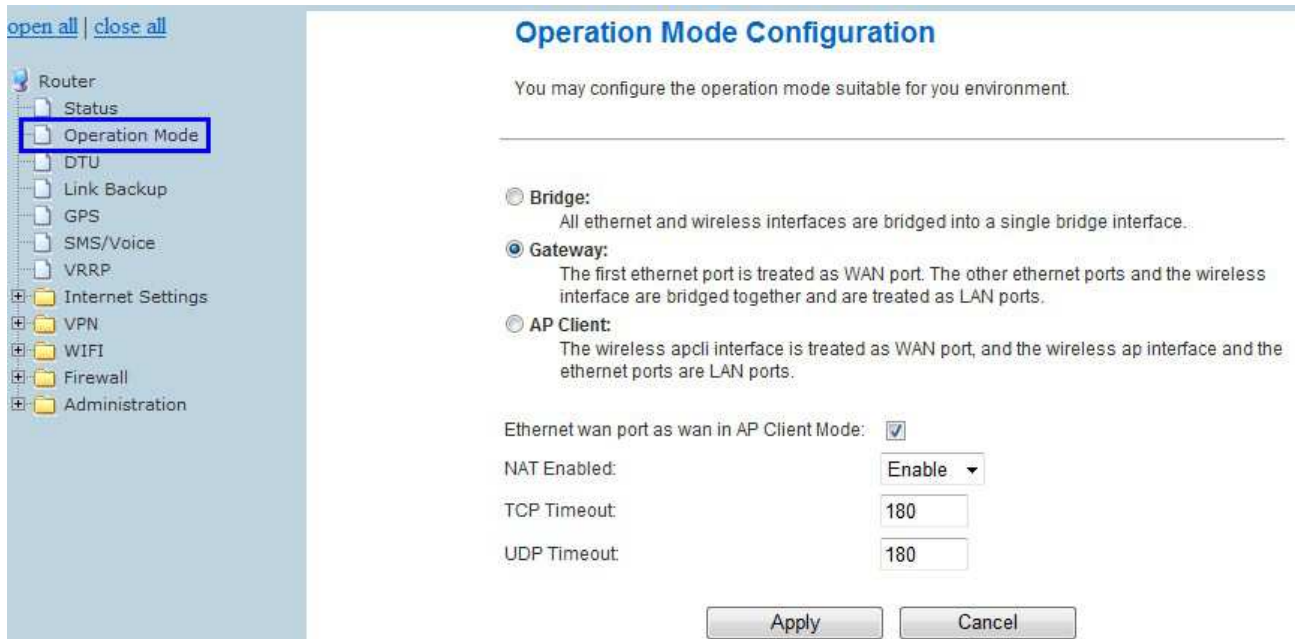
Ethernet Port Status



Access Point Status

System Info	
Series	RF-R586
SN	086412100296
Software Version	2.2.11 (Oct 20 2012)
Hardware Version	1.0.0
System Up Time	22 min
Operation Mode	Gateway Mode
Cell Network Info	
Cell Modem	HUAWEI-EM770_820_Series
IMEI/ESN	354283040340808
Sim Status	SIM ready
Selected Network	AUTO
Registered Network	Registered on Home network: "46001",2

3.3.2 Operation Mode



open all | close all

Router

- Status
- Operation Mode**
- DTU
- Link Backup
- GPS
- SMS/Voice
- VRRP
- Internet Settings
- VPN
- WIFI
- Firewall
- Administration

Operation Mode Configuration

You may configure the operation mode suitable for you environment.

Bridge:
All ethernet and wireless interfaces are bridged into a single bridge interface.

Gateway:
The first ethernet port is treated as WAN port. The other ethernet ports and the wireless interface are bridged together and are treated as LAN ports.

AP Client:
The wireless apcli interface is treated as WAN port, and the wireless ap interface and the ethernet ports are LAN ports.

Ethernet wan port as wan in AP Client Mode:

NAT Enabled:

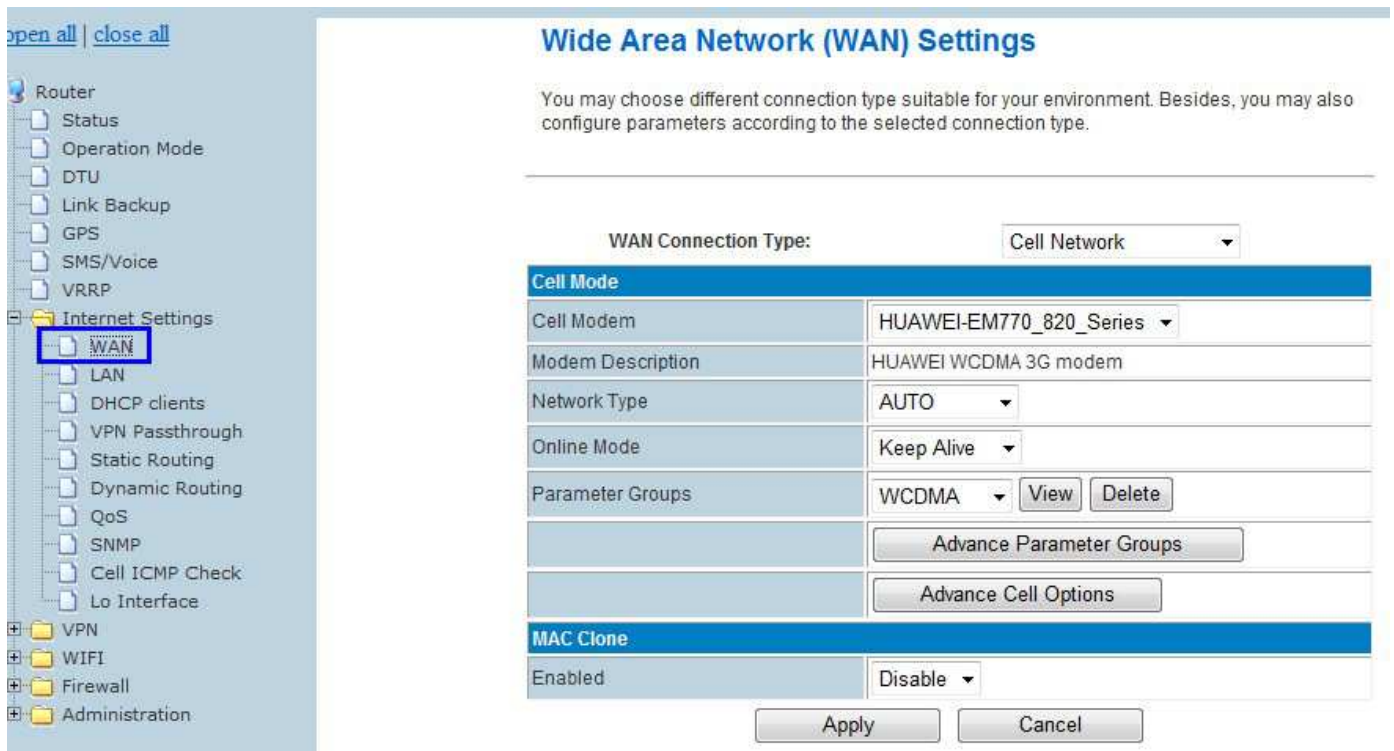
TCP Timeout:

UDP Timeout:

- **Bridge**
All Ethernet and wireless interfaces are bridged into a single bridge interface.
- **Gateway**
The first Ethernet port is treated as WAN port. The other Ethernet ports and the wireless interface are bridged together and are treated as LAN ports.
- **AP Client**
The wireless apcli interface is treated as WAN port and the wireless ap interface and the Ethernet ports are LAN ports.
- **NAT**
Network Address Translation

Normally and default we select “Gateway mode”, and keep all other parameters as default.

3.3.3 WAN Settings

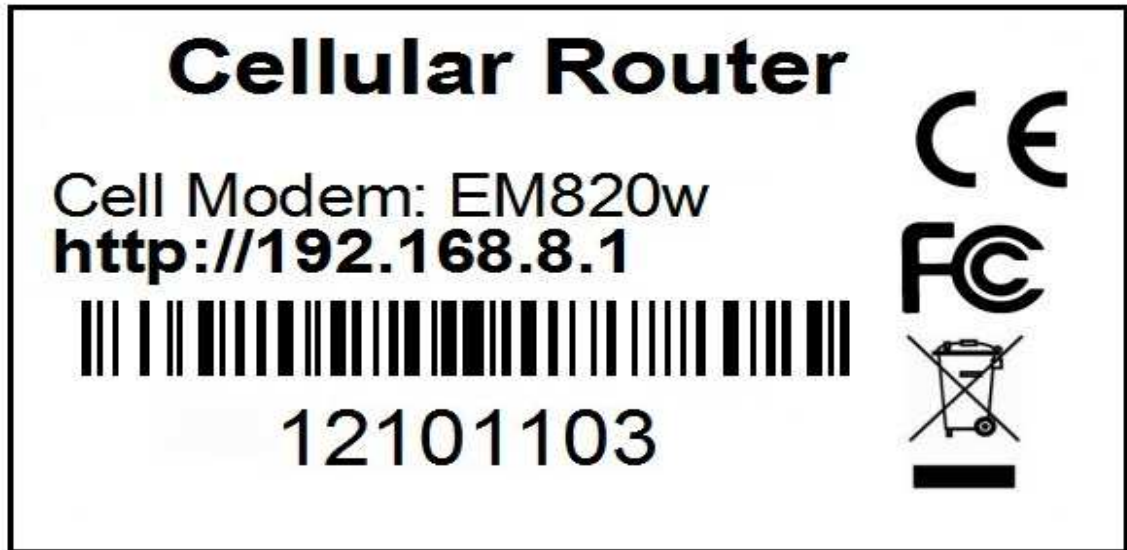


- **WAN Connection Type**
Support Static IP, DHCP, PPPoE, L2TP, PPTP, CELL Network.

3.3.3.1 WAN – Cellular Network

- **Cell Modem**
System supports different cell modem. Default, the router is with right Cell Modem name before shipment. If you replace with other different Cell Modem, must select *AUTO_DETECT* and click *Apply button* to reboot the router, the router will automatically check the Cell Modem name.

Notes: the Cell Modem Type was marked on the back of the router.
For example, it shows the following picture. RF-R586 is the router series name.
And the EM820w Cell Modem is the Cell Modem name.



➤ **Modem Description**

It will display related description after the RF-R586 router detects the Cell Modem.

➤ **Network Type**

Select the type. Different Cell Modem supports different types. Default select *AUTO*.

➤ **Online Mode**

Keep Alive: means always online. The router will keep online whatever there is data for transmission or not.

On Demand: The router will dialup when there is data for transmission.

Online Mode	On Demand ▼
	Idle Time (minutes): 5

Idle time (minutes): fill in the time. For example, fill in 5, the router will offline after 5 minutes if there is no data for transmission.

On Time: router dialup or offline with schedule. Totally supports 4 groups.

Online Mode	On Time ▼
	set NTP Server in management page before used. example: 15:50--22:30
	<input type="checkbox"/> <input type="text"/> : <input type="text"/> -- <input type="text"/> : <input type="text"/> <input type="checkbox"/> <input type="text"/> : <input type="text"/> -- <input type="text"/> : <input type="text"/> <input type="checkbox"/> <input type="text"/> : <input type="text"/> -- <input type="text"/> : <input type="text"/> <input type="checkbox"/> <input type="text"/> : <input type="text"/> -- <input type="text"/> : <input type="text"/>

➤ **MAC Clone**

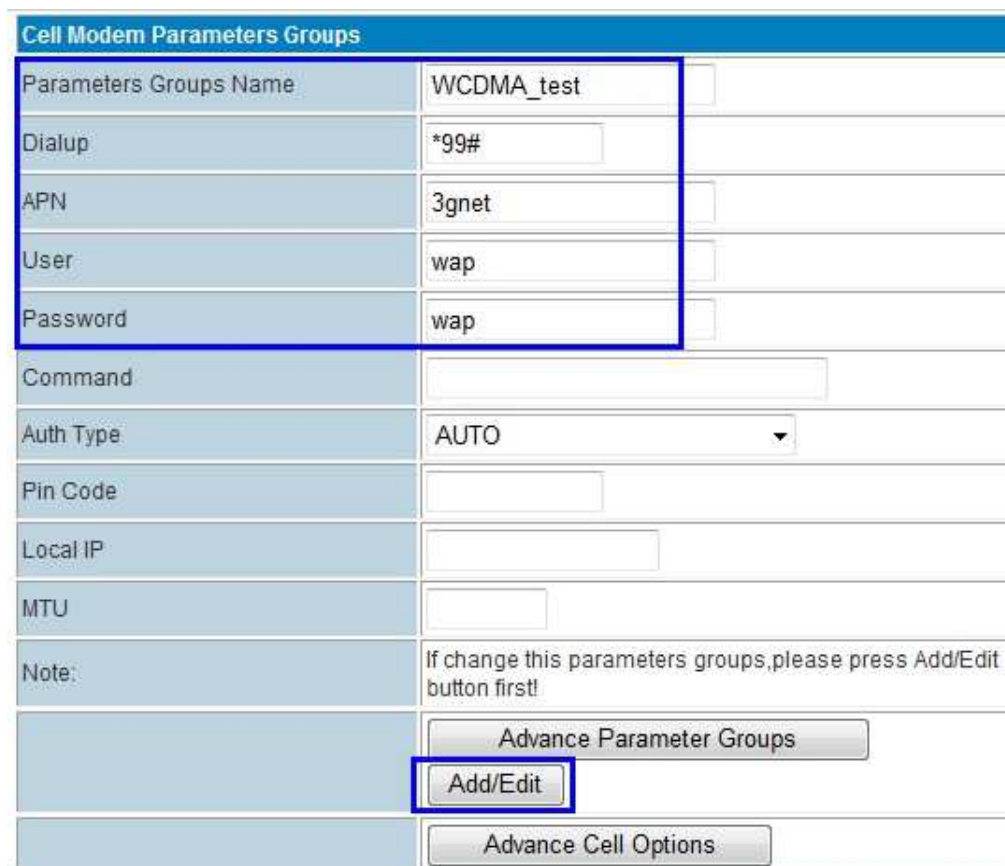
Enable and disable the MAC clone function.

➤ **Parameter Groups**

APN Group Option	Marks
AUTO	Only keep for future use. Normally do not select this
WCDMA	If your router is 4G LTE or WCDMA HSPA/HSDPA/HSUPA/HSPA+/EDGE/GPRS/GSM version, please select this one
CDMA	If your router is CDMA2000 EVDO or CDMA1x version, please select this one
TD-SCDMA	If your router is TD-SCDMA HSDPA/HSUPA version, please select this one
User-defined (only show after user defined one)	If you add one APN group with your defined parameters, please select this one

➤ **Advance Parameter Groups**

Click *Advance Parameter Groups*, *Cell Modem Parameters Groups* expand. Define one APN Group to fit your network and sim card.



Fill in the related parameters. And **DO NOT FORGET TO CLICK “Add/Edit” button.**

Parameters Groups Name: you can fill in the name freely. But keep No Space between characters.

Parameters Groups Name	WCDMA_test_E	Right name
Parameters Groups Name	WCDMA_test E	Wrong Name
Parameters Groups Name	WCDMA test E	Wrong Name

Dialup: fill in the related parameters. Get this parameter from the Sim Card Provider or Carrier;

APN: fill in the related parameters. Get this parameter from the Sim Card Provider or Carrier;

User: fill in the related parameters. Get this parameter from the Sim Card Provider or Carrier; If yours has no user name, please input out default value, otherwise the router may not dialup. Our default value for GSM/WCDMA/LTE is “wap”, and for CDMA/EVDO is “card”.

Password: fill in the related parameters. Get this parameter from the Sim Card Provider or Carrier; If yours has no user name, please input out default value, otherwise the router may not dialup. Our default value for GSM/WCDMA/LTE is “wap”, and for CDMA/EVDO is “card”.

Command: this is for command to control the module or router. Normally is for debug use.

Auth Type: Three options (AUTO, PAP, CHAP/MS-CHAP/MS-CHAP2). Please confirm your carrier provide the types of authentication. Normally select *AUTO*. If not work, try to use *PAP* or *CHAP*.

PIN code: if necessary. Most of sim card has no PIN code, and then keep it as blank.

Notes: Please press Add/Edit button to add your defined APN parameters. At *Parameter Groups*, it will automatically choose the defined *APN Parameter Groups*.

➤ **Advance Cell Options**

Notes: If you don't know advance cell parameters very well, please keep default settings. Otherwise the router may not work.

Click *Advance Parameter Groups*, *Cell Modem Parameters Groups* expand. 2nd click to contract.

Cell Options Advances Settings	
LCP	<input type="radio"/> Disable <input checked="" type="radio"/> Enable interval(sec): <input type="text" value="10"/>
PAP	<input type="radio"/> Disable <input checked="" type="radio"/> Auto
CHAP	<input type="radio"/> Disable <input checked="" type="radio"/> Auto
MS-CHAP	<input type="radio"/> Disable <input checked="" type="radio"/> Auto
MS-CHAP-V2	<input type="radio"/> Disable <input checked="" type="radio"/> Auto
Compression Control Protocol	<input checked="" type="radio"/> Disable <input type="radio"/> Require
Address/Control Compression	<input checked="" type="radio"/> Disable <input type="radio"/> Require
Protocol Field Compression	<input checked="" type="radio"/> Disable <input type="radio"/> Require
VJ TCP/IP Header Compression	<input checked="" type="radio"/> Disable <input type="radio"/> Require
Connection-ID Compression	<input checked="" type="radio"/> Disable <input type="radio"/> Require
BSD-Compress compression	<input checked="" type="radio"/> Disable <input type="radio"/> Require
Deflate compression	<input checked="" type="radio"/> Disable <input type="radio"/> Require
MPPE Encryption	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
MPPE 40bit	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
Refuse Stateless Encryption	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
More Options (~ for separate)	<input type="text"/>

LCP: ppp dialup monitor. At *interval(sec)*, fill in the time for every check. For example, if fill in 10, the router will get LCP check every 10 seconds.

Other parameters: user can disable or enable or define it.

Warmly Reminding: do not forget to click *Apply* button after setting.

3.3.3.2 Cell ICMP Check

ICMP check and Reboot Settings	
Active	<input checked="" type="checkbox"/>
Check method	<input type="text" value="www.google.com"/> <input type="button" value="Host/IP check"/>
	<input type="text" value="112.134.33.8"/> <input type="button" value="Host/IP check"/>
Check interval time (sec)	<input type="text" value="60"/> (60-86400)
Check Count	<input type="text" value="3"/> (3-1000)
Reboot Count Before Sleep	<input type="text" value="3"/> (2-50)
Sleep Time (min)	<input type="text" value="5"/> (0-43200)
Comment: It is only used for Cell Keep_Alive and On_Time mode! if you active link_backup you mask set the interval bigger the 3 min	
<input type="button" value="Apply"/>	

- **Active:** tick it to enable ICMP check feature
- **Check method:** fill in checking domain name or IP. Click *HOST/IP check* button to verify before using it.
- **Check interval time (sec):** set the interval time of every check
- **Check Count:** set the checking count number
- **Reboot Count Before Sleep:** RF-R586 Router will sleep to stop checking after failed with set times.
- **Sleep Time (min):** RF-R586 Router sleep timing before resume check.

Example with above picture:

RF-R586 Router check "www.google.com" and "112.134.33.8", it will check 3 times. After the previous check, it will do next check after 60 seconds. Totally it will check 3 times. If 3 times all failed, RF-R586 Router will reboot. If reboots 3 times continuously, RF-R586 Router goes to sleep to stop checking. The sleep time is 5 minutes. After 5 minutes, RF-R586 Router resume to cycle the checking.

3.3.3.3 AP Client mode (WiFi Client)

Set RF-R586 as an AP client, RF-R586 will connect the upper WiFi router or WiFi AP.

Step1)

RF-R586 web -- Operation Mode – Choose "AP Client", and click apply button. Wait some time until the RF-R586 make the setting works.

Operation Mode Configuration

You may configure the operation mode suitable for you environment.

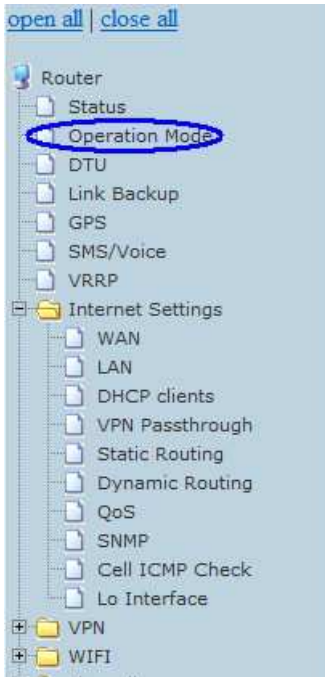
- Bridge:
All ethernet and wireless interfaces are bridged into a single bridge interface.
- Gateway:
The first ethernet port is treated as WAN port. The other ethernet ports and the wireless interface are bridged together and are treated as LAN ports.
- AP Client:
The wireless apcli interface is treated as WAN port, and the wireless ap interface and the ethernet ports are LAN ports.

Ethernet wan port as wan in AP Client Mode:

NAT Enabled:

TCP Timeout:

UDP Timeout:



The router will switch to AP Client mode.

Step2)

WiFi – AP Client

Here fill in the parameters.

SSID: input the WiFi router's SSID

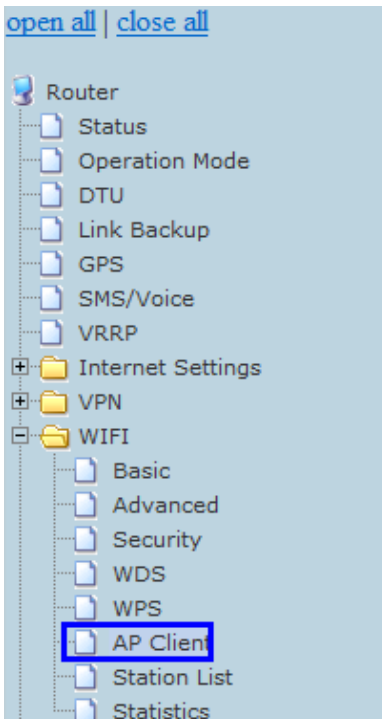
Security Mode: choose correct one to match the WiFi router/AP you want to connect.

Encryption Type: choose correct one to match the WiFi router/AP you want to connect.

AP Client Feature

You could configure AP Client parameters here.

AP Client Parameters	
SSID	<input type="text" value="RFoG"/>
MAC Address (Optional)	<input type="text"/>
Security Mode	<input type="text" value="WPA2PSK"/>
Encryption Type	<input type="text" value="AES"/>
Pass Phrase	<input type="password" value="••••••••••"/>



Step3)

WIFI -- Basic



Here please select the right channel the same with the upper WiFi Router/AP you want to connect.

Basic Settings

This is from the upper WiFi Router/AP

Wireless Network Mode: B/G/N-Mixed ▼

Wireless Channel: 9 - 2.452GHz ▼

Multiple BSSID: Enabled Disabled

SSID	SSID Name	SSID Broadcast
SSID1	RFoG	Enabled ▼
SSID2	RFoG2	Disabled ▼
SSID3		Enabled ▼
SSID4		Enabled ▼

Then choose the same Channel in RF-R586 router as follows,

Broadcast Network Name (SSID)	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
AP Isolation	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
MBSSID AP Isolation	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
BSSID	08:66:01:00:07:C2
Frequency (Channel)	2452MHz (Channel 9) ▼

Step4)

Internet Settings – WAN

Wide Area Network (WAN) Settings

You may choose different connection type suitable for your environment. Besides, you may also configure parameters according to the selected connection type.

WAN Connection Type: DHCP (Auto config) ▼

DHCP Mode	
Hostname (optional)	<input type="text"/>
MAC Clone	
Enabled	Disable ▼

Apply Cancel

At “WAN Connection Type”, choose “DHCP (Auto Config)”, and click “Apply” button. The RF-R586 router will automatically connect the WiFi Router and get local IP from the wifi router. You can check at status info page.

3.3.3.4 WAN – PPPoE (xDSL)

Set RF-R586 WAN via PPPoE, RF-R586 will connect the upper PPPoE modem.

Step 1)

Connect RJ45 cable between PPPoE modem to RF-R586 WAN RJ45 port. Once it's connected, the RF-R586 Web *Ethernet Port Status* will display.

Ethernet Port Status



Notes: you may not see the WAN RJ45 connection status. But it will flash to fresh the status every 30 seconds. Or you can manually flash to fresh.

Step 2)

RF-R586 web – Operation Mode, choose “Gateway” mode

- Bridge:
All ethernet and wireless interfaces are bridged into a single bridge interface.
- Gateway:
The first ethernet port is treated as WAN port. The other ethernet ports and the wireless interface are bridged together and are treated as LAN ports.
- AP Client:
The wireless apcli interface is treated as WAN port, and the wireless ap interface and the ethernet ports are LAN ports.

Step 3)

RF-R586 web – Internet Settings – WAN – WAN Connection Type, choose “PPPoE (ADSL)”

WAN Connection Type: PPPoE (ADSL) ▼

PPPoE Mode	
User Name	<input style="width: 90%;" type="text" value="280014387653"/>
Password	<input style="width: 90%;" type="password" value="••••••••"/>
Verify Password	<input style="width: 90%;" type="password" value="••••••••"/>
Operation Mode	Keep Alive ▼
	Keep Alive Mode: Redial Period <input style="width: 40px;" type="text" value="60"/> seconds
	On demand Mode: Idle Time <input style="width: 40px;" type="text" value="5"/> minutes
MAC Clone	
Enabled	Disable ▼

- **WAN Connection Type:** choose “PPPoE (ADSL)”
- **User Name:** fill in the PPPoE username
- **Password:** fill in the PPPoE password
- **Operation Mode:**
 - Keep Alive: PPPoE will keep online whatever if there is data transmission.
Fill in the Redial Period time.
 - On Demand: PPPoE dialup with data transmission demand.
Set the Idle Time. PPPoE will be offline if the set idle time has no data transmission.
 - Manual: need manually dialup.

Click “Apply” button.

Step 4)

RF-R586 web – Status, it display the WAN IP once the PPPoE is online.

Internet Configurations	
Connected Type	PPPOE
WAN IP Address	119.59.141.4
Subnet Mask	255.255.255.255
Default Gateway	119.59.141.1
Primary Domain Name Server	211.162.78.1
Secondary Domain Name Server	211.162.78.3
MAC Address	08:66:01:00:04:A0

3.3.3.5 WAN – STATIC (fixed IP)

Set RF-R586 WAN via STATIC fixed IP, RF-R586 will connect the upper router via STATIC fixed IP.

Step 1)

Connect RJ45 cable between Upper Router LAN RJ45 to RF-R586 WAN RJ45 port. Once it's connected, the RF-R586 Web *Ethernet Port Status* will display.

Ethernet Port Status



Notes: you may not see the WAN RJ45 connection status. But it will flash to fresh the status every 30 seconds. Or you can manually flash to fresh.

Step 2)

RF-R586 web – Operation Mode, choose “Gateway” mode

- Bridge:
All ethernet and wireless interfaces are bridged into a single bridge interface.
- Gateway:
The first ethernet port is treated as WAN port. The other ethernet ports and the wireless interface are bridged together and are treated as LAN ports.
- AP Client:
The wireless apcli interface is treated as WAN port, and the wireless ap interface and the ethernet ports are LAN ports.

Step 3)

RF-R586 web – Internet Settings – WAN – WAN Connection Type, choose “STATIC (fixed IP)”

WAN Connection Type: STATIC (fixed IP) ▾

Static Mode	
IP Address	192.168.1.128
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
Primary DNS Server	192.168.1.1
Secondary DNS Server	8.8.8.8
MAC Clone	
Enabled	Disable ▾

- **WAN Connection Type:** choose “STATIC (fixed IP)”
 - **IP Address:** fill in one IP Address. This IP Address should be same range of the Upper Router. For example, the Upper Router LAN IP is 192.168.1.1 and Subnet Mask is 255.255.255.0, you can fill in the parameters as above.
 - **Subnet Mask:** fill in the Subnet Mask from the Upper Router.
 - **Default Gateway:** fill in the Upper Router’s Gateway IP.
 - **Primary DNS Server:** If your Upper Router supports DNS proxy, fill in the Upper Router’s LAN IP as Primary DNS Server. Or you can fill in the correct DNS Server IP.
 - **Secondary DNS Server:** Fill in a working secondary DNS Server IP.
- Click “Apply” button.

Step 4)

RF-R586 web – Status, it display the WAN IP once the STATIC (fixed IP) is online.

Internet Configurations	
Connected Type	STATIC
WAN IP Address	192.168.1.128
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
Primary Domain Name Server	192.168.1.1
Secondary Domain Name Server	8.8.8.8
MAC Address	08:66:01:00:04:A0

3.3.3.6 WAN – DHCP (Auto config)

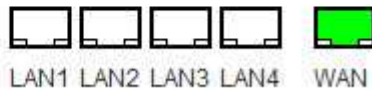
Set RF-R586 WAN via DHCP (Auto config), RF-R586 will connect the upper router via

DHCP.

Step 1)

Connect RJ45 cable between Upper Router LAN RJ45 to RF-R586 WAN RJ45 port. Once it's connected, the RF-R586 Web *Ethernet Port Status* will display.

Ethernet Port Status



Notes: you may not see the WAN RJ45 connection status. But it will flash to refresh the status every 30 seconds. Or you can manually flash to refresh.

Step 2)

RF-R586 web – Operation Mode, choose “Gateway” mode

- Bridge:**
All ethernet and wireless interfaces are bridged into a single bridge interface.
- Gateway:**
The first ethernet port is treated as WAN port. The other ethernet ports and the wireless interface are bridged together and are treated as LAN ports.
- AP Client:**
The wireless apcli interface is treated as WAN port, and the wireless ap interface and the ethernet ports are LAN ports.

Step 3)

RF-R586 web – Internet Settings – WAN – WAN Connection Type, choose “DHCP (Auto config)”

WAN Connection Type: DHCP (Auto config) ▼

DHCP Mode	
Hostname (optional)	<input style="width: 90%;" type="text"/>
MAC Clone	
Enabled	Disable ▼

- **WAN Connection Type:** choose “DHCP (Auto config)”
Click “Apply” button.

Step 4)

RF-R586 web – Status, it display the WAN IP once the DHCP (Auto config) is online.

Internet Configurations	
Connected Type	DHCP
WAN IP Address	192.168.1.103
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
Primary Domain Name Server	192.168.1.1
Secondary Domain Name Server	192.168.1.1
MAC Address	08:66:01:00:04:A0

3.3.4 LAN Settings



LAN Setup	
IP Address	192.168.8.1
Subnet Mask	255.255.255.0
LAN 2	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
LAN2 IP Address	
LAN2 Subnet Mask	
MAC Address	08:66:01:00:04:A1
DHCP Type	Server ▼
Start IP Address	192.168.8.100
End IP Address	192.168.8.200
Subnet Mask	255.255.255.0
Primary DNS Server	168.95.1.1
Secondary DNS Server	8.8.8.8
Default Gateway	192.168.8.1
Lease Time	86400

Setting the LAN parameters, include IP address, sub mask, VLAN, DHCP, etc.

3.3.4.1 Router Gateway IP

Default, the Router LAN IP is 192.168.8.1. If users want to modify it, please change the related parameters.

LAN Setup	
IP Address	192.168.1.1
Subnet Mask	255.255.255.0
LAN 2	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
LAN2 IP Address	
LAN2 Subnet Mask	
MAC Address	08:66:01:00:04:A1
DHCP Type	Server
Start IP Address	192.168.1.100
End IP Address	192.168.1.200
Subnet Mask	255.255.255.0
Primary DNS Server	168.95.1.1
Secondary DNS Server	8.8.8.8
Default Gateway	192.168.1.1
Lease Time	86400

IP Address: change the value you need

Start IP Address: for DHCP start IP

End IP Address: for DHCP end IP

Default Gateway: manually change it after you modify the *IP Address*.

3.3.4.2 MAC binding

RF-R586 Router supports 3 groups of MAC Binding. The parameter value format is as followed picture.

Statically Assigned	MAC: 00:21:86:61:7A:88 IP: 192.168.8.2
Statically Assigned	MAC: <input type="text"/> IP: <input type="text"/>
Statically Assigned	MAC: <input type="text"/> IP: <input type="text"/>

3.3.4.3 DNS Proxy

RF-R586 Router default enables the DNS Proxy. With this, the RF-R586 router can get DNS automatically and assigned to the PC/Device. If disable the DNS Proxy, please input correct DNS for your PC/Device, otherwise, it may not work correctly.

DNS Proxy	Enable ▾
-----------	----------

3.3.5 DHCP Client

DHCP Client List

You could monitor DHCP clients here.

DHCP Clients			
Hostname	MAC Address	IP Address	Expires in

List the Clients which gain IP address from DHCP.

3.3.6 Configure Static Routing

This section mainly introduces what is Routing Table and how to configure static router.

- Routing Table

This page shows the key routing table of this router.

Current Routing table in the system:									
No.	Destination	Netmask	Gateway	Flags	Metric	Ref	Use	Interface	Comment
1	10.64.64.64	255.255.255.255	0.0.0.0	5	0	0	0	WAN (ppp0)	
2	255.255.255.255	255.255.255.255	0.0.0.0	5	0	0	0	LAN (br0)	
3	192.168.8.0	255.255.255.0	0.0.0.0	1	0	0	0	LAN (br0)	
4	0.0.0.0	0.0.0.0	10.64.64.64	3	0	0	0	WAN (ppp0)	

- New Static Router

This page is about how to set static routing function of the router.

Add a routing rule	
Destination	<input type="text"/>
Range	Host ▾ <input type="text"/>
Gateway	<input type="text"/>
Interface	LAN ▾ <input type="text"/>
Comment	<input type="text"/>

Destination: please enter Target Host or IP network segment

Range: Host or Network can be chosen

Gateway: IP address of the next router.

Interface: You can choose the corresponding interface type.

Comment: some notes

Notice:

- Gateway and LAN IP of this router must belong to the same network segment.
- If the destination IP address is the one of a host, and then the Subnet Mask must be 255.255.255.255.
- If the destination IP address is IP network segment, it must match with the Subnet Mask. For example, if the destination IP is 10.0.0.0, and the Subnet Mask is 255.0.0.0.

3.3.7 VPN

Notes: the following VPN configuration manual may be out of date. We update the IPSec and PPTP configuration in another manual. Please refer to manual of "RF-R586_H820_VPN_Usermanual_Eng.pdf".

3.3.7.1 IPSEC

IPsec VPN

Using IPsec protocol to achieve remote access.

IPSEC Vpn List						
No.	State	Name	service mode	Remote Gateway	Local Address	Remote Address
1	<input checked="" type="checkbox"/>	jordan	client	195.8.171.180	192.168.1.0	10.10.10.0

IPsec connect name:
you can input DEV+DeviceID+[...] to bind device
 example:DEV281250D52F2A1452.vpn1.com

service mode:

Mode:

Remote IPsec gateway:

Local IP address:

VPN IP address:

IP subnet mask:

Remote IP address:

VPN IP address:

IP subnet mask:

Key Exchange Method:

Authentication:

Pre-Shared Key:

Perfect Forward Secrecy:

NAT Traversal:

Advanced IKE Settings:

- **IPsec connect name:** make sure the name in client and server are same, we suggest to use domain name (111.vpn1.com). if you want to build a point-to-point channel, the IPsec name have to be written as DEV+equipment ID+name (DEV281250D52F2A1452.vpn1.com), and make sure both the client and server are inputting Client equipment ID. You can find RF-R586's ID in the Status interface.

- **Service Mode:** Server/Client
- **Mode:** Main/Aggressive. The Aggressive mode is commonly used.
- **Remote Gateway:** This choice just appears in the Client mode and it is used to fill the IP address in the Server.
- **Local IP address:** Fill LAN IP of this device. You can fill an IP or a network segment.
- **Remote IP address:** Fill the IP of the other router.
- **Authentication:** Commonly, Pre-Shared Key is chosen. And the Client and Server must choose the same key.
- **Advanced AKE settings:** There are some encryption methods in this field. You must use the settings in this field when VPN tunnel needs to be built between RF-R586 and other brand VPN server.
- **Example: Connected cisco 7200 and RF-R586**

How to config RF-R586 as VPN client

IPsec Name: make sure the name in client and server are same, we suggest to use domain name(111.vpn1.com). if you want to build a point-to-point channel, the IPsec name have to be written as DEV+equipment ID+name(DEV281250D52F2A1452.vpn1.com), and make sure both the client and server are inputing Client equipment ID. You can find RF-R586's ID in the Status interface.

IPSec connect name	<input type="text" value="jordan"/> <small>you can input DEV+DeviceID+[...] to bind device example:DEV281250D52F2A1452.vpn1.com</small>
service mode	<input type="text" value="client"/>
Mode	<input type="text" value="Aggressive"/>
Remote IPSec gateway	<input type="text" value="195.8.171.180"/>
Local IP address	<input type="text" value="Subnet"/>
VPN IP address	<input type="text" value="192.168.1.0"/>
IP subnet mask	<input type="text" value="255.255.255.0"/>
Remote IP address	<input type="text" value="Subnet"/>
VPN IP address	<input type="text" value="10.10.10.0"/>
IP subnet mask	<input type="text" value="255.255.255.0"/>
Key Exchange Method	<input type="text" value="Auto (IKE)"/>
Authentication	<input type="text" value="Pre-Shared Key"/>
Pre-Shared Key	<input type="text" value="••••••••"/>
Perfect Forward Secrecy	<input type="text" value="Enable"/>
NAT Traversal	<input checked="" type="checkbox"/>

Advanced IKE Settings Hide Advanced Settings

Phase 1

Encryption 3DES

Integrity Algorithm SHA1

Select Diffie-Hellman Group for Key Exchange 1024bit

Key Lifetime 3600 Seconds

Phase 2

Encryption 3DES

Integrity Algorithm SHA1

Select Diffie-Hellman Group for Key Exchange 1024bit

Key Lifetime 28800 Seconds

Apply Cancel

How to config CISCO 7200 as VPN Server

```
crypto keyring jordan
```

```
pre-shared-key hostname jordan key test
```

```
crypto isakmp profile jordan
```

```
description rfog poland
```

```
keyring jordan
```

```
match identity host jordan
```

```
keepalive 60 retry 10
```

```
crypto ipsec transform-set vpnset esp-des esp-sha-hmac
```

```
crypto ipsec profile jordan
```

```
set transform-set vpnset
```

```
set isakmp-profile jordan
```

```
crypto dynamic-map jordan 1
```

```
set security-association lifetime kilobytes 536870912
```

```
set security-association lifetime seconds 43200
```

```
set transform-set vpnset
```

```
set isakmp-profile jordan
```

```
reverse-route
```

```
crypto map COREVPN 26 ipsec-isakmp dynamic jordan
```

3.3.7.2 PPTP

PPTP

PPTP VPN Settings	
PPTP VPN Active	<input checked="" type="checkbox"/>
PPTP User	vpnuser
PPTP Password	●●●●●●●●
PPTP Server	190.54.34.131
Remote Lan/Mask	192.168.130.0 / 24
Local PPTP IP	dhcp
MPPE Encryption	<input checked="" type="checkbox"/>
40 bit Encryption(Default is 128 bit)	<input type="checkbox"/>
Refuse Stateless Encryption	<input checked="" type="checkbox"/>
MPPC	<input type="checkbox"/>

apply

PPTP feature works as Client only.

- **PPTP VPN Active:** tick it to enable VPN feature.
- **PPTP User:** fill in the right username, which is from the PPTP Server.
- **PPTP Password:** fill in the right password, which is from the PPTP Server.
- **PPTP Server:** fill in the PPTP Server is IP address or domain name.
- **Remote Lan/Mask:** fill in the PPTP Server's LAN range and submask.
- **Local PPTP IP:** default chooses "dhcp". If choose "static", please fill in a local PPTP assigned IP, which depends on PPTP Server's settings.
- **MPPE Encryption:** tick it or not depends on PPTP Server's settings.
- **40 bit Encryption(Default is 128 bit):** tick it or not depends on PPTP Server's settings.
- **Refuse Stateless Encryption:** tick it or not depends on PPTP Server's settings.
- **MPPC:** tick it or not depends on PPTP Server's settings.

Click "apply" button to activate the settings. The PPTP client will try to connect the PPTP Server automatically. See example of *Chapter 5.8*.

3.3.7.3 L2TP

L2TP

L2TP VPN Settings	
L2TP VPN Active	<input type="checkbox"/>
L2TP User	<input type="text"/>
L2TP Password	<input type="text"/>
L2TP Server	<input type="text"/>
Remote Lan/Mask	<input type="text"/> / <input type="text"/>
Local PPTP IP	dhcp <input type="text"/>
MPPE Encryption	<input type="checkbox"/>

L2TP feature works as Client only.

3.3.7.4 Tunnel

Tunnel Feature

The RF-R586 Tunnel feature supports two GRE.

GRE1

GRE VPN Settings	
GRE VPN Active	<input type="checkbox"/>
Remote Address *	<input type="text"/>
Local Address	<input type="text"/>
Local lan gateway *	<input type="text"/>
Remote Lan/Mask *	<input type="text"/> / <input type="text"/>

GRE2

GRE VPN Settings	
GRE VPN Active	<input type="checkbox"/>
Remote Address *	<input type="text"/>
Local Address	<input type="text"/>
Local lan gateway *	<input type="text"/>
Remote Lan/Mask *	<input type="text"/> / <input type="text"/>

IP Tunnel Feature

IP Tunnel

IP Tunnel Settings	
IP Tunnel Active	<input type="checkbox"/>
Remote Address *	<input type="text"/>
Local Address	<input type="text"/>
Local lan gateway *	<input type="text"/>
Remote Lan/Mask *	<input type="text"/> / <input type="text"/>

3.3.8 DTU Settings (Serial to Cellular Gateway Feature)

Notes: this feature is for RF-R586 with DTU option only.

DTU Status	
dtu status:	on ▾
DTU Serial setting	
serial baudrate	9600 ▾ bps
serial parity	none ▾
serial databits	8 ▾ bits
serial stopbits	1 ▾ bits
serial flow control	none ▾
DTU config	
mode	client ▾
Protocol	tcp ▾
server 1	<input checked="" type="checkbox"/> 113.111.127.22 : 5000
server 2	<input type="checkbox"/> 192.168.8.101 : 5000
server 3	<input type="checkbox"/> 192.168.8.102 : 5000
server 4	<input type="checkbox"/> 192.168.8.103 : 5000
Send heart beat	on ▾
heart beat interval time (units)	5
heart beat information	hex <input type="checkbox"/> DTU_heart
send delay time(unit:ms)	200
Add id string to head	<input type="checkbox"/> ID_0001 <input type="checkbox"/> add to heartbeat info

This section is mainly about DTU settings.

- **DTU status:** open and close DTU

DTU Serial setting

- **serial baudrate:** support 300/1200/2400/4800/9600/19200/38400/57600/115200bps
- **serial parity:** support none/odd/even
- **serial databits:** support 7 bits and 8 bits
- **serial stopbit:** support 1 bits and 2 bits
- **serial flow control:** support hardware/software

DTU config

- **mode:** can configure as client or server.
- **Protocol:** support TCP/UDP
- **server 1~server 4:** fill in the centre server IP or Domain name and port. If you configure one server, the data will transfer to this server. If you configure one more servers, the data will transfer to all the servers at the same time.
- **Send heart beat:** open or close heart beat.
- **heart beat interval time:** set interval time to send each heart beat
- **heart beat information:** define the content of heart beat

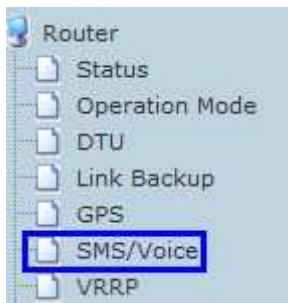
- **send delay time:** send waiting time to send data.
- **Add id string to head:** add an ID string in the data or heartbeat.

3.3.9 SMS/Voice Control

Notes: this feature is for RF-R586 with SMS/Voice option only.

3.3.9.1 SMS

Step 1) click “SMS/Voice”



Step 2) Activate the SMS feature

SMS/Voice Settings

SMS/Voice Command Settings			
Message/Voice status	on ▼		
telephone number			
number 1	13798257916	<input checked="" type="checkbox"/> SMS	<input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 2		<input type="checkbox"/> SMS	<input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 3		<input type="checkbox"/> SMS	<input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 4		<input type="checkbox"/> SMS	<input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 5		<input type="checkbox"/> SMS	<input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 6		<input type="checkbox"/> SMS	<input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 7		<input type="checkbox"/> SMS	<input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 8		<input type="checkbox"/> SMS	<input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 9		<input type="checkbox"/> SMS	<input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 10		<input type="checkbox"/> SMS	<input type="checkbox"/> VOICE <input type="checkbox"/> ALARM

Message/Voice status: select “on” to enable SMS feature. “off” to disable SMS feature.

Telephone number: Sender’s phone number input. Totally can input 10 groups.

Number 1....10: input the dedicated sender’s phone number. Do not forget to Tick “SMS”

Step 3) Define the SMS command

SMS	
SMS Command	on ▼
Send ack SMS	on ▼
Reboot Router Command	reboot
Get Cell Status Command	cellstatus
Cell link-up Command	cellup
Cell link-down Command	celldown
DIO_0 Set Command	dio01
DIO_0 Reset Command	dio00
DIO_1 Set Command	dio11
DIO_1 Reset Command	dio10
DIO Status Command	diostatus

SMS Command: select “on” to enable it. “off” to disable it.

Send ack SMS: If select “on”, the router will send command feedback to sender’s phone number. If select “off”, the router will not send command feedback to sender’s phone number.

Reboot Router Command: input the command for “reboot” operation, default is “reboot”.

Get Cell Status Command: input the command for “router cell status checking” operation, default is “cellstatus”. For example, if we send “cellstatus” to router, router will feedback the status to sender such as “Router SN: 086412090002 cell_link_up”, which indicated the router SN number and Cell Working Status.

Cell link-up Command: input the command for “router cell link up” operation, default is “cellup”. If router gets this command, the Router Cell will be online.

Cell link-down Command: input the command for “router cell link down” operation, default is “celldown”. If router gets this command, the Router Cell will be offline.

DIO_0 Set Command: input the command for I/O port 0. For SMS feature, please keep the parameter default.

DIO_0 Reset Command: input the command for I/O port 0. For SMS feature, please keep the parameter default.

DIO_1 Set Command: input the command for I/O port 1. For SMS feature, please keep the parameter default.

DIO_1 Reset Command: input the command for I/O port 1. For SMS feature, please keep the parameter default.

DIO Status Command: input the command for I/O port status. For SMS feature, please keep the parameter default.

Step 4) Click button to save

Note:

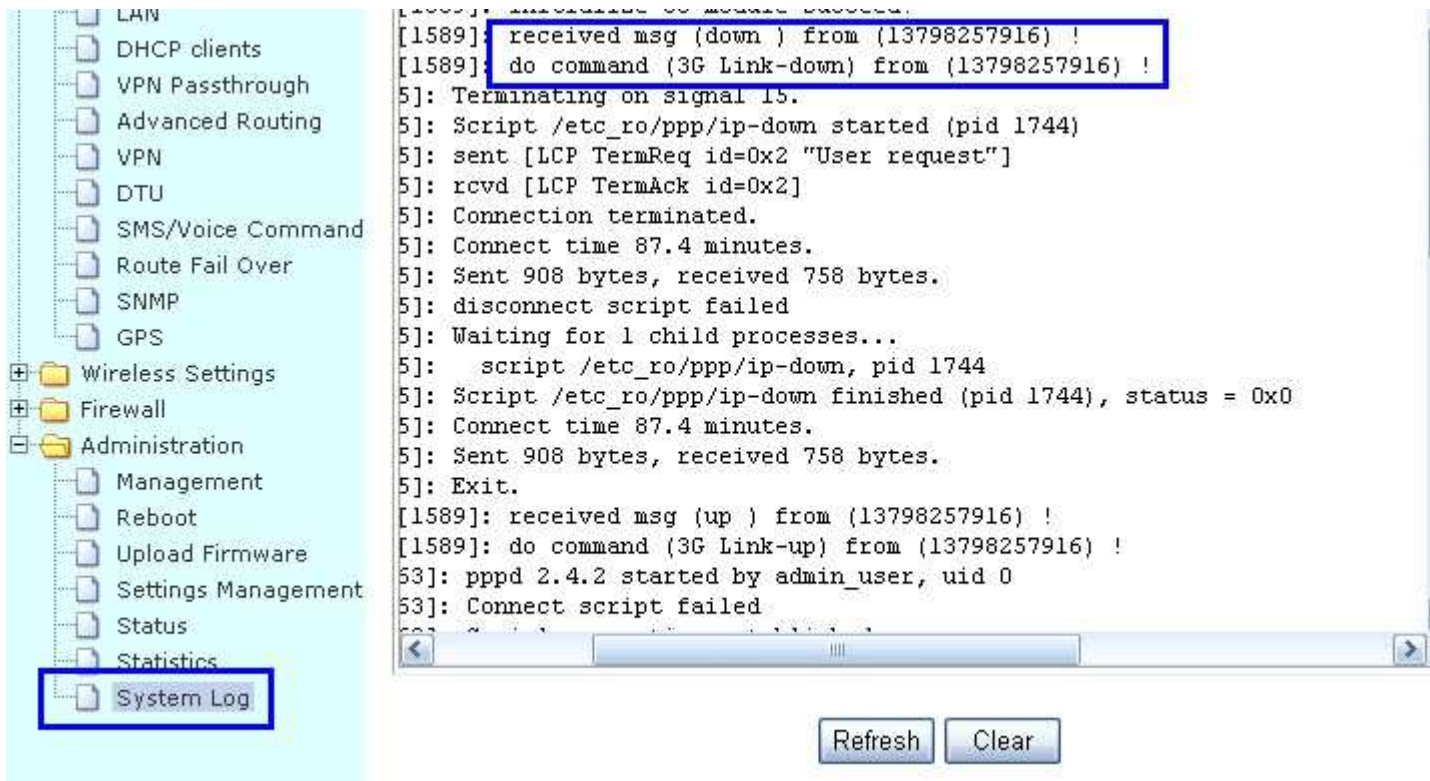
RF-R586 Series Industrial Grade Cellular Router

- 1) SIM Card inserted in the router must support SMS or Voice.
- 2) Try to add zone code or country code if the command cannot get working.

For example, we set the number 13798257916, and if the command cannot work, please try to put the country code ex +48.

Here set an example, we set the parameters for SMS/Voice as above.

- 1) Use the cell phone 13798257916 to send “down” to the router’s SIM Card Number, the router will receive the “down” command, and it will be off-line. And in the System Log, we shall find a info as following marks.



The screenshot shows the router's web interface. On the left, a tree view shows various settings categories, with 'System Log' selected and highlighted with a blue box. The main content area displays a log of system events. Two lines of the log are highlighted with a blue box:

```
[1589]: received msg (down ) from (13798257916) !
[1589]: do command (3G Link-down) from (13798257916) !
```

Below the log, there are two buttons: 'Refresh' and 'Clear'.

- 2) Use the cell phone 13798257916 to send “up” to the router’s SIM Card Number, the router will receive the “up” command, and it will be online. And in the System Log, we shall find a info as following marks.

[open all](#) | [close all](#)

- Cell Router
 - Operation Mode
 - Internet Settings
 - WAN
 - LAN
 - DHCP clients
 - VPN Passthrough
 - Advanced Routing
 - VPN
 - DTU
 - SMS/Voice Command
 - Route Fail Over
 - SNMP
 - GPS
 - Wireless Settings
 - Firewall
 - Administration
 - Management
 - Reboot
 - Upload Firmware
 - Settings Management
 - Status
 - Statistics
 - System Log**

```

bJ: Exit.
[1589] received msg (up ) from (13798257916) !
[1589] do command (3G Link-up) from (13798257916) !
53]: pppd 2.4.2 started by admin_user, uid 0
53]: Connect script failed
53]: Serial connection established.
53]: using channel 2
53]: Using interface ppp0
53]: Connect: ppp0 <--> /dev/ttyUSB0
53]: sent [LCP ConfReq id=0x1 <asynctest 0x0> <magic 0x31310540>]
53]: rcvd [LCP ConfReq id=0x3 <asynctest 0x0> <auth chap MD5> <magic 0x147f
53]: sent [LCP ConfRej id=0x3 <pcomp> <accomp>]
53]: rcvd [LCP ConfAck id=0x1 <asynctest 0x0> <magic 0x31310540>]
53]: rcvd [LCP ConfReq id=0x4 <asynctest 0x0> <auth chap MD5> <magic 0x147f
53]: sent [LCP ConfAck id=0x4 <asynctest 0x0> <auth chap MD5> <magic 0x147f
53]: rcvd [LCP DiscReq id=0x5 magic=0x147f]
53]: rcvd [CHAP Challenge id=0x1 <ea1ec62504a817f2c61a18efcc378617>, name
53]: sent [CHAP Response id=0x1 <71dd7ac14c0fc95136fed93dddafea80>, name =
53]: rcvd [CHAP Success id=0x1 "" ]
53]: CHAP authentication succeeded
53]: sent [IPCP ConfReq id=0x1 <addr 0.0.0.0> <ms-dns1 0.0.0.0> <ms-dns3 0
53]: rcvd [IPCP ConfNak id=0x1 <ms-dns1 10.11.12.13> <ms-dns3 10.11.12.14>
53]: sent [IPCP ConfReq id=0x2 <addr 0.0.0.0> <ms-dns1 10.11.12.13> <ms-dr
53]: rcvd [IPCP ConfNak id=0x2 <ms-dns1 10.11.12.13> <ms-dns3 10.11.12.14>
53]: sent [IPCP ConfReq id=0x3 <addr 0.0.0.0> <ms-dns1 10.11.12.13> <ms-dr
53]: rcvd [IPCP ConfNak id=0x3 <ms-dns1 10.11.12.13> <ms-dns3 10.11.12.14>
53]: sent [IPCP ConfReq id=0x4 <addr 0.0.0.0> <ms-dns1 10.11.12.13> <ms-dr
53]: rcvd [IPCP ConfNak id=0x4 <ms-dns1 10.11.12.13> <ms-dns3 10.11.12.14>
53]: sent [IPCP ConfReq id=0x5 <addr 0.0.0.0> <ms-dns1 10.11.12.13> <ms-dr

```

3.3.9.2 Voice

Notes: This feature may not work due to network compatibility or module modem.

Step 1) enable voice feature

SMS/Voice Command Settings	
Message/Voice status	on ▼

Step 2) set the dedicated phone number for voice control

telephone number		
number 1	<input type="text" value="13798257916"/>	<input type="checkbox"/> SMS <input checked="" type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 2	<input type="text"/>	<input type="checkbox"/> SMS <input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 3	<input type="text"/>	<input type="checkbox"/> SMS <input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 4	<input type="text"/>	<input type="checkbox"/> SMS <input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 5	<input type="text"/>	<input type="checkbox"/> SMS <input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 6	<input type="text"/>	<input type="checkbox"/> SMS <input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 7	<input type="text"/>	<input type="checkbox"/> SMS <input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 8	<input type="text"/>	<input type="checkbox"/> SMS <input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 9	<input type="text"/>	<input type="checkbox"/> SMS <input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 10	<input type="text"/>	<input type="checkbox"/> SMS <input type="checkbox"/> VOICE <input type="checkbox"/> ALARM

Step 3) Configure the voice command

Voice Command	
voice command	<input type="text" value="off"/>
SMS Alarm	<input type="text" value="off"/>
SMS Alarm	Cell link up
	Cell link down
	Cell link up and down

- **off:** disable the voice control
- **Cell link up:** with this selection, the voice control can only control the Router Cell online.
- **Cell link down:** with this selection, the voice control can only control the Router Cell offline.
- **Cell link up and down:** with this selection, the voice control can control the Router Cell offline and online. 1st control to be online, 2nd control to be offline.

3.3.9.3 Alarm via SMS

With this feature, the Router will send SMS to pre-defined phone number for warning and alarm.

Step 1) enable Alarm feature

SMS/Voice Command Settings	
Message/Voice status	<input type="text" value="on"/>

Step 2) set the dedicated phone number for SMS Alarm

telephone number		
number 1	13798257916	<input type="checkbox"/> SMS <input type="checkbox"/> VOICE <input checked="" type="checkbox"/> ALARM
number 2		<input type="checkbox"/> SMS <input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 3		<input type="checkbox"/> SMS <input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 4		<input type="checkbox"/> SMS <input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 5		<input type="checkbox"/> SMS <input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 6		<input type="checkbox"/> SMS <input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 7		<input type="checkbox"/> SMS <input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 8		<input type="checkbox"/> SMS <input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 9		<input type="checkbox"/> SMS <input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 10		<input type="checkbox"/> SMS <input type="checkbox"/> VOICE <input type="checkbox"/> ALARM

Step 3) Configure the voice command

SMS Alarm	
SMS Alarm	on ▼
Low Signal Alarm (Check Interval:20s)	<input checked="" type="checkbox"/>
when equal and lower level(0~2)	0
check count for alarm	10
normal signal count for check again	8

apply

normal signal count for check again: to prevent repeating alarm.

With the setting above, the RF-R586 router checks signal every 20s, if all of 10 times with signal 0 quality, RF-R586 Router will send Alarm via SMS. After the alarm, this feature will be locked, but RF-R586 Router keeps checking signal quality every 20s, if continuous 8 times are with signal quality better than 0, the alarm feature will be unlocked, then the alarm feature starts work again.

3.3.10 Link Backup (Route Redundancy)

Operation Mode			
Active	<input checked="" type="checkbox"/>		
Back To Higher Primary When Possible	<input checked="" type="checkbox"/>		
Link Priority Settings			
WAN1: Cellular Wireless	<input type="checkbox"/> OFF	<input checked="" type="radio"/> High Priority	<input type="radio"/> Middle Priority <input type="radio"/> Low Priority
WAN2: Wifi DHCP Wireless	<input type="checkbox"/> OFF	<input type="radio"/> High Priority	<input type="radio"/> Middle Priority <input checked="" type="radio"/> Low Priority
WAN3: Wired PPPOE	<input type="checkbox"/> OFF	<input type="radio"/> High Priority	<input checked="" type="radio"/> Middle Priority <input type="radio"/> Low Priority
Link Check Settings			
Check Count	<input type="text" value="3"/>	(1-20)	
Check Interval Time(min)	<input type="text" value="2"/>	(1-60)	
Used The Same Method	YES		
All WAN Check Method	ping ip	<input type="text" value="220.181.111.168"/>	<input type="text" value="110.11.233.8"/>

Operation Mode

- **Active:** disable or enable the link redundancy
- **Back to Higher Primary When Possible:**
 If you tick this option, once the RF-R586 Router work on backup link, whether it fails or not, it will return to main link if main link turns to be okay.
 If not tick this option, the RF-R586 Router will not return to main link until the current link fails.

Link Priority Settings

- **WAN1: Cellular Wireless**
- **WAN2: WiFi DHCP Wireless**
- **WAN3: Wired XXX (XXX=DHCP, STATIC, PPPOE)**

OFF: Check *OFF Blank* to disable or uncheck to enable the link redundancy

Priority: High Priority, Middle Priority, Low Priority.

Link Check Settings

- **Check Count:** for example, set it as 3. Router check link live 3 times.
- **Check Interval Time(min):** for example, set is as 2. Router check link live every 2 minutes.
- **Used The Same Method:**
 If set it as *YES*, WAN1/WAN2/WAN3 use same check IP or domain name from *ALL WAN Check Method*.

All WAN Check Method	ping ip	<input type="text" value="220.181.111.168"/>	<input type="text" value="110.11.233.8"/>
----------------------	----------------------	--	---

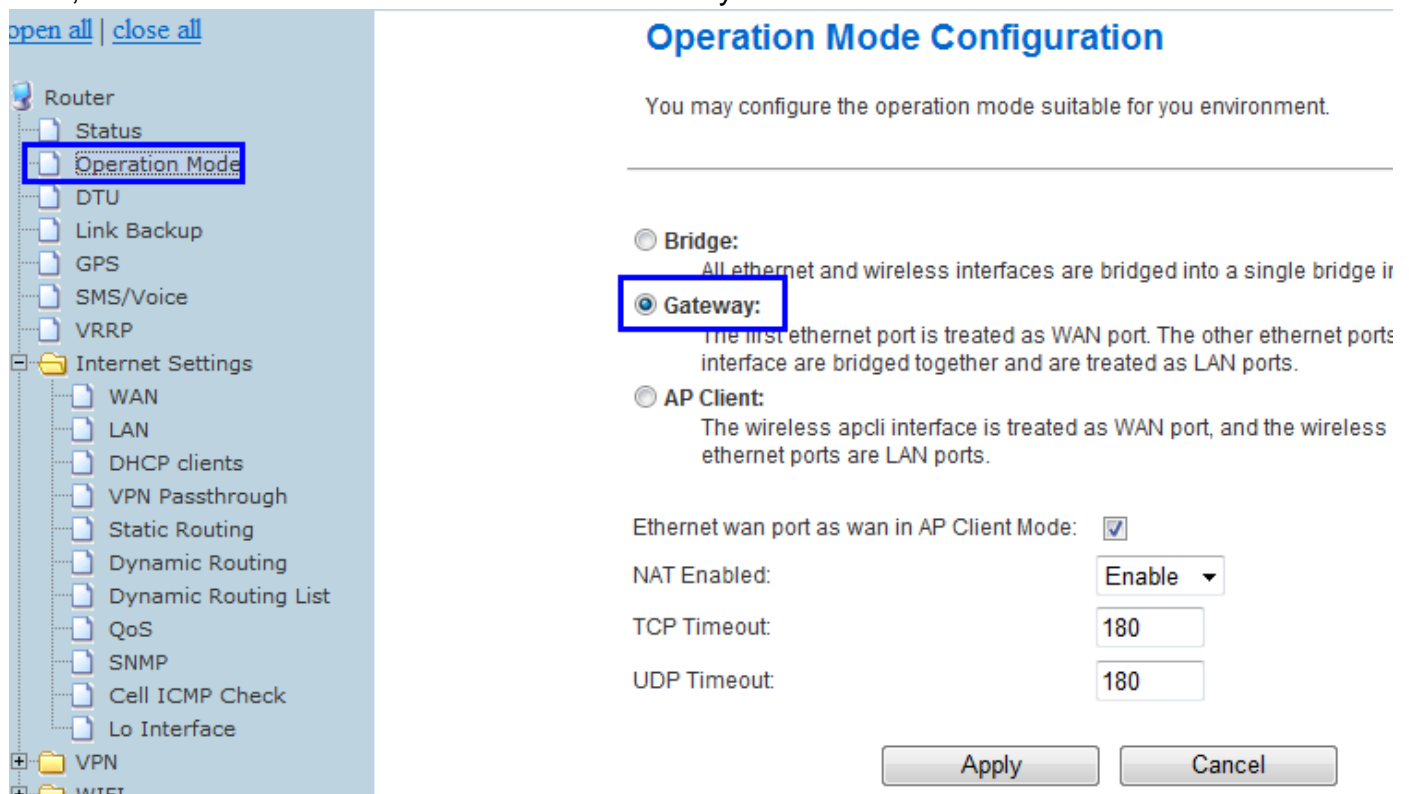
If set is as *NO*, users need set WAN1/WAN2/WAN3 live check IP or domain name separately.

Used The Same Method	NO ▾		
WAN1 Check method	ping ip ▾	google.com	118.113.114.2
WAN2 Check method	ping ip ▾	163.com	222.113.114.28
WAN3 Check method	ping ip ▾	8.8.8.8	112.113.114.222

- **All WAN Check Method:** define the link live check IP or domain name.

How to use *Link Backup* feature? Here set an example as follows, RF-R586 WAN RJ45 connects to upper side router LAN RJ45.

Confirm the upper side router connects to internet, and its DHCP is working. First, Set RF-R586 work mode as default “Gateway mode”.



The screenshot shows the 'Operation Mode Configuration' page. On the left is a navigation tree with 'Operation Mode' highlighted. The main content area has the following settings:

- Bridge:** All ethernet and wireless interfaces are bridged into a single bridge interface.
- Gateway:** (Selected) The first ethernet port is treated as WAN port. The other ethernet ports interface are bridged together and are treated as LAN ports.
- AP Client:** The wireless apcli interface is treated as WAN port, and the wireless ethernet ports are LAN ports.
- Ethernet wan port as wan in AP Client Mode:**
- NAT Enabled:** Enable ▾
- TCP Timeout:** 180
- UDP Timeout:** 180

Buttons for 'Apply' and 'Cancel' are at the bottom right.

Step 1) activate it. Tick “Active”

Step 2) click at “Back To Higher Primary When Possible”

Step 3) Choose the network priority.

A. Cellular as Low Priority, DHCP as High Priority

With this configuration, the router will work at DHCP mainly, and if DHCP is failed, it switches to cellular automatically after some time. And it will automatically switch to

DHCP when DHCP is fixed.

Operation Mode		
Active	<input checked="" type="checkbox"/>	
Back To Higher Primary When Possible	<input checked="" type="checkbox"/>	
Link Priority Settings		
WAN1: Cellular Wireless	<input type="checkbox"/> OFF <input type="radio"/> High Priority <input type="radio"/> Middle Priority <input checked="" type="radio"/> Low Priority	
WAN2: Wifi DHCP Wireless	<input checked="" type="checkbox"/> OFF <input type="radio"/> High Priority <input checked="" type="radio"/> Middle Priority <input type="radio"/> Low Priority	
WAN3 : Wired DHCP	<input type="checkbox"/> OFF <input checked="" type="radio"/> High Priority <input type="radio"/> Middle Priority <input type="radio"/> Low Priority	
Link Check Settings		
Check Count	3 (1-20)	
Check Interval Time(min)	2 (1-60)	
Used The Same Method	YES	
All WAN Check Method	ping ip	118.113.114.2
		118.113.114.2

Apply

B. Cellular as High Priority, DHCP as Low Priority

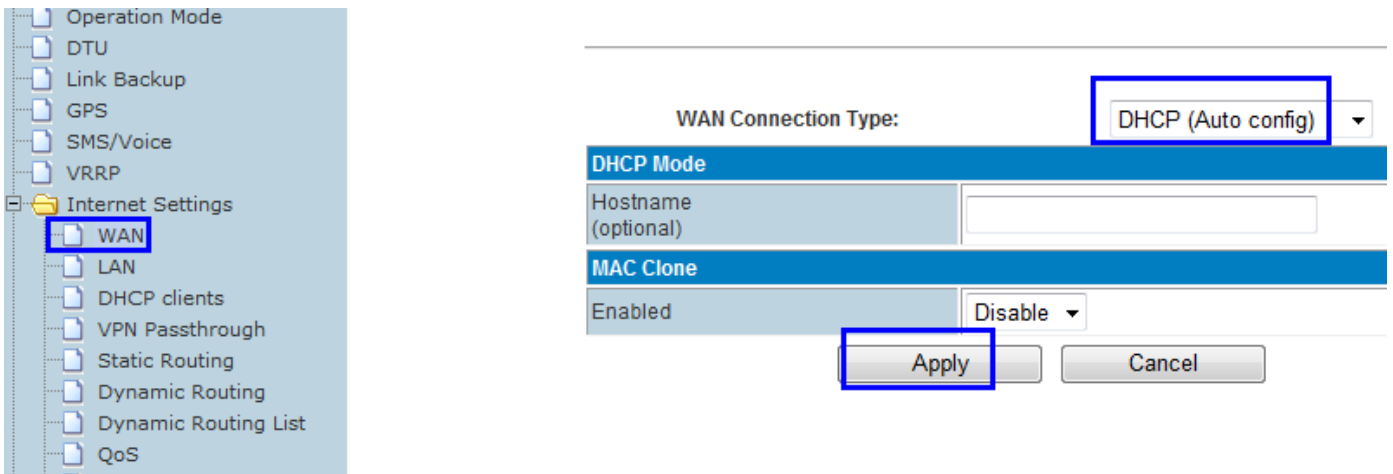
With this configuration, the router will work at cellular mainly, and if cellular is failed, it switches to DHCP automatically after some time. And it will automatically switch to cellular when cellular is fixed.

Operation Mode		
Active	<input checked="" type="checkbox"/>	
Back To Higher Primary When Possible	<input checked="" type="checkbox"/>	
Link Priority Settings		
WAN1: Cellular Wireless	<input type="checkbox"/> OFF <input checked="" type="radio"/> High Priority <input type="radio"/> Middle Priority <input type="radio"/> Low Priority	
WAN2: Wifi DHCP Wireless	<input checked="" type="checkbox"/> OFF <input type="radio"/> High Priority <input checked="" type="radio"/> Middle Priority <input type="radio"/> Low Priority	
WAN3 : Wired DHCP	<input type="checkbox"/> OFF <input type="radio"/> High Priority <input type="radio"/> Middle Priority <input checked="" type="radio"/> Low Priority	
Link Check Settings		
Check Count	3 (1-20)	
Check Interval Time(min)	2 (1-60)	
Used The Same Method	YES	
All WAN Check Method	ping ip	118.113.114.2
		118.113.114.2

Apply

DHCP: here can be DHCP WiFi Client.

Step 4) if Step 3 choose A, please set WAN as *DHCP* and click “Apply”



The RF-R586 gets WAN IP and default gateway from the up-side router.

Product Model	3G Router
Software Version	2.4.6 (Aug 5 2011)
Hardware Version	1.0.0
Device ID	280230312C080435
System Up Time	36 mins, 15 secs
Operation Mode	Gateway Mode
3G Info	
Signal Strength	27 , (0-31)
Attachment State	CDMA/EVDO HYBRID
Local Network	
Local IP Address	192.168.8.1
Local Netmask	255.255.255.0
MAC Address	00:0C:43:30:52:77
Internet Configurations	
Connected Type	DHCP
WAN IP Address	192.168.0.104
Subnet Mask	255.255.255.0
Default Gateway	192.168.0.1
Primary Domain Name Server	192.168.0.1
Secondary Domain Name Server	
MAC Address	00:0C:43:30:32:12

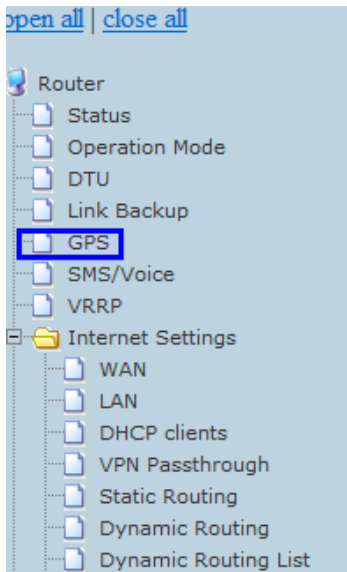
If Step 3 choose B, set WAN as *CELL NETWORK* and click “Apply”, it will work on cellular first, and switch to LAN RJ45 cable WAN or WiFi client mode if cellular network is failed.

Notes: for route fail over feature, please first make the main network and backup network both work before activate the fail over feature.

3.3.11 GPS

Notes: GPS feature is for RF-R586 router with GPS option only.

GPS



GPS Settings	
GPS Active	<input checked="" type="checkbox"/>
GPS Send to	TCP/IP ▾
GPS to Net Settings	
socktype	tcp ▾
server	112.12.33.88
server port	6000

> WAN Connection Type

- **GPS Active:** please click it once you need use GPS feature.
- **GPS Send to:** Choose “Serial” or “TCP/IP” method. The router only receives the GPS signal, will not process it. It will just send the received GPS signal to your GPS processor.

If the GPS processor is connected to the 3G Router via Serial Port, then please choose “Serial”.

If choose “TCP/IP” method, please configure the *GPS to NET Settings*.

If choose “Serial” method, please configure the *GPS to Serial Settings*.

> GPS to NET Settings

- **Sock type:** tcp or udp
- **Server:** fill in the correct destination server IP or domain name
- **Server port:** fill in the correct destination server port

GPS Settings	
GPS Active	<input checked="" type="checkbox"/>
GPS Send to	TCP/IP ▾
GPS to Net Settings	
socktype	tcp ▾
server	112.12.33.88
server port	6000

> GPS to Serial Settings

- **serial baudrate:** 9600/19200/38400/57600/115200bps for choice
- **serial parity:** none/odd/even for choice
- **serial databits:** 7/8 for choice

- **serial stopbits:** 1/2 for choice
- **serial flow control:** none/hardware/software for choice

GPS Settings	
GPS Active	<input checked="" type="checkbox"/>
GPS Send to	Serial ▾
GPS to Serial Settings	
serial baudrate	115200 ▾ bps
serial parity	none ▾
serial databits	8 ▾ bits
serial stopbits	1 ▾ bits
serial flow control	none ▾
Comment: Do not used gps with dtu when send to serial!	

3.3.12 WiFi Wireless Settings

Notes: WiFi Feature is RF-R586 with WiFi only

3.3.12.1 Basic Wireless Settings

Wireless Network	
Radio On/Off	<input type="button" value="RADIO OFF"/>
WiFi On/Off	<input type="button" value="WiFi OFF"/>
Network Mode	11b/g/n mixed mode ▾
Network Name(SSID)	Cell_AP_120901D4 Hidden <input type="checkbox"/> Isolated <input type="checkbox"/>
Multiple SSID1	<input type="text"/> Hidden <input type="checkbox"/> Isolated <input type="checkbox"/>
Multiple SSID2	<input type="text"/> Hidden <input type="checkbox"/> Isolated <input type="checkbox"/>
Multiple SSID3	<input type="text"/> Hidden <input type="checkbox"/> Isolated <input type="checkbox"/>
Multiple SSID4	<input type="text"/> Hidden <input type="checkbox"/> Isolated <input type="checkbox"/>
Multiple SSID5	<input type="text"/> Hidden <input type="checkbox"/> Isolated <input type="checkbox"/>
Multiple SSID6	<input type="text"/> Hidden <input type="checkbox"/> Isolated <input type="checkbox"/>
Multiple SSID7	<input type="text"/> Hidden <input type="checkbox"/> Isolated <input type="checkbox"/>
Broadcast Network Name (SSID)	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
AP Isolation	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
MBSSID AP Isolation	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
BSSID	08:66:01:00:04:A2
Frequency (Channel)	2412MHz (Channel 1) ▾
HT Physical Mode	
Operating Mode	<input checked="" type="radio"/> Mixed Mode <input type="radio"/> Green Field
Channel BandWidth	<input type="radio"/> 20 <input checked="" type="radio"/> 20/40
Guard Interval	<input type="radio"/> Long <input checked="" type="radio"/> Auto
MCS	Auto ▾
Reverse Direction Grant(RDG)	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
Extension Channel	2432MHz (Channel 5) ▾
Space Time Block Coding(STBC)	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
Aggregation MSDU(A-MSDU)	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
Auto Block ACK	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
Decline BA Request	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
HT Disallow TKIP	<input type="radio"/> Disable <input checked="" type="radio"/> Enable

Other	
HT TxStream	1 ▼
HT RxStream	1 ▼

➤ **Wireless Network**

- **Radio On/Off:** If it indicates *RADIO OFF*, it means the radio is on. You can click *RADIO OFF* to disable it. If it indicates *RADIO ON*, it means the radio is off. You can click *RADIO ON* to enable it.
- **WiFi On/Off:** If it indicates *WiFi OFF*, it means the radio is on. You can click *WiFi OFF* to disable it. If it indicates *WiFi ON*, it means the radio is off. You can click *WiFi ON* to enable it.
If WiFi is ON, the WiFi LED will be light on. If WiFi is OFF, the WiFi LED will be off.
- **Network Mode:** 802.11b/g/n mode selection
- **Network Name(SSID):** Input the SSID, *Hidden & Isolated* for option. If tick *Hidden*, the WiFi SSID will not broadcast.
- **Multiple SSID1:** RF-R586 Router supports multiple SSID 8 groups totally.
- **Broadcast Network Name (SSID):** Enable or Disable SSID broadcast.
- **BSSID:** indicates the MAC of WiFi
- **Frequency (Channel):** current working frequency and channel.

3.3.12.2 WiFi Advanced Settings

Advanced Wireless	
BG Protection Mode	Auto ▾
Beacon Interval	100 ms (range 20 - 999, default 100)
Data Beacon Rate (DTIM)	1 ms (range 1 - 255, default 1)
Fragment Threshold	2346 (range 256 - 2346, default 2346)
RTS Threshold	2347 (range 1 - 2347, default 2347)
TX Power	100 (range 1 - 100, default 100)
Short Preamble	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Short Slot	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Tx Burst	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Pkt_Aggregate	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
IEEE 802.11H Support	<input type="radio"/> Enable <input checked="" type="radio"/> Disable (only in A band)
Country Code	None ▾

Wi-Fi Multimedia	
WMM Capable	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
APSD Capable	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
DLS Capable	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
WMM Parameters	WMM Configuration

3.3.12.3 Wireless Security/Encryption Settings

Select SSID	
SSID choice	Cell AP 120901D4 ▾

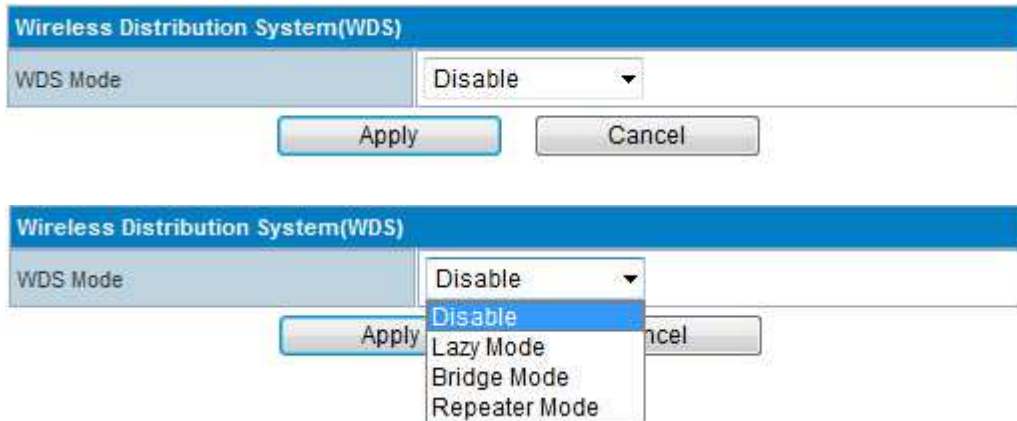
"Cell AP 120901D4"	
Security Mode	Disable ▾

Access Policy	
Policy	Disable ▾
Add a station Mac:	<input type="text"/>

- **SSID choice:** select the SSID you want to configure
- **Security Mode:** include Disable, OPENWEB, SHAREDWEB, WEBAUTO, WPA, WPA-PSK, WPA2, WPA2-PSK, wpa-psk/wpa2-psk, wpa1/wpa2, 802.1X.

- **Access policy:** setting the MAC list for access or deny.
Disable: close the *Access Policy*.
Allow: allow the assigned MAC enable to use WiFi
Reject: refuse the assigned MAC enable to use WiFi

3.3.12.4 WDS



Wireless Distribution System(WDS)

WDS Mode: Disable

Apply Cancel

Wireless Distribution System(WDS)

WDS Mode: Disable

Apply Cancel

Disable
Lazy Mode
Bridge Mode
Repeater Mode

3.3.12.5 WPS



WPS Config

WPS: Disable

Apply

WPS Config

WPS: Enable

Apply

3.3.12.6 Station List

Wireless Network							
MAC Address	Aid	PSM	MimoPS	MCS	BW	SGI	STBC

3.3.12.7 Statistics

Transmit Statistics	
Tx Success	9
Tx Retry Count	0, PER=0.0%
Tx Fail after retry	0, PLR=0.0e+00
RTS Successfully Receive CTS	0
RTS Fail To Receive CTS	0
Receive Statistics	
Frames Received Successfully	42309
Frames Received With CRC Error	39890, PER=48.5%
SNR	
SNR	n/a, n/a, n/a

Reset Counters

3.3.13 Firewall

3.3.13.1 MAC/IP/Port Filter Settings

Basic Settings	
MAC/IP/Port Filtering	Disable ▾
Default Policy -- The packet that don't match with any rules would be:	Dropped ▾

Apply Reset

MAC/IP/Port Filter Settings	
Source MAC address	<input type="text"/>
Dest IP Address	<input type="text"/>
Source IP Address	<input type="text"/>
Protocol	None ▾
Dest Port Range	<input type="text"/> - <input type="text"/>
Source Port Range	<input type="text"/> - <input type="text"/>
Action	Accept ▾
Comment	<input type="text"/>

(The maximum rule count is 32.)

Current MAC/IP/Port filtering rules in system:									
No.	Source MAC address	Dest IP Address	Source IP Address	Protocol	Dest Port Range	Source Port Range	Action	Comment	Pkt Cnt
Others would be dropped									-

This section is mainly about MAC/IP/Port filter settings

- **Basic Settings**
 - **MAC/IP/Port Filtering:** Disable or Enable
 - **Default Policy -- The packet that don't match with any rules would be:** Dropped/Accepted
- **MAC/IP/Port Filter Settings**
 - **Source MAC address:** Fill the MAC address which needs to filter.
 - **Dest IP Address:** IP of the target destination computer(the computer which the data packet will be sent to)
 - **Destination Port Range:** port range of target computer
 - **Source Port Range:** port range of the computer which sends data
 - **Action:** choose *Accept* or *Drop*
 - **Comment:** input comment here
- **Current MAC/IP/Port filtering rules in system**

It display the configured rules in this table.

3.3.13.2 Port Forwarding (Virtual Server Settings)(NAT/NAPT)

Virtual Server Settings

You may setup Virtual Servers to provide services on Internet.

Port Forwarding	
Port Forwarding	Disable ▾
IP Address	<input type="text"/> : <input type="text"/>
Port Range	<input type="text"/> - <input type="text"/>
Protocol	TCP&UDP ▾
Interface	WAN ▾
Comment	<input type="text"/>

(The maximum rule count is 32.)

Current Port Forwarding in system:					
No.	IP Address	Port Range	Protocol	Interface	Comment

Port forwarding is the process that your router or firewall uses to sort the right kind of network data to the right port. Computers and routers use ports as a way to organize network data. Different types of data, such as web sites, file downloads, and online games, are each assigned a port number. By using port forwarding, the router or firewall sends the correct data to the correct place.

- Virtual Server Settings: open and close Settings.
- IP address: fill the IP address of forwarding. The first blank is for local IP address, the second blank is for port.
- Port Range: fill the Port of forwarding.

3.3.13.3 DMZ Host

DMZ Settings

You may setup a De-militarized Zone(DMZ) to separate internal network and Internet.

DMZ Settings	
DMZ Settings	Disable ▾
DMZ IP Address	<input type="text"/>
Except TCP port	<input type="checkbox"/>

In computer networking, DMZ is a firewall configuration for securing local area networks (LANs).

- **DMZ Settings:** open and close DMZ feature.
Disable: close DMZ feature
Enable: enable the DMZ feature for assigned IP
Enable Super DMZ: enable the DMZ feature for assigned MAC
- **DMZ IP Address:** Please Enter the IP address of the computer which you want to set as DMZ host
- **DMZ MAC Address:** Please Enter the MAC address of the computer which you want to set as DMZ host
- **Except TCP port:** disable or enable for TCP port

Note: When DMZ host is settled, the computer is completely exposed to the external network; the firewall will not influence this host.

3.3.13.4 System Security

Remote management	
Remote management (via WAN)	Allow ▾

Ping form WAN Filter	
Ping form WAN Filter	Disable ▾

Block Port Scan	
Block port scan	Disable ▾

Block SYN Flood	
Block SYN Flood	Disable ▾

Stateful Packet Inspection (SPI)	
SPI Firewall	Disable ▾

Include *Remote management*, *Ping from WAN Filter*, *Block Port Scan*, *Block SYN Flood* and *SPI Firewall* (Stateful Packet Inspection).

3.3.13.5 Content Filter Settings

You can setup Content Filter to restrict the improper content access, including Webs Content Settings, URL filter and Host Filter.

➤ **Proxy/Java/Activex Filter**

Content Filter Settings

You can setup Content Filter to restrict the improper content access.

Webs Content Filter	
Filters:	<input type="checkbox"/> Proxy <input type="checkbox"/> Java <input type="checkbox"/> ActiveX
<input type="button" value="Apply"/> <input type="button" value="Reset"/>	

Support Proxy, Java, ActiveX filter.

> Web URL Filter

Webs URL Filter Settings

Add a URL filter:	
URL:	<input type="text"/>
<input type="button" value="Add"/> <input type="button" value="Reset"/>	
Current Webs URL Filters:	
No	URL
<input type="button" value="Delete"/> <input type="button" value="Reset"/>	

Fill in the URL for filter.

> Web Host Filter

Webs Host Filter Settings

Add a Host(keyword) Filter:	
Keyword	<input type="text"/>
<input type="button" value="Add"/> <input type="button" value="Reset"/>	

Current Website Host Filters:	
No	Host(Keyword)
<input type="button" value="Delete"/> <input type="button" value="Reset"/>	

3.3.14 Administration

3.3.14.1 Management

> Language Settings

Language Settings	
Select Language	English ▾

Select Web display language. Default is English. Can OEM other languages.

> Administrator Settings

Administrator Settings	
Account	pptp_user
Password	●●●●●●●●

Select Web display language. Default is English. Can OEM other languages.

> WatchDog

WatchDog	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
----------	---

> Web Management Port Settings

Web Management Port Settings	
TCP Port	80
Note	Reboot automatically once click apply

Default port is 80, sometimes if the carrier/ISP block 80 port for remote incoming, can try to

modify it to port 10000.

➤ **NTP Settings**

NTP Settings	
Current Time	Sat Jan 1 00:27:27 UTC 2000 <input type="button" value="Sync with host"/>
Time Zone:	(GMT-11:00) Midway Island, Samoa ▼
NTP Server	<input type="text"/> ex: time.nist.gov ntp0.broad.mit.edu time.stdtime.gov.tw
NTP synchronization(hours)	<input type="text"/>

➤ **DDNS Settings**

DDNS Settings	
Dynamic DNS Provider	None ▼
Account	<input type="text" value="pftp_user"/>
Password	<input type="password" value="....."/>
DDNS	<input type="text"/>

- **Dynamic DNS Provider:** choose the right DNS server provider. Supported server list.

Dyndns.org
freedns.afraid.org
www.zoneedit.com
www.no-ip.com
www.3322.org
www.ez-ip.net
www.justlinux.com
www.dhs.org
www.ods.org
gnudip.cheapnet.net
www.dyn.ca
www.tzo.com
www.easydns.com
www.dyns.cx
www.hn.org

- **Account:** fill in account info.
- **Password:** fill in password info.
- **DDNS:** fill in DDNS info.

Example:

DDNS Settings	
Dynamic DNS Provider	Dyndns.org
Account	szes
Password	●●●●●●●●
DDNS	szes.dyndns.org

3.3.14.1.1 Router web port

Web Management Port Settings	
TCP Port	80
Note	Reboot automatically once click apply

Please input the web port of the router. Normally we use 80 or 10000. Please re-power the router after changing the port number.

3.3.14.1.2 Language, password and NTP settings

Language Settings	
Select Language	English

Adminrator Settings	
Account	pptp_user
Password	●●●●●●●●

NTP Settings	
Current Time	Sat Jan 1 00:27:27 UTC 2000 <input type="button" value="Sync with host"/>
Time Zone:	(GMT-11:00) Midway Island, Samoa
NTP Server	<input type="text"/> ex: time.nist.gov ntp0.broad.mit.edu time.stdtime.gov.tw
NTP synchronization(hours)	<input type="text"/>

- Select Language
- Administrator Settings. The default both are admin.
- NTP Settings

3.3.14.1.3 DDNS settings

DDNS Settings	
Dynamic DNS Provider	None
Account	pptp_user
Password
DDNS	

- **Dynamic DNS Provider:** choose the right DNS server provider. Supported server list.

Dyndns.org
 freedns.afraid.org
 www.zoneedit.com
 www.no-ip.com
 www.3322.org
 www.ez-ip.net
 www.justlinux.com
 www.dhs.org
 www.ods.org
 gnudip.cheapnet.net
 www.dyn.ca
 www.tzo.com
 www.easydns.com
 www.dyns.cx
 www.hn.org

- **Account:** fill in account info.
- **Password:** fill in password info.
- **DDNS:** fill in DDNS info.

Example:

DDNS Settings	
Dynamic DNS Provider	Dyndns.org
Account	szes
Password
DDNS	szes.dyndns.org

3.3.14.2 Upload Firmware (Upgrade Firmware)



Upgrade the firmware to obtain new functionality. It takes about 2~5 minutes. Choose the correct firmware file, then click “Apply” button.

Notes: Highly recommend to “Load Default” the RF-R586 Router after upload the firmware. “Load Default” will cause all the settings lost. Please backup/export the settings before “Load Default”. Or re-configure the RF-R586 after “Load Default”

For some version of firmware, it requires uploading bootloader also. Please operate at the following picture. But most of time it no need do this step unless RFoG guide or inform you to upload bootloader.



3.3.14.3 Settings Management





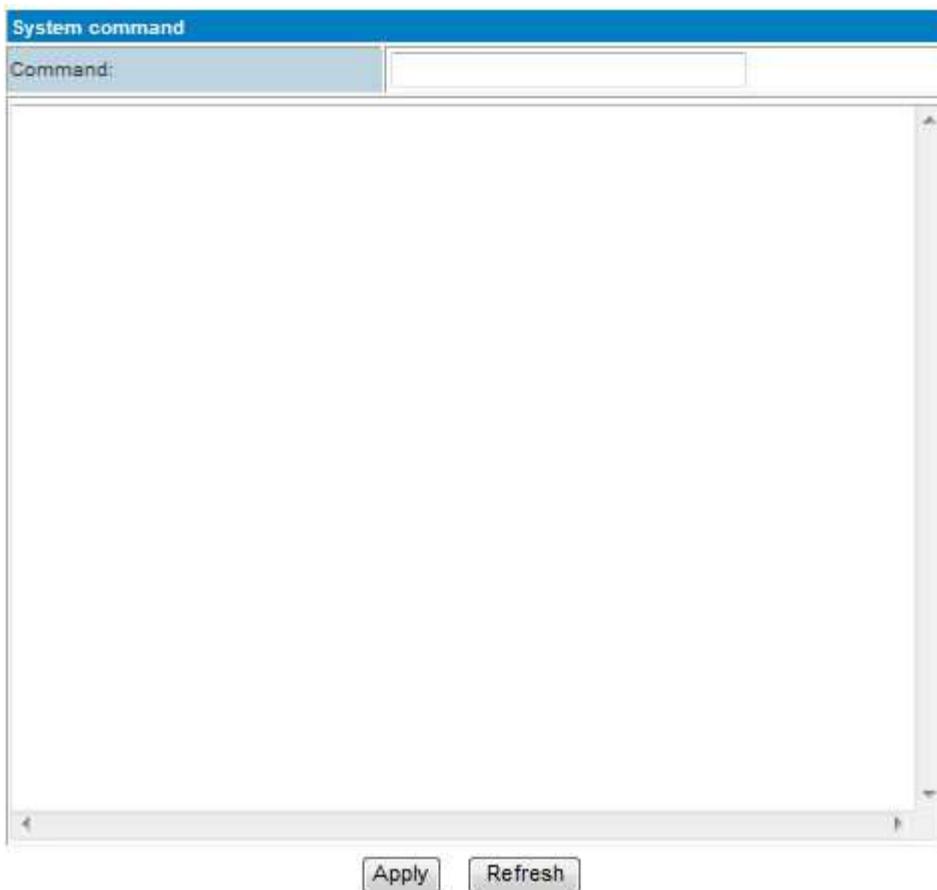
RF-R586 Series Industrial Grade Cellular Router

Here you can make a backup of current settings or restore previous settings of the router .

- **Export settings:** click 'export' to export configuration files and then select save path.
- **Import settings:** click 'browse', select previous backup configuration files and then click 'Import'. Then all the previous settings will be recovered.
- **Load Factory Defaults:** click 'Load Default' then all settings will be restored to factory settings. This is not recommended in order to avoid the loss of important parameter

3.3.14.4 System Command

Input related command at command area. Click "Apply" button to execute. The blank area will display infos.



3.3.14.5 System Log

➤ Remote System Log Settings

RF-R586 Router support export the sys log into remote server.

Remote System Log Settings	
Remote System Log Active	<input checked="" type="checkbox"/>
server	192.168.8.100 :UDP: 514

> **Local System Log**

```

System Log
Jan 1 00:00:16 syslogd started: BusyBox v1.12.1
Jan 1 00:00:16 kernel: fuse init (API version 7.8)
Jan 1 00:00:16 kernel: io scheduler noop registered (default)
Jan 1 00:00:16 kernel: Ralink gpio driver initialized
Jan 1 00:00:16 kernel: i2cdrv_major = 218
Jan 1 00:00:16 kernel: HDLC line discipline: version $Revision: 1.1.1.1
Jan 1 00:00:16 kernel: N HDLC line discipline registered.
Jan 1 00:00:16 kernel: Ralink APSoC Hardware Watchdog Timer
Jan 1 00:00:16 kernel: SoftDog: cannot register miscdev on minor=130 (e
Jan 1 00:00:16 kernel: Serial: 8250/16550 driver $Revision: 1.8 $ 2 por
Jan 1 00:00:16 kernel: serial8250: ttyS0 at I/O 0xb0000500 (irq = 37) i
Jan 1 00:00:16 kernel: serial8250: ttyS1 at I/O 0xb0000c00 (irq = 12) i
Jan 1 00:00:16 kernel: RAMDISK driver initiali
Jan 1 00:00:16 kernel: zed: 16 RAM disks of 16384K size 1024 blocksize
Jan 1 00:00:16 kernel: loop: loaded (max 8 devices)
Jan 1 00:00:16 kernel: rdm_major = 253
Jan 1 00:00:16 kernel: Ralink APSoC Ethernet Driver Initilization. v2.1
Jan 1 00:00:16 kernel: MAC_ADRH -- : 0x00000866
Jan 1 00:00:16 kernel: MAC_ADRL -- : 0x010007c1
Jan 1 00:00:16 kernel: PROC INIT OK!
Jan 1 00:00:16 kernel: IMQ starting with 2 devices...
Jan 1 00:00:16 kernel: IMQ driver loaded successfully.
Jan 1 00:00:16 kernel:   Hooking IMQ before NAT on PREROUTING.
Jan 1 00:00:16 kernel:   Hooking IMQ after NAT on POSTROUTING.
Jan 1 00:00:16 kernel: PPP generic driver version 2.4.2
Jan 1 00:00:16 kernel: PPP BSD Compression module registered
Jan 1 00:00:16 kernel: NET: Registered protocol family 24

```

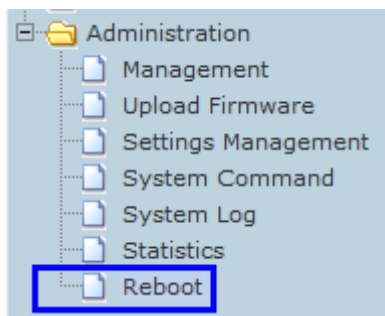
3.3.14.6 Statistics

Memory	
Memory total:	60684 kB
Memory left:	31960 kB
WAN/LAN	
WAN Rx packets:	0
WAN Rx bytes:	0
WAN Tx packets:	6
WAN Tx bytes:	492
LAN Rx packets:	6093
LAN Rx bytes:	400006
LAN Tx packets:	6120
LAN Tx bytes:	1107041
All interfaces	
Name	eth2
Rx Packet	6137
Rx Byte	513803
Tx Packet	6134
Tx Byte	1139410
Name	ra0
Rx Packet	117309
Rx Byte	32422543
Tx Packet	1443
Tx Byte	0
Name	eth2.1
Rx Packet	6127
Rx Byte	427889
Tx Packet	6127
Tx Byte	1132011

Name	eth2.2
Rx Packet	0
Rx Byte	0
Tx Packet	6
Tx Byte	492
Name	br0
Rx Packet	6128
Rx Byte	404417
Tx Packet	6158
Tx Byte	1130413
Name	ppp0
Rx Packet	10
Rx Byte	160
Tx Packet	9
Tx Byte	168

Display the statistics information of system flow.

3.3.14.7 Reboot



Question: Why to use Reboot Feature?

Answer: Router is similar a computer, whose performance depends on hardware and software. The Router's performance becomes weaker after very long time working. With reboot, it will refresh the performance.

Question: Is necessary to use the Reboot Feature?

Answer: Not really. Our router has high reliable and stable performance. It not requires using reboot feature compulsively. However, Reboot Feature will double ensure the router to be more stable and reliable.

RF-R586 Router support three types of Reboot Feature.

➤ Reboot AT Time Settings

Reboot At Time Settings	
Reboot At Time	<input checked="" type="checkbox"/>
Time(h:m:s)	03 : 01 : 01
Note	Please start NTP in Management First!

Users can define the exact time to reboot for everyday.

➤ **Reboot AT Time Settings**

Reboot Timer Settings	
Reboot When Timeout	<input checked="" type="checkbox"/>
Timer(min)	86400

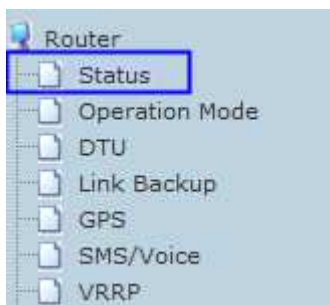
Users can set timer to reboot.

➤ **Reboot AT Time Settings**

Reboot System	
Reboot Now	<input type="button" value="Reboot"/>

Manually click “Reboot” button to reboot immediately.

3.3.14.8 Status



System Info	
Series	RF-R586
SN	086412100296
Software Version	2.2.13 (Oct 20 2012)
Hardware Version	1.0.0
System Up Time	1:41
Operation Mode	Gateway Mode
Cell Network Info	
Cell Modem	HUAWEI-EM820W
IMEI/ESN	355858040246813
Sim Status	SIM ready
Selected Network	AUTO
Registered Network	Registered on Home network: "46001",2
Sub Network Type	WCDMA
Signal	13 
Cell Status	UP

Internet Configurations	
Connected Type	CELL
WAN IP Address	172.17.194.232
Subnet Mask	255.255.255.255
Default Gateway	10.64.64.64
Primary Domain Name Server	210.21.196.6
Secondary Domain Name Server	221.5.88.88
MAC Address	08:66:01:00:07:C0

Local Network	
Local IP Address	192.168.8.1
Local Netmask	255.255.255.0
MAC Address	08:66:01:00:07:C1

IPSEC Status	
Name	Status

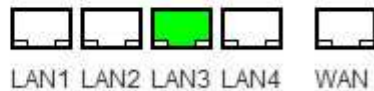
PPTP Status	
PPTP	down

L2TP Status	
L2TP	down

From this page you can see the Router's basic running state.

➤ **Ethernet Port Status**

Ethernet Port Status

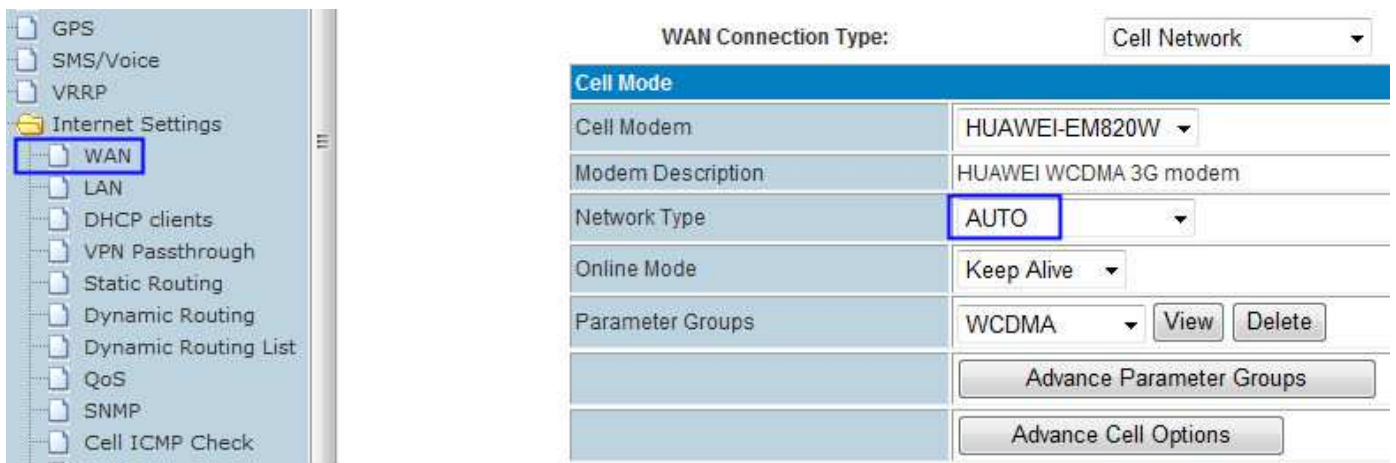


> System Info

- **Product Model:** indicates the model name
- **SN:** indicates the product SN
- **Software Version:** software version reveals the status of software update.
- **Hardware Version:** indicates the hardware version
- **System Up Time:** this time directly reveals router working hours
- **Operation Mode:** indicates the router working mode

> Cell Network Info

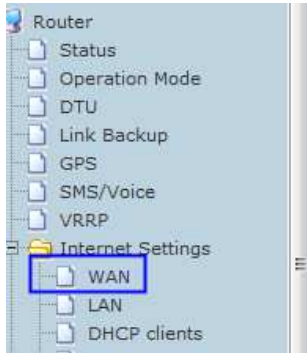
- **Cell Modem:** indicates inside cellular module modem name
- **IMEI/ESN:** indicates IMEI or ESN info of inside cellular module modem
- **Sim Status:** indicates sim card status
- **Selected Network:** indicates the selected working network



- **Registered Network:** indicates the current working network carrier ID
- **Sub Network Type:** indicates the current working network type
- **Signal:** reveals the current network state of 2G/3G. 0 and 99 mean no signal.
- **Cell state:** indicates the cellular is online or offline

> Internet Configurations

- **Connected Type:** indicates the selected WAN type.



You may choose different connection type suitable for your environment. Besides, you configure parameters according to the selected connection type.

WAN Connection Type: Cell Network

Cell Mode	
Cell Modem	HUAWEI-EM820W
Modem Description	HUAWEI WCDMA 3G modem
Network Type	AUTO

- **WPN IP address:** the IP expose when the router gets on internet.
 - **Primary Domain Name Server:** indicates the primary DNS of set or from ISP.
 - **Secondary Domain Name Server:** indicates the secondary DNS of set or from ISP.
 - **MAC Address:** indicates the WAN MAC address
- **Local Network**
- **Local IP address:** the RF-R586 Router LAN IP
 - **MAC Address:** the LAN MAC address
- **VPN Status**
- **IPSEC Status:** indicates IPSEC status info
 - **PPTP Status:** indicates PPTP status info
 - **L2TP Status:** indicates L2TP status info

3.3.15 SNMP (For version with SNMP only)

Notes: SNMP feature is for RF-R586 Router with SNMP option only.

RF-R586 router web page – Internet Settings – SNMP
Fill in related parameters in the screen like follows,

[open all](#) | [close all](#)

- Cell Router
 - Operation Mode
 - Internet Settings
 - WAN
 - LAN
 - DHCP clients
 - VPN Passthrough
 - Advanced Routing
 - VPN
 - DTU
 - SMS/Voice Command
 - Route Fail Over
 - SNMP**
 - GPS
 - Wireless Settings
 - Firewall
 - Administration

SNMP Settings	
SNMP Active	<input checked="" type="checkbox"/>
Contact Info	Jason
Location	
SNMP V1 and V2c Settings	
User	public
Host/Lan	0.0.0.0/0
Writable	<input checked="" type="checkbox"/>
SNMP V3 Settings	
User	jason
Writable	<input checked="" type="checkbox"/>
Security Mode	<input type="radio"/> None <input type="radio"/> Authorized <input checked="" type="radio"/> Private
Authentication	<input checked="" type="radio"/> MD5 <input type="radio"/> SHA
Encryption	<input checked="" type="radio"/> DES <input type="radio"/> AES
Authentication Password	••••••••
Encryption Password	••••••••

SNMP Active: tick it to active SNMP feature.

Contact Info: set the contact info here

Location: set router's installation address.

User: set public name

Host/Lan: set the network range to visit the router via SNMP, default we set all as 0.0.0.0/0

Writable: tick it to enable it.

Security Mode: choose the correct one, only for SNMP V3 version.

Authentication: choose the correct one, only for SNMP V3 version.

Encryption: choose the correct one, only for SNMP V3 version.

Authentication Password: fill in the right one.

Encryption Password: fill in the right one.

Click "Apply" button and reboot the router.

Here list the most important OID:

1.3.6.1.4.1.2021.255.4.1.2.9.103.101.116.95.109.111.100.101.109.1

(read module modem model)

1.3.6.1.4.1.2021.255.4.1.2.10.103.101.116.95.117.112.116.105.109.101.1

(system running time)

1.3.6.1.4.1.2021.255.4.1.2.12.103.101.116.95.109.101.109.95.102.114.101.101.1

(memory capacity)

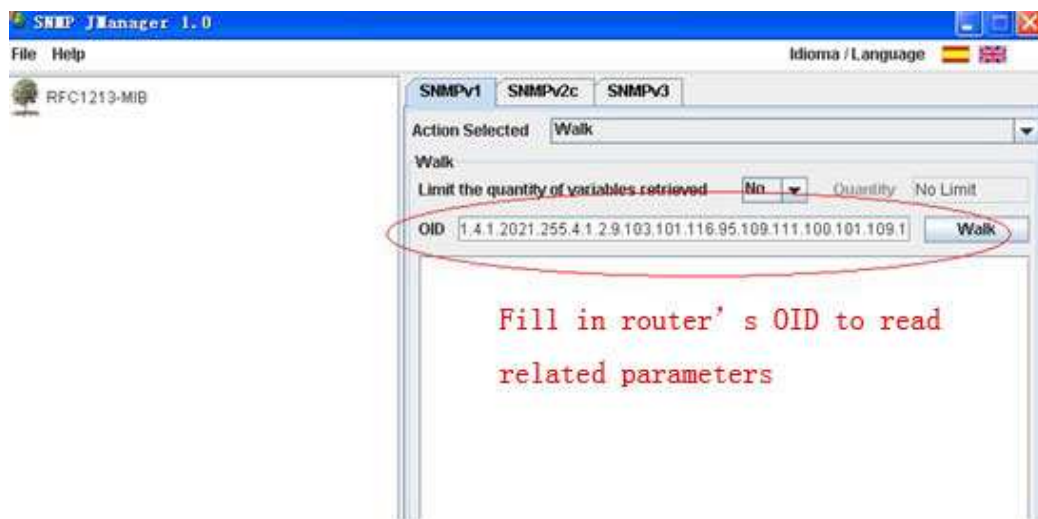
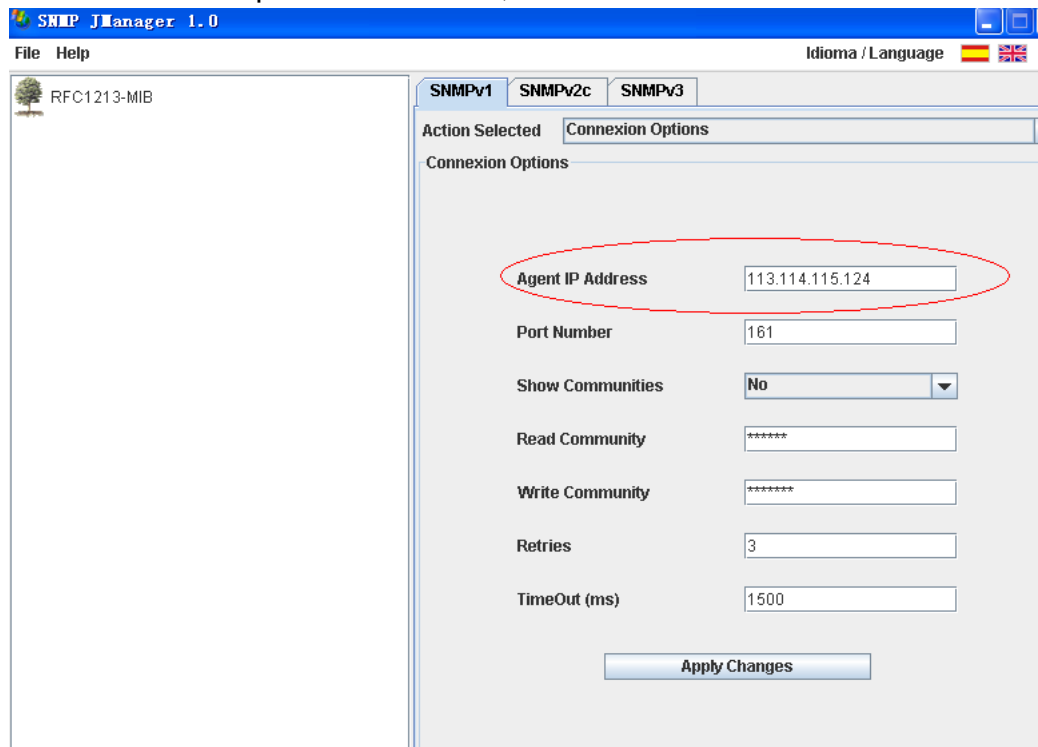
1.3.6.1.4.1.2021.255.4.1.2.15.103.101.116.95.99.101.108.108.95.115.116.97.116.117.115.1 (3G

network status)

1.3.6.1.4.1.2021.255.4.1.2.15.103.101.116.95.108.50.116.112.95.115.116.97.116.117.115.1 (pptp status)

1.3.6.1.4.1.2021.255.4.1.2.15.103.101.116.95.112.112.116.112.95.115.116.97.116.117.115.1 (l2tp status)

List client side's picture as follows,



Chapter 4

4 FAQ

4.1 Open Device Error

3G Info	
Signal Strength	open device error!

With this error, most of time the module inside the router is loosen. Please try to fasten it.

4.2 Read Error

3G Info	
Signal Strength	read error!
Attachment State	Automatic search

With this error, it indicates the sim card is not well touched with sim card slot. Try to check the sim card is right put. Try to scrap the sim card slot and make it clean.

4.3 Signal Strength has right number, but cannot dialup

3G Info	
Signal Strength	16 , (0-31)
Attachment State	Automatic search

Try to check the WAN port setting is correct.

4.4 Signal Strength shows 99

3G Info	
Signal Strength	16 , (0-31)
Attachment State	Automatic search

Here it shows 16, it means signal is okay. If shows 99, try to check the sim card is has enough balance. Or if the data business is supported.

4.5 The router cannot be remote web visited

1) Default the router's web port is 80. Some network ISP block the 80 of incoming. So confirm with your ISP which port can be visited. Or you can change other port to try, such as port 10000. Refer to [chapter 3.3.14.1.1 Router web port to operate](#).

2) Check if the router's WAN IP can be ping through via the PC.

4.6 Signal shows 99 but still can connect to internet and get WAN IP

Our router built-in different types of modem inside, some modem cost this. But will not affect the use.

4.7 Router shows sim card and network info, but cannot connect to internet

Check the sim card is with balance or limited service by the ISP.

4.8 DDNS not working

- 1) Please confirm the DDNS configuration is correct.
- 2) Check if the router is online and get IP, and can visit internet.
- 3) Check if the WAN IP from sim card (shows in the status page once the router is online) is a public IP or privacy IP, privacy IP will make DDNS no work.

4.9 Cannot Connect Router via RJ45 LAN

- 1) Please check if Ethernet cable is correctly connected.
- 2) Double check PC network card IP is correct configured. Please refer to *Chapter 3.2*
- 3) Try to disable the PC network card, and re-enable it.



4) Reset the RF-R586 router. Power on router, keep press “RST” button until 12 seconds, and then release it. RF-R586 router will automatically load default.

4.10 Cannot Connect RF-R586 WiFi

- 1) Double check if the device’s WiFi switch is on.
- 2) Double check if the RF-R586 WiFi is on.
- 3) Double check Device’s wireless network card IP is correct configured. Please refer to *Chapter 3.2*
- 4) Try to disable the Device’s network card, and re-enable it.



5) Reset the RF-R586 router. Power on router, keep press “RST” button until 12 seconds, and then release it. RF-R586 router will automatically load default.

4.11 Can Connect RF-R586 WiFi via Manual IP but cannot via DHCP

- 1) Try to disable the Device’s network card, and re-enable it.



2) Reset the RF-R586 router. Power on router, keep press “RST” button until 12 seconds, and then release it. RF-R586 router will automatically load default.

4.12 Cannot get Cell WAN IP

RF-R586 Router get cellular WAN IP once it's online.

Internet Configurations	
Connected Type	CELL
WAN IP Address	10.193.205.114
Subnet Mask	255.255.255.255
Default Gateway	10.64.64.64
Primary Domain Name Server	210.21.196.6
Secondary Domain Name Server	221.5.88.88
MAC Address	08:66:01:00:04:A0

If not get the WAN IP, the problem maybe:

Item.	May caused by	Solution
1	Cellular WAN port is not right configured	Refer to Chapter 3.3.3.1 Cellular WAN configuration to solve it.
2	SIM card has problem for data business or no balance	Check the sim card with the ISP or network provider or sim card provider. Try another working sim card.
3	No network signal	Move the router to another site to check.
4	VPN configuration is wrong	You may configure the VPN in wrong way. Please check the WAN port configuration.
5	Cellular network problem	Sometimes cellular network may get problem or unstable. Try to move to another site to test. Or try to test with another ISP/Carrier SIM card
6	Module modem is defeated	Send back the unit to factory for repair

4.13 Can not power on

Solution:

1. Check if the power adapter connector is loose from the router.
2. Try to replace a power adapter. RF-R586 series router uses 9V1A or 9V2A or 12V1A or 12V1A or 12V2A power adapter with 2.5mm connector
3. Router hardware defeated. Send back to factory for check or repair.

4.14 Sys log shows “connect script failed”

Problem maybe:

Item.	May caused by	Solution
1	A. sim card no data business, or problem; B. sim card balance no available;	A. Check sim card data business and balance. B. Get balance available
2.	WAN APN parameter is wrong	Check APN parameter of WAN port, then make it correct and try
3	Network unstable problem	Try later, or move to other network to try.
4	Module modem inside router setting wrong by uncertain operation	Tell the module modem type (marked at the back cover of router) to technical support for help.
5	Module modem inside router only support 2G or 3G only	Need contact sales for replacement or repair

4.15 RF-R586 Router is online, but cannot visit website.

Problem maybe:

Item.	May caused by	Solution
1	DNS problem	Check the DNS server of RF-R586 is correct. The DNS is from the ISP once RF-R586 is online. Sometimes the ISP not give the right DNS server IP, you can try to set correct DNS manually at your PC or Device network card.
2.	SIM card business problem	Check APN parameter of WAN port, then make it correct and try. Double confirm with the ISP/Carrier if the sim card info is 100% correct. Try to change another sim card to try.
3	Signal is too weak	Too weak signal may cause all the DNS resolution fails. Try to get better signal.

4	Network is too bad	Contact ISP/Carrier to get better network
---	--------------------	---

4.16 Port forwarding not working

Question: I configure the port forwarding feature correctly, but still no work.

Answer: first, please check the port if block by your ISP/Carrier, because some ISP/Carrier block some ports for security reason.

For example, the RF-R586m gets WAN IP 27.38.14.223. And the RF-R586's web port is 80. So from the other network, try to visit [http:// 27.38.14.223:80](http://27.38.14.223:80) if can be okay. If no okay, it means the ISP/Carrier blocks the 10000 port. Then check with your ISP/Carrier which ports are open for use. Then re-try the port forwarding feature.

4.17 Serial DTU point-to-point solution not working

Problem: Take two RF-R586. Both support Serial to cellular gateway feature (DTU feature). Configure one as client, the other as server. But no work.

Answer: First, we confirm that the RF-R586 both are online, and the server's IP is public IP that can be ping through from other networks.

Second, we confirm both RF-R586's DTU feature (Serial to Cellular Feature) are working. We test an example as follows,

RF-R586 DTU with vodafone SIM as client (in Germany)--- China Telecom as server (In China): working
 RF-R586 DTU with vodafone SIM as server (in Germany)--- China Telecom as client (In China): working
 RF-R586 DTU with vodafone SIM as client (in Germany)---- RF-R586 DTU with Vodafone SIM as server (in Germany) : no working


This indicates the two Vodafone SIM cards cannot communicates each other. The Vodafone ISP limit the two internal's SIM card's communication.

You have two ways to solve the problem.

- 1) Get another SIM card from another ISP to test.
- 2) Ask the Vodafone ISP to unlimit two Vadafone SIM's communication.

4.18 Can't open device /dev/ttyUSBx.

Problem: Status page shows "Can't open device /dev/ttyUSBx".

Cell Network Info	
Cell Modem	HUAWEI-EM820W
IMEI/ESN	Can't open device /dev/ttyUSB3.
Sim Status	Can't open device /dev/ttyUSB3.
Selected Network	AUTO
Registered Network	Can't open device /dev/ttyUSB3.
Sub Network Type	Can't open device /dev/ttyUSB3.
Signal	Can't open device /dev/ttyUSB3. 
Cell Status	DOWN

Solution:

Step 1) RF-R586 Router Web – Internet Settings – WAN, at Cell Modem, please choose “AUTO_DETECT” and click “Apply” button.

Step 2) If step 1 cannot solve the issue, try to open the case, and scrap the module modem fingerprint, then re-install it into the mini PCIe slot. And try Step 1) again.

Cell Mode	
Cell Modem	AUTO_DETECT
Modem Description	HUAWEI WCDMA 3G modem
Network Type	AUTO
Online Mode	Keep Alive
Parameter Groups	WCDMA <input type="button" value="View"/> <input type="button" value="Delete"/>
	<input type="button" value="Advance Parameter Groups"/>
	<input type="button" value="Advance Cell Options"/>
MAC Clone	
Enabled	Disable
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

Step 3) If the issue is still existed after Step 1) and Step 2), please contact our sales for return to check or repair.

4.19 PPTP is on, but cannot be through to PPTP Server

Issue and phenomenon: in web status page, the PPTP shows “on”, but try to ping PPTP Server, cannot get through.

Solution:

RF-R586 Series Industrial Grade Cellular Router

- 1) try to check if the PPTP Status keep “on” in web status page. If sometimes “on”, and sometimes “down”, please check the PPTP configuration is correct.
- 2) Check if the PPTP Server assigned remote LAN with RF-R586’s LAN IP network range. RF-R586 default LAN IP is 192.168.8.1, and submask is 255.255.255.0. Sometimes the users forget to assign remote LAN IP 192.168.8.1 for PPTP VPN Server.

If the PPTP VPN Server’s remote LAN IP is 192.168.1.0/24 or 192.168.0.0/24, and cannot be changed, please change RF-R586 LAN IP from 192.168.8.1 to 192.168.1.1 or 192.168.0.1, also do not forget to manually change the RF-R586 Default Gateway to 192.168.1.1 or 192.168.0.1 meanwhile.

Default Gateway	192.168.8.1
-----------------	-------------

- 3) with the following steps, normally it can solve the issue. Otherwise, please contact RFoG Sales or Support.

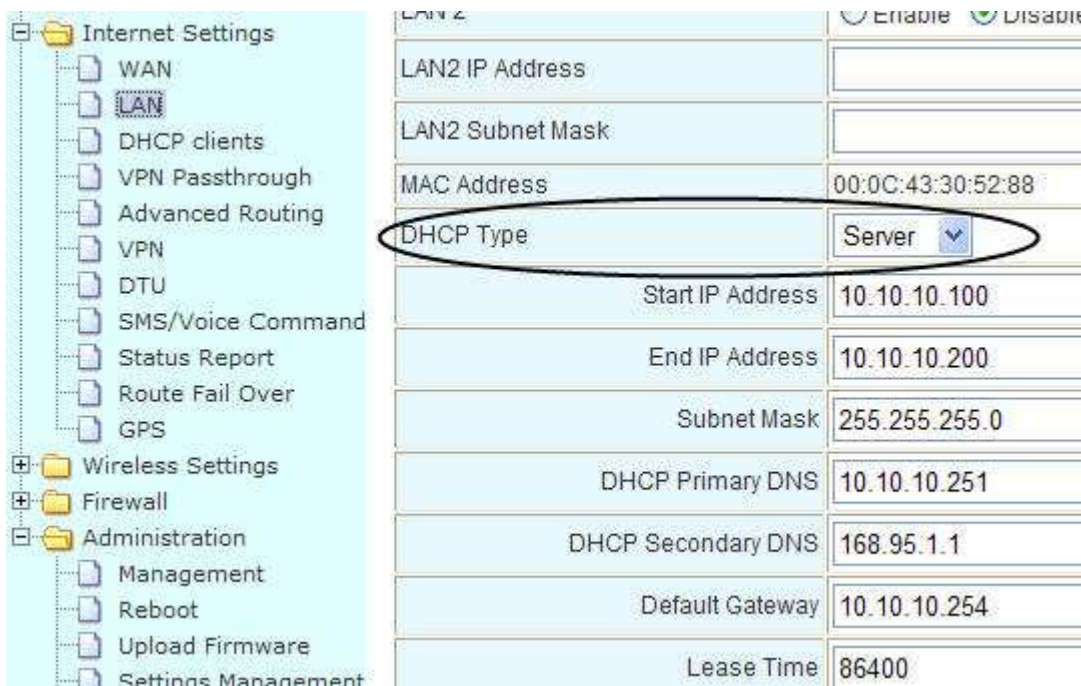
Chapter 5

5 Test Samples

5.1 Two RF-R586 make WiFi hotspot and WiFi client

Here we take RF-R586 router for example. RF-R586 setting method is the same with RF-R586.

1. Take two RF-R586 router. One will be WiFi server, the other will be WiFi Client. We name RF-R586-s and RF-R586-c
2. Connect PC with RF-R586-s with RJ45 cable.
3. At RF-R586-s and RF-R586-c, make sure the DHCP service from both routers are working.



At RF-R586-s,



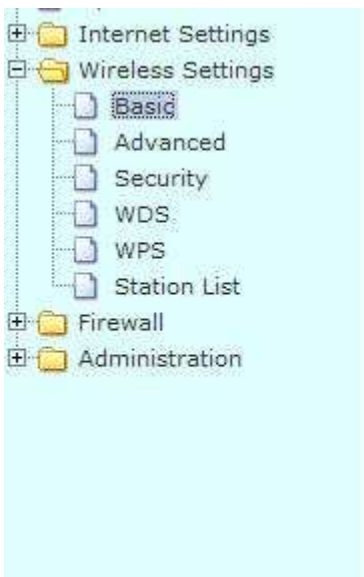
You may configure the operation mode suitable for you env

- Bridge:
All ethernet and wireless interfaces are bridged into a
- Gateway:
The first ethernet port is treated as WAN port. The oth interface are bridged together and are treated as LAN
- AP Client:
The wireless apcli interface is treated as WAN port, a ethernet ports are LAN ports.

NAT Enabled

Select "Gateway", and click "Apply".

4. At RF-R586-s, "Wireless Settings--Basic", set Network Name (SSID) as "3G Router" (Here we recommend you use "3G Router" to test first)



Network Name (SSID) and Channel. The Access Point can be set simply with only setting items.

Wireless Network	
Radio On/Off	<input type="button" value="RADIO OFF"/>
Network Mode	11b/g/n mixed mode <input type="button" value="v"/>
Network Name(SSID)	<input type="text" value="3G Router"/> Hidden <input type="checkbox"/>
Multiple SSID1	<input type="text"/> Hidden <input type="checkbox"/>
Multiple SSID2	<input type="text"/> Hidden <input type="checkbox"/>
Multiple SSID3	<input type="text"/> Hidden <input type="checkbox"/>

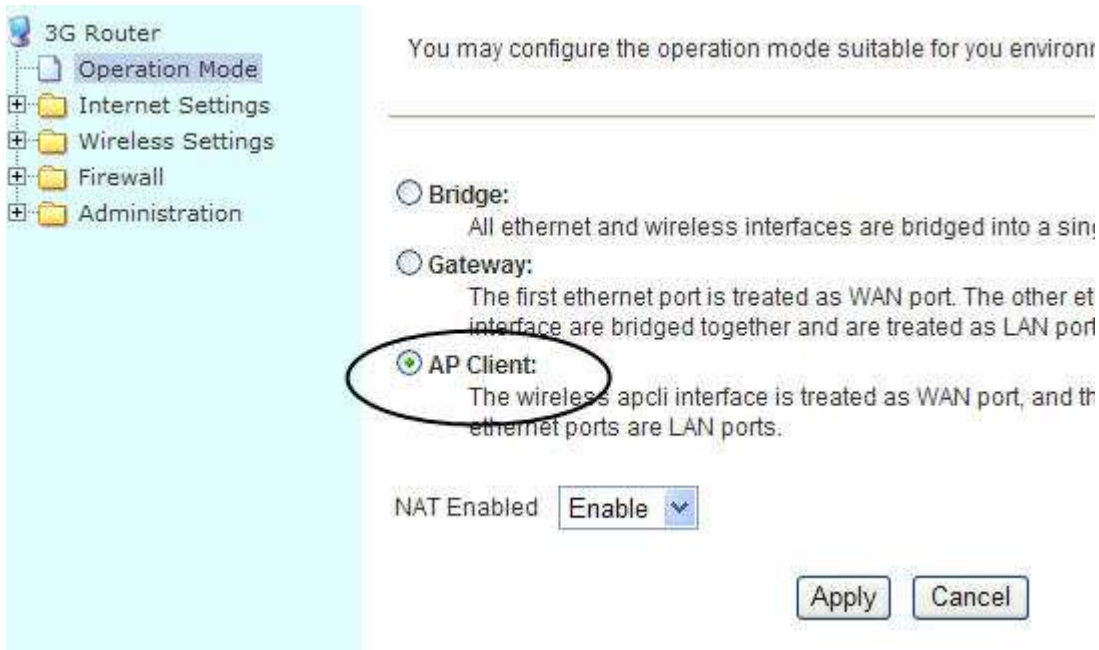
And write down the "Frequency (Channel)" and "Extension Channel". Remember it and we shall use this value at RF-R586-c.

Wireless Settings	BSSID	00:0C:43:30:52:88
Basic	Frequency (Channel)	2437MHz (Channel 6)
Advanced	HT Physical Mode	
Security	Operating Mode	<input checked="" type="radio"/> Mixed Mode <input type="radio"/> Green Field
WDS	Channel BandWidth	<input type="radio"/> 20 <input checked="" type="radio"/> 20/40
WPS	Guard Interval	<input type="radio"/> Long <input checked="" type="radio"/> Auto
Station List	MCS	Auto
Firewall	Reverse Direction Grant(RDG)	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
Administration	Extension Channel	2457MHz (Channel 10)
	Aggregation MSDU(A-MSDU)	<input checked="" type="radio"/> Disable <input type="radio"/> Enable

5. At RF-R586-s, "Internet Settings—WAN—WAN Connection Type:", choose as "3G", and click "Apply".
configure parameters according to the selected connection type.

Internet Settings	WAN Connection Type:	3G
WAN	3G Mode	
LAN	USB 3G modem	HUAWEI-EM770
DHCP clients	3G SIM Code	
VPN Passthrough	MTU	
Advanced Routing	Operation Mode	Keep Alive
VPN	MAC Clone	
DTU	Enabled	Disable
SMS/Voice Command	<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	
Status Report		
Route Fail Over		
GPS		

- Try to connect the RF-R586-s WiFi via your Laptop/PC. If can work, then go to step 7.
- Connect PC with RF-R586-c with RJ45 cable.
- at RF-R586-c, "Operation Mode", choose "AP client", and click "Apply"



3G Router

- Operation Mode
- Internet Settings
- Wireless Settings
- Firewall
- Administration

You may configure the operation mode suitable for you environ

Bridge:
 All ethernet and wireless interfaces are bridged into a sin

Gateway:
 The first ethernet port is treated as WAN port. The other et interface are bridged together and are treated as LAN port

AP Client:
 The wireless apcli interface is treated as WAN port, and th ethernet ports are LAN ports.

NAT Enabled

Apply Cancel

9. at RF-R586-c, “Wireless Settings—AP Client—SSID”, here input the correct one. Here the value is from the RF-R586-s.



3G Router

- Operation Mode
- Internet Settings
- Wireless Settings
 - Basic
 - Advanced
 - Security
 - WDS
 - WPS
 - AP Client
 - Station List
- Firewall
- Administration

You could configure AP Client parameters here..

AP Client Parameters	
SSID	<input type="text" value="3G Router"/>
MAC Address (Optional)	<input type="text"/>
Security Mode	<input type="text" value="OPEN"/>
Encryption Type	<input type="text" value="None"/>

Apply Cancel

10. at RF-R586-c, “Frequency (Channel)” and “Extension Channel” should be the same as RF-R586-s

RF-R586 Series Industrial Grade Cellular Router

Wireless Settings	BSSID	00:0C:43:30:52:88
Basic	Frequency (Channel)	2437MHz (Channel 6) ▼
Advanced	HT Physical Mode	
Security	Operating Mode	<input checked="" type="radio"/> Mixed Mode <input type="radio"/> Green Field
WDS	Channel BandWidth	<input type="radio"/> 20 <input checked="" type="radio"/> 20/40
WPS	Guard Interval	<input type="radio"/> Long <input checked="" type="radio"/> Auto
Station List	MCS	Auto ▼
Firewall	Reverse Direction Grant(RDG)	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
Administration	Extension Channel	2457MHz (Channel 10) ▼
	Aggregation MSDU(A-MSDU)	<input checked="" type="radio"/> Disable <input type="radio"/> Enable

11. at RF-R586-c, "Internet Settings--WAN", set the WAN connection type as "DHCP (Auto config)", and click "Apply" button.

Internet Settings	WAN Connection Type: DHCP (Auto config) ▼	
WAN	DHCP Mode	
LAN	Hostname (optional)	<input type="text"/>
DHCP clients	MAC Clone	
VPN Passthrough	Enabled	Disable ▼
Advanced Routing	<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	
VPN		
DTU		
SMS/Voice Command		
Status Report		
Route Fail Over		
GPS		
Wireless Settings		
Firewall		
Administration		

12. Then check RF-R586-c, "Administration--Status", if it shows "Operation Mode" as "AP client Mode" and get "WAN IP Address", that means the test is working.

[open all](#) | [close all](#)

- 3G Router
 - Operation Mode
 - Internet Settings
 - WAN
 - LAN
 - DHCP clients
 - VPN Passthrough
 - Advanced Routing
 - VPN
 - DTU
 - SMS/Voice Command
 - Status Report
 - Route Fail Over
 - GPS
 - Wireless Settings
 - Firewall
 - Administration
 - Management
 - Reboot
 - Upload Firmware
 - Settings Management
 - Status**
 - Statistics
 - System Log

Product Model	3G Router
Software Version	2.5.4 (Jun 8 2011)
Hardware Version	1.0.0
Device ID	280630562C080435
System Up Time	17 mins, 52 secs
Operation Mode	AP Client Mode
3G Info	
Signal Strength	open device error!
Attachment State	Automatic search
Local Network	
Local IP Address	10.10.10.254
Local Netmask	255.255.255.0
MAC Address	00:0C:43:30:52:88
Internet Configurations	
Connected Type	DHCP
WAN IP Address	10.10.10.101
Subnet Mask	255.255.255.0
Default Gateway	
Primary Domain Name Server	10.10.10.251
Secondary Domain Name Server	168.95.1.1
MAC Address	00:0C:43:30:52:89

5.2 GPS feature (For version with GPS feature only)

Note: the test is simulation test to approve and show the feature. Please make it work in your real application.

Here we run a TCP server tool as the GPS TCP server.

Step1: configure the GPS feature of the router.

GPS

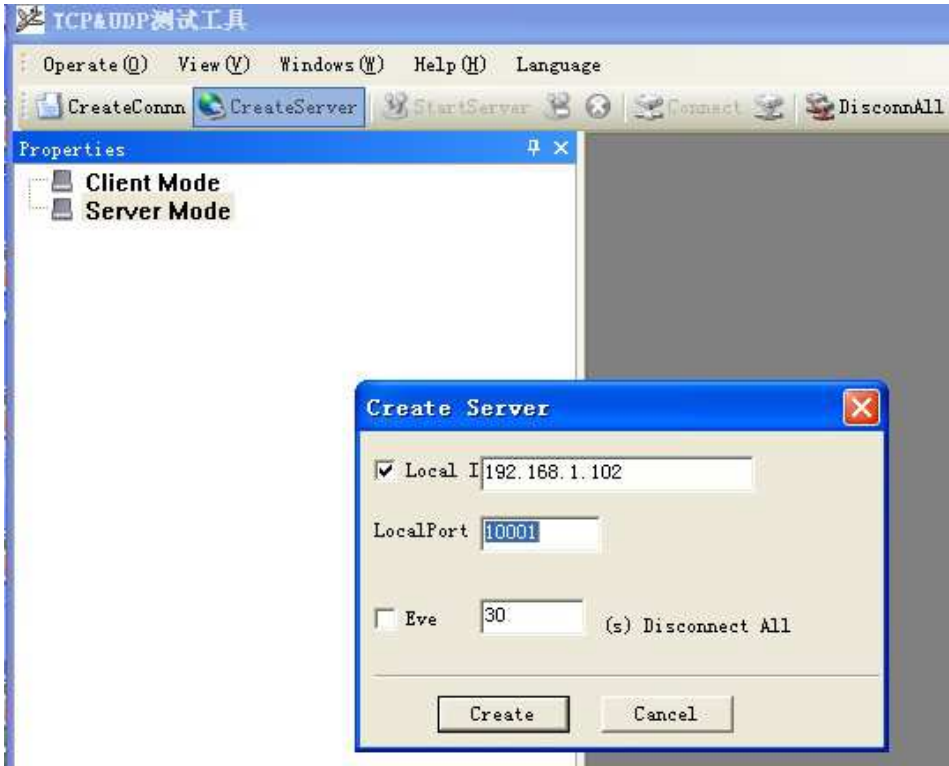
GPS Settings	
GPS Active	<input checked="" type="checkbox"/>
GPS Send to	<input type="radio"/> Serial <input checked="" type="radio"/> TCP/IP
GPS To Serial Settings	
Serial Baudrate	115200 <input type="text"/> bps
Serial Parity	none <input type="text"/>
Serial Databits	8 <input type="text"/> bits
Serial Stopbits	1 <input type="text"/> bits
Serial Flow Control	none <input type="text"/>
Comment: Do not used GPS with DTU when send to serial!	
GPS To TCP/IP Settings	
Socket Type	tcp <input type="text"/>
Server	27.38.13.57 <input type="text"/>
Port	10001 <input type="text"/>

Step 2: run the TCP server tool. You can ask us to get this tool if you need.

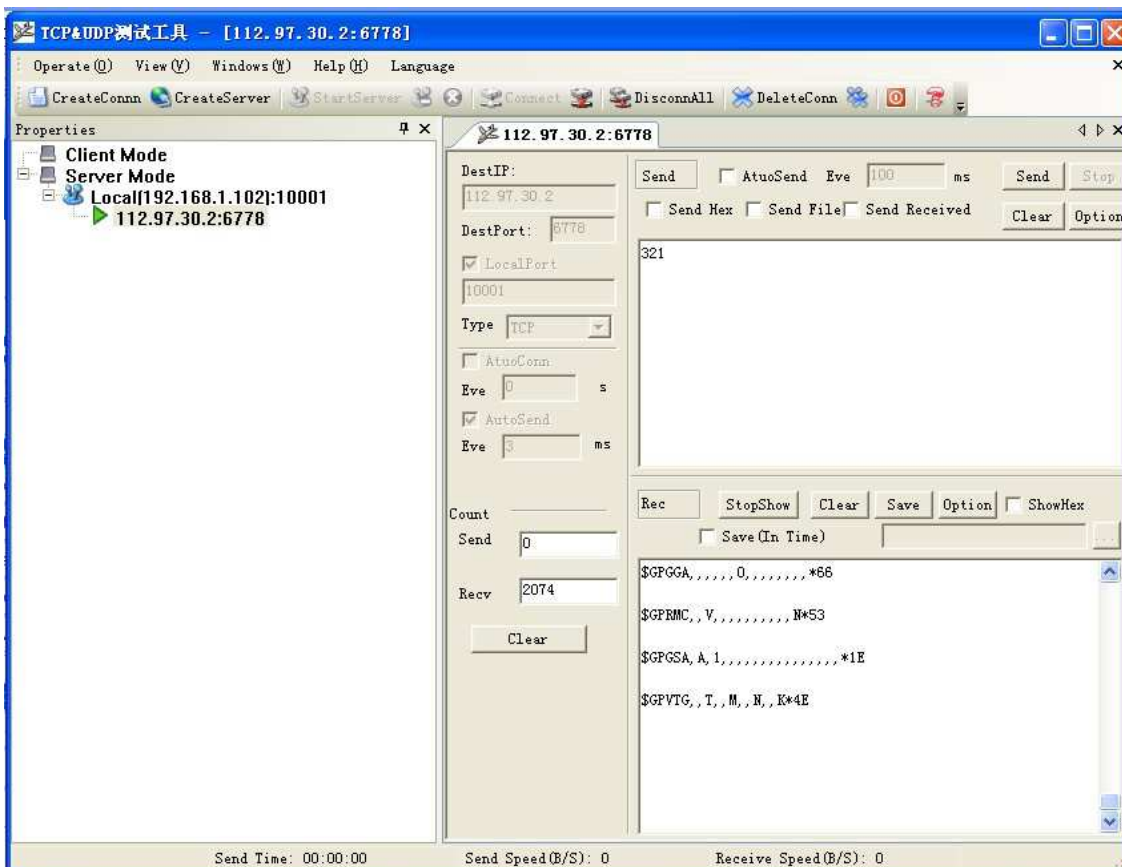
Create server, here our server is a local network PC with IP 192.168.1.102 and port 10001.

And we make a DMZ or NAT for this IP and port from the local router connected to internet with IP 27.38.13.57.

And in the router GPS configuration, we fill in "27.38.13.57" and port "10001".



Once the link is okay, it will show the following similar screen. If the route doesn't get the satellite, it appears and updates the GPS module info from the router to the TCP GPS server.



```
,*79
$GPGSV,3,3,09,15,12,087,*48
$GPGGA,,,,,0,,,,,*66
$GPRMC,,V,,,,,,,,,N*53
$GPGSA,A,1,,,,,,,,,,,,*1E
$GPVTG,,T,,M,,N,,K*4E
```

Picture: Feedback string if not get the satellite.

If the route gets the satellite, it appears and updates the GPS module info from the router to the TCP GPS server with the following similar string.

```
$GPGSV,3,3,10,12,54,144,16,18,52,144,28*79
$GPGGA,142038.0,2237.083418,N,11402.206048,E,1,04,8.9,-
107.0,M,,,,*21
$GPRMC,142038.0,A,2237.083418,N,11402.206048,E,,091211,
,,A*64
$GPGSA,A,3,18,21,22,31,,,,,,,,,13.5,8.9,10.1*3C
$GPVTG,,T,,M,0.0,N,0.0,K*4E
```

Picture: Feedback string if gets the satellite.

5.3 Port Forwarding (NAT, NAPT) test

Note: the test is simulation test to approve and show the feature. Please make it work in your real application.

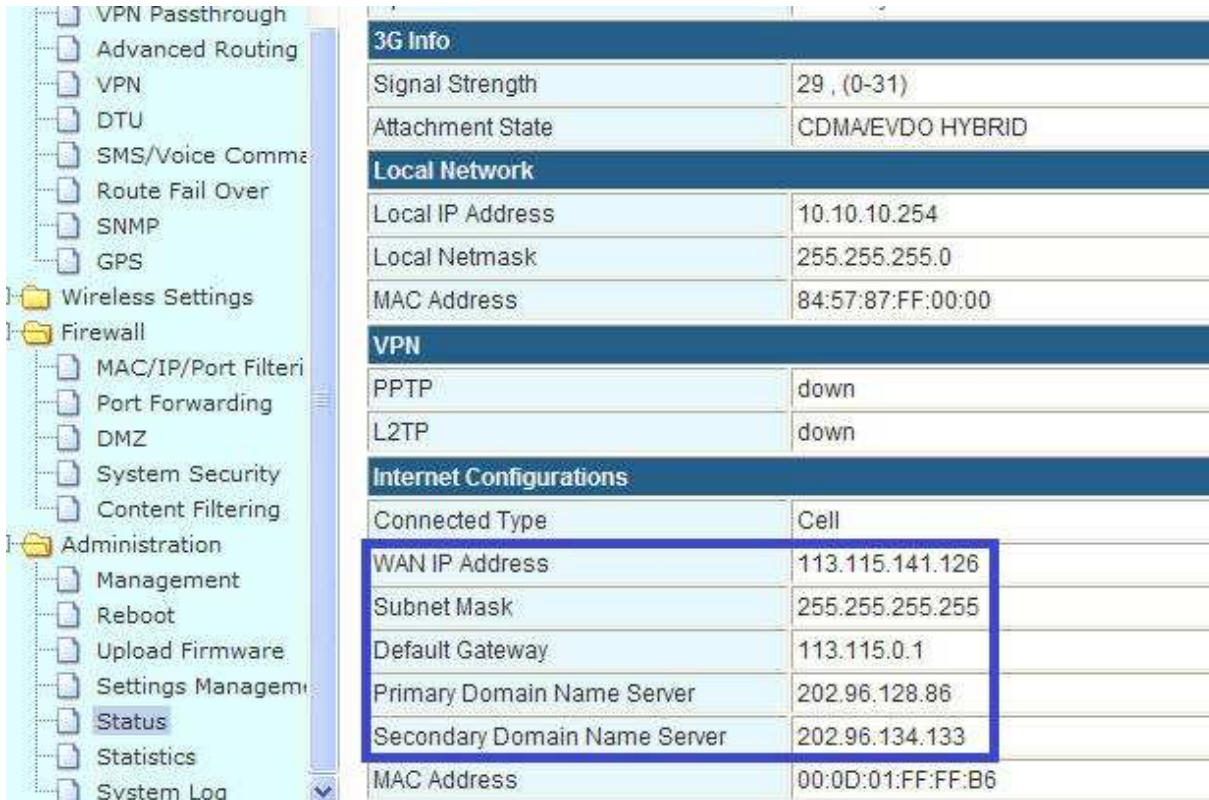
Warmly reminding:

Question: I configure the port forwarding feature correctly, but still no work.

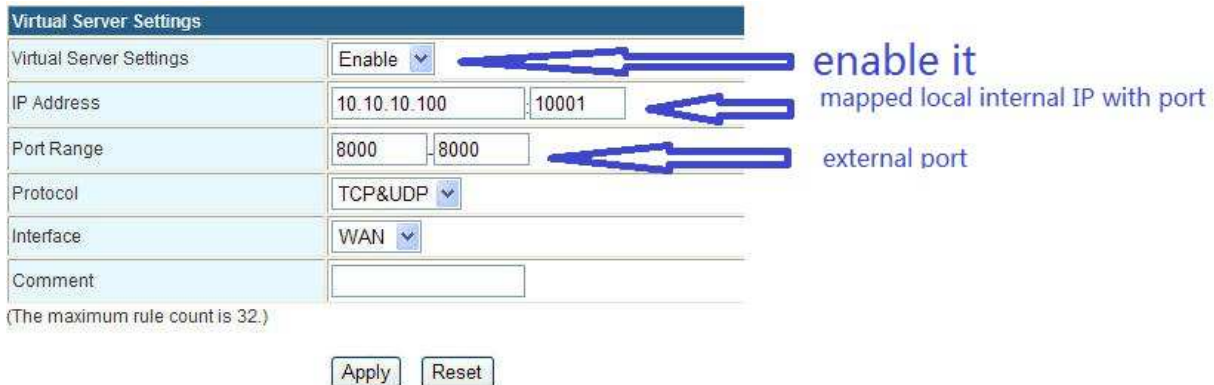
Answer: first, please check the port if block by your ISP, because some ISP block some ports for security reason.

For example, the RF-R586 gets WAN IP 27.38.14.223. And the RF-R586's default web port is 80. So from the other network, try to visit [http:// 27.38.14.223:80](http://27.38.14.223:80) if can be okay. If no okay, it means the ISP blocks the 80 port. Then check with your ISP which ports are open for use. Then re-try the port forwarding feature.

Step 1) make RF-R586 router to be online.



Step 2) configure the *port forwarding* feature for RF-R586 router



Click *Apply Button* to finish the setting. It will show the result in the following picture.



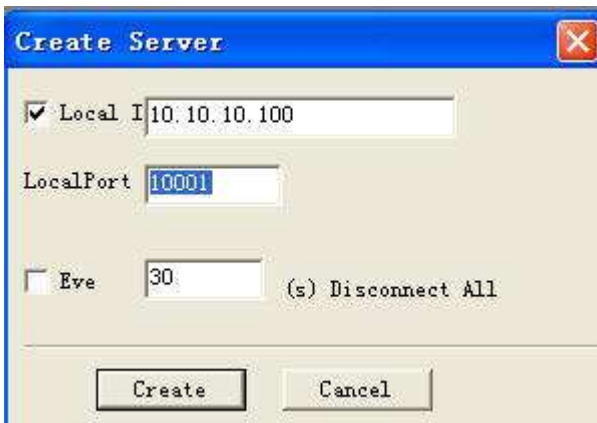
Step 3) here we take a PC to be as a TCP server/Remote Device.

Connect the PC to RF-R586 router LAN port via RJ45 cable. And it gets an IP 10.10.10.100.

At the PC, run *TCP&UDP_debug* software (If you have no such software, require to get from us).



Firstly, click *Server Mode*, and *CreateServer*,



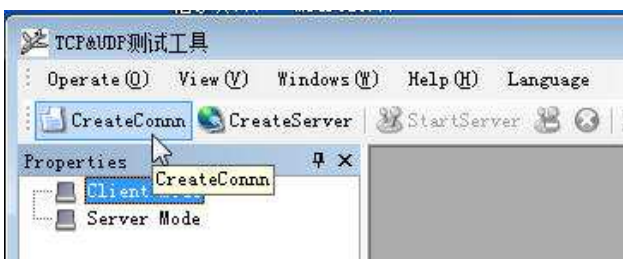
Secondly, fill in the parameters like this. The *Local IP* is the PC's IP from RF-R586 router. The *LocalPort* is the port of the PC which will be mapped. Click *Create Button* to finish.



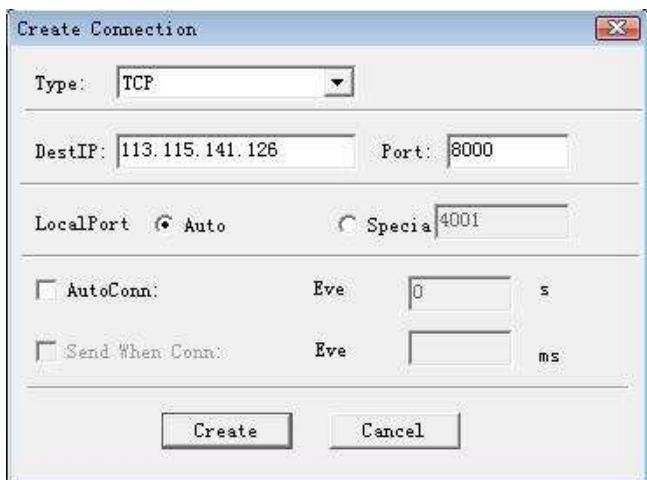
Choose the created server, and click *StartServer*. It will show the following windows.

Step 4) here we take another PC to be as a TCP client.

This PC is with internet in another network. Run *TCPUDP_debug* software tool, choose *Client Mode*,

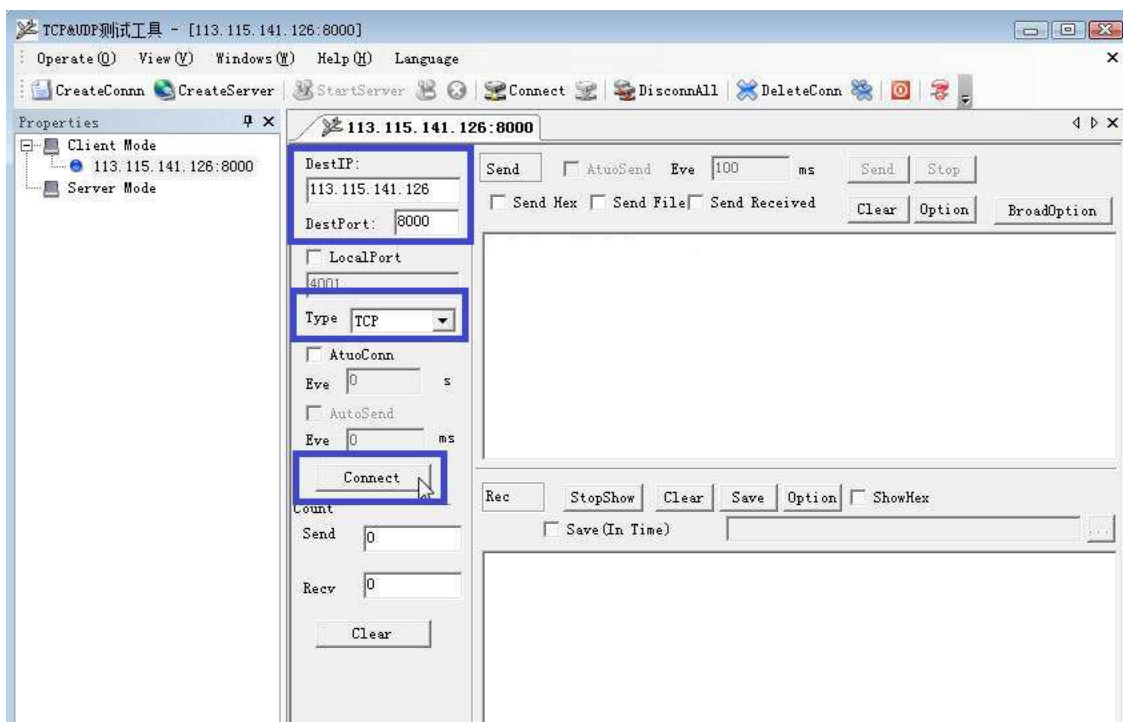


and click [CreateConn](#),

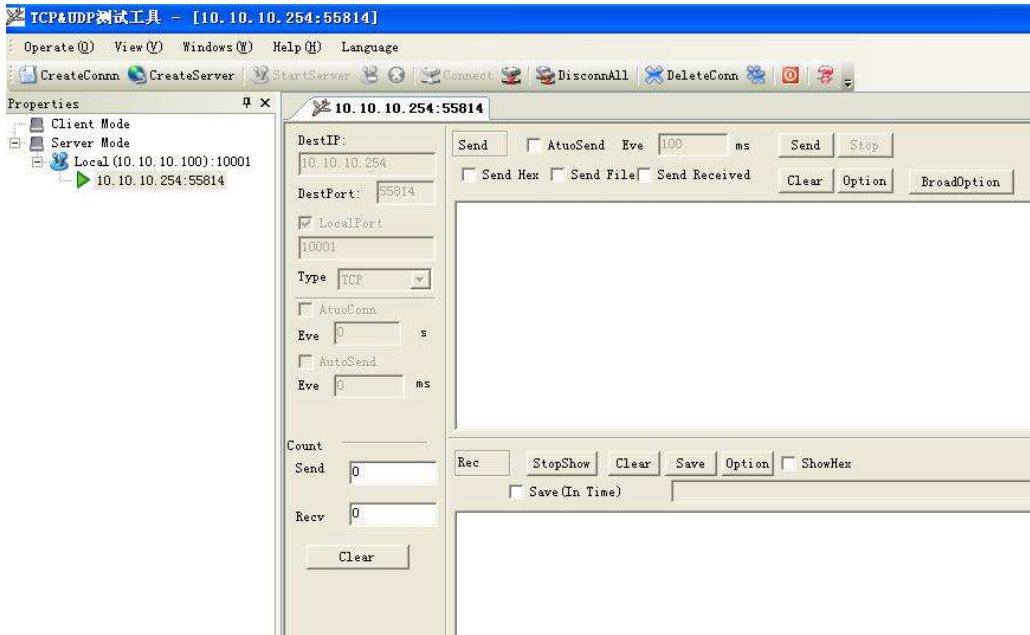


Type: choose TCP, DestIP: fill in the RF-R586 router's WAN IP (here is 113.115.141.126), Port: 8000 (This port is external port for mapped port 10001). Click [Create](#) button to finish.

Then check the DestIP, DestPort and Type, and click [Connect](#) button to link.

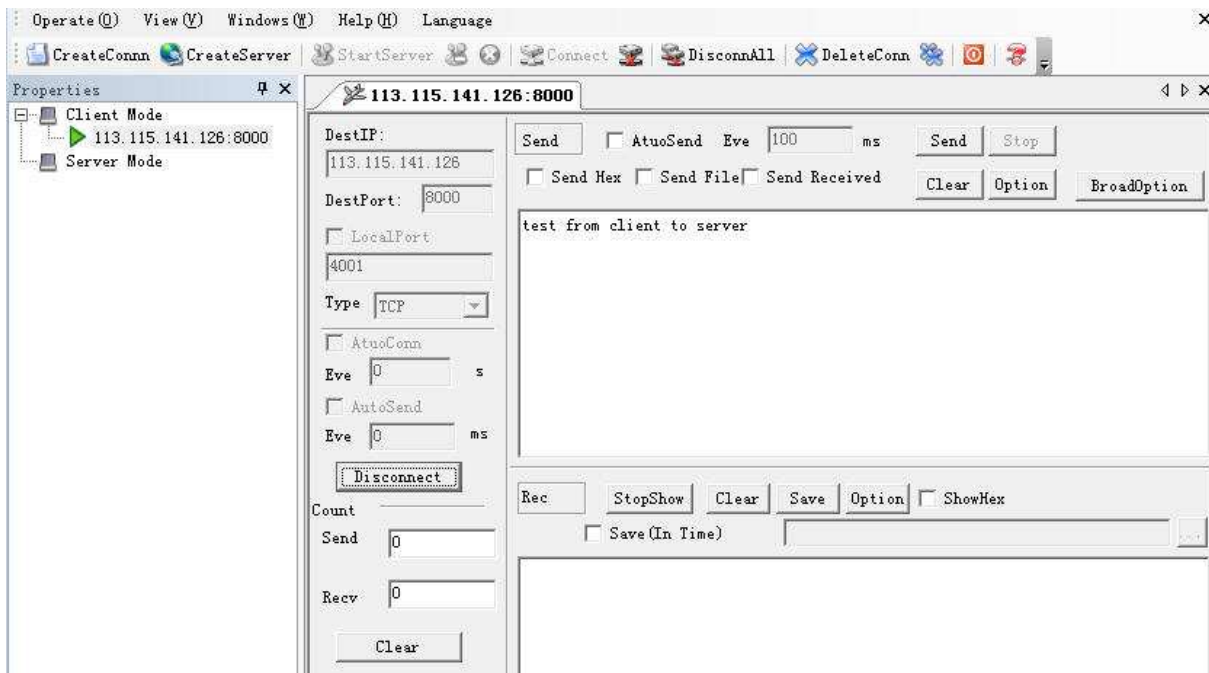


Once the link is done, at the Server PC's side, it shows the following picture, which indicates the link is created.

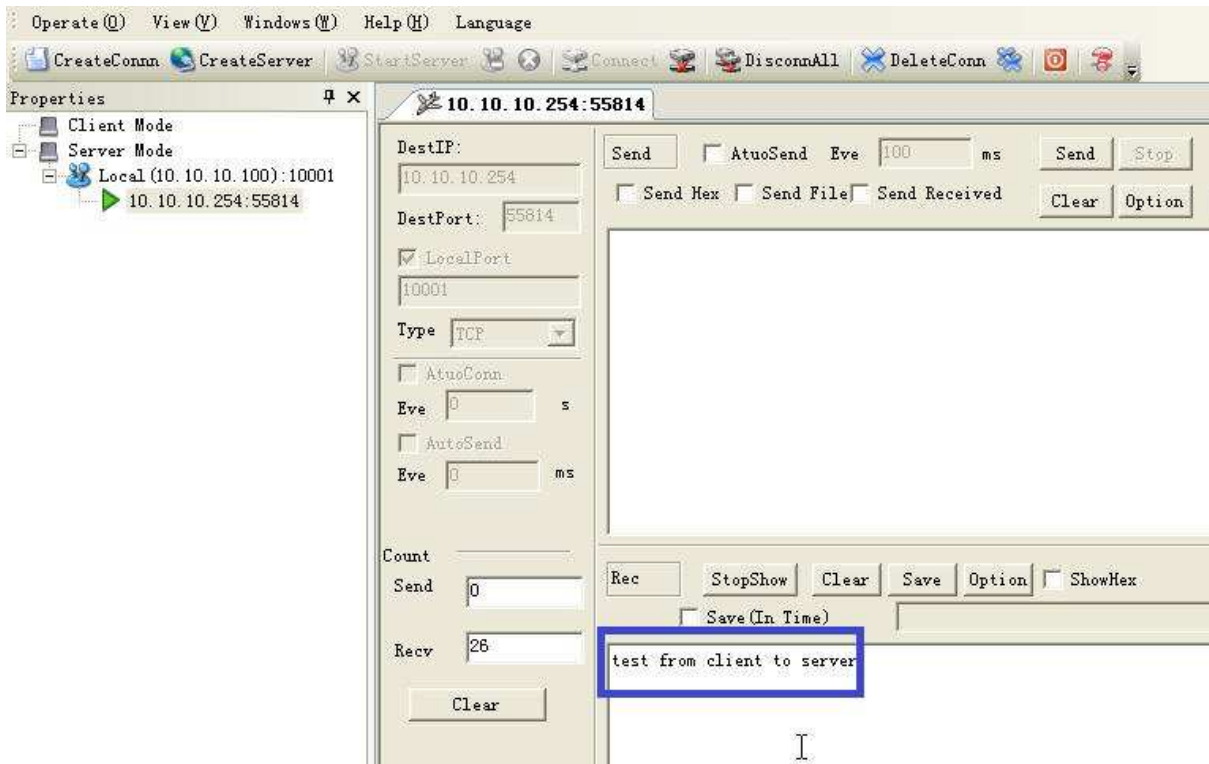


Step 5) Test the link for sending and receiving

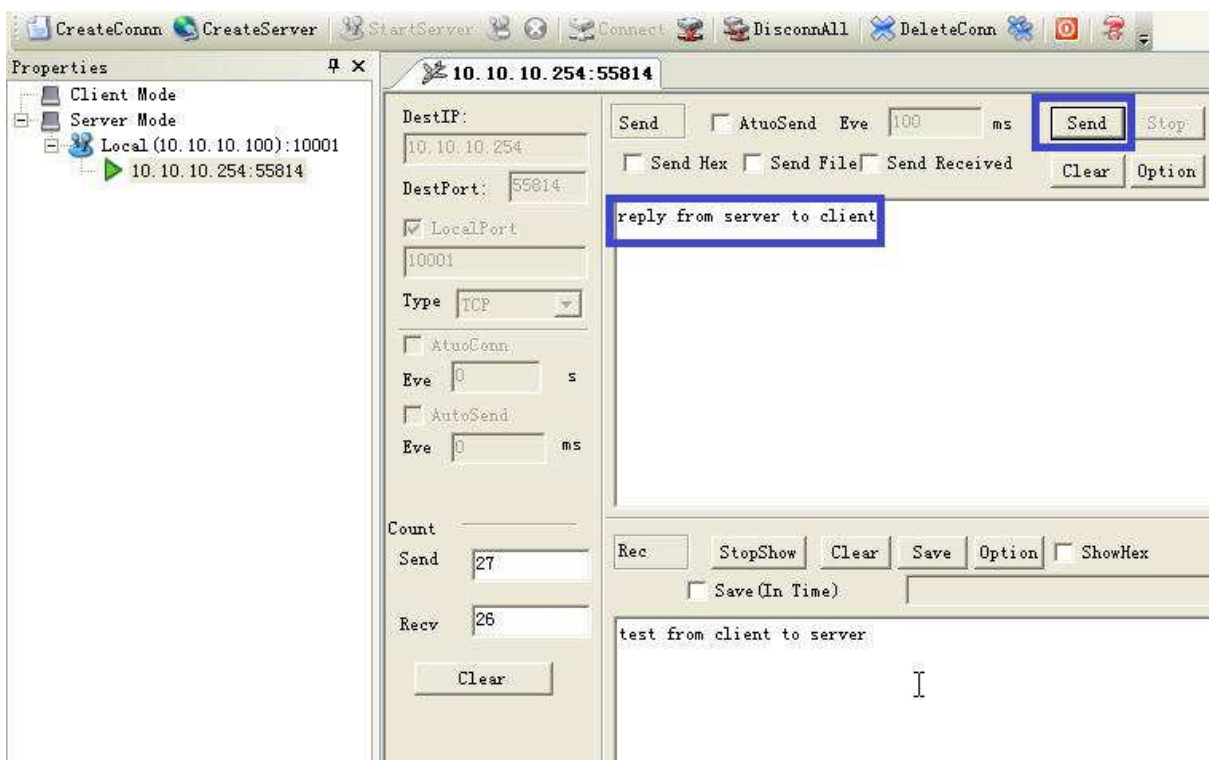
At client PC, type “test from client to server”, and click [Send](#) button.



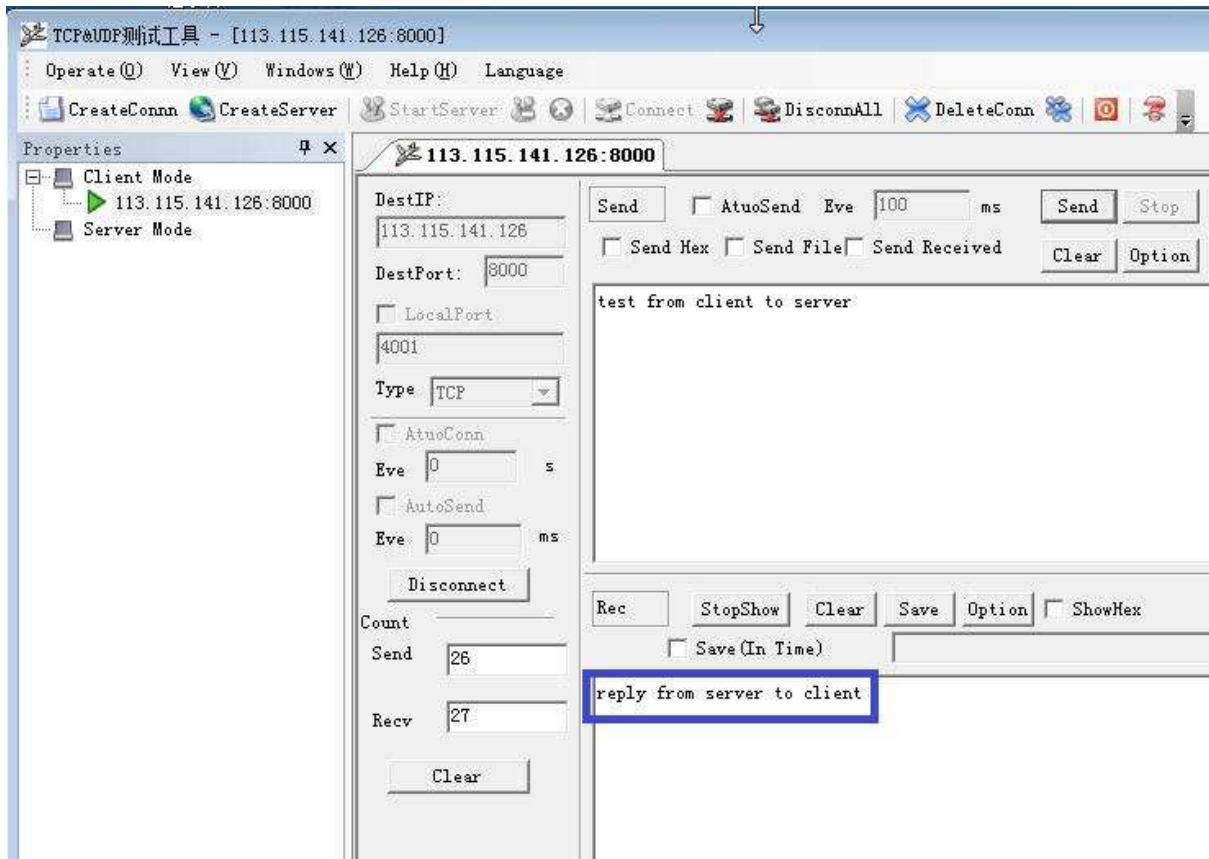
At the server PC, it will receive the info the client PC.



At Server PC, type “reply from server to client”, and click *Send* button.



At the client PC side, it will receive the related info from server PC side.



With this result, it indicates the port forwarding is working.

5.4 Remote Web Login

Step 1) make RF-R586 router to be online and get a public WAN IP.

<ul style="list-style-type: none"> Cell Router Operation Mode Internet Settings Wireless Settings Firewall Administration <ul style="list-style-type: none"> Management Reboot Upload Firmware Settings Management Status Statistics System Log 	<table border="1"> <tr><td>Software Version</td><td>3.6.16 (Mar 17 2012)</td></tr> <tr><td>Hardware Version</td><td>3.0.0</td></tr> <tr><td>Device ID</td><td>20F710B7CD0E00F8</td></tr> <tr><td>System Up Time</td><td>10 mins, 8 secs</td></tr> <tr><td>Operation Mode</td><td>Gateway Mode</td></tr> <tr><td colspan="2">Cell Info</td></tr> <tr><td>Signal Strength</td><td>10 , (0-31)</td></tr> <tr><td>Attachment State</td><td>Automatic search</td></tr> <tr><td colspan="2">Local Network</td></tr> <tr><td>Local IP Address</td><td>10.10.10.254</td></tr> <tr><td>Local Netmask</td><td>255.255.255.0</td></tr> <tr><td>MAC Address</td><td>00:0A:EB:11:82:E0</td></tr> <tr><td colspan="2">VPN</td></tr> <tr><td>PPTP</td><td>down</td></tr> <tr><td>L2TP</td><td>down</td></tr> <tr><td colspan="2">Internet Configurations</td></tr> <tr><td>Connected Type</td><td>Cell</td></tr> <tr><td>WAN IP Address</td><td>172.30.67.227</td></tr> <tr><td>Subnet Mask</td><td>255.255.255.255</td></tr> <tr><td>Default Gateway</td><td>10.64.64.64</td></tr> <tr><td>Primary Domain Name Server</td><td>210.21.196.6</td></tr> <tr><td>Secondary Domain Name Server</td><td>221.5.88.88</td></tr> </table>	Software Version	3.6.16 (Mar 17 2012)	Hardware Version	3.0.0	Device ID	20F710B7CD0E00F8	System Up Time	10 mins, 8 secs	Operation Mode	Gateway Mode	Cell Info		Signal Strength	10 , (0-31)	Attachment State	Automatic search	Local Network		Local IP Address	10.10.10.254	Local Netmask	255.255.255.0	MAC Address	00:0A:EB:11:82:E0	VPN		PPTP	down	L2TP	down	Internet Configurations		Connected Type	Cell	WAN IP Address	172.30.67.227	Subnet Mask	255.255.255.255	Default Gateway	10.64.64.64	Primary Domain Name Server	210.21.196.6	Secondary Domain Name Server	221.5.88.88
Software Version	3.6.16 (Mar 17 2012)																																												
Hardware Version	3.0.0																																												
Device ID	20F710B7CD0E00F8																																												
System Up Time	10 mins, 8 secs																																												
Operation Mode	Gateway Mode																																												
Cell Info																																													
Signal Strength	10 , (0-31)																																												
Attachment State	Automatic search																																												
Local Network																																													
Local IP Address	10.10.10.254																																												
Local Netmask	255.255.255.0																																												
MAC Address	00:0A:EB:11:82:E0																																												
VPN																																													
PPTP	down																																												
L2TP	down																																												
Internet Configurations																																													
Connected Type	Cell																																												
WAN IP Address	172.30.67.227																																												
Subnet Mask	255.255.255.255																																												
Default Gateway	10.64.64.64																																												
Primary Domain Name Server	210.21.196.6																																												
Secondary Domain Name Server	221.5.88.88																																												

Here the RF-R586 router gets WAN IP of 172.30.67.227, which is not a public IP, and cannot be ping through via the test PC. So we cannot make the remote visit of the RF-R586 router web.

Let's get a public IP for RF-R586 router first. Here we change another sim card to test.

<ul style="list-style-type: none"> Cell Router <ul style="list-style-type: none"> Operation Mode Internet Settings <ul style="list-style-type: none"> WAN LAN DHCP clients VPN Passthrough Advanced Routing VPN DTU SMS/Voice Command Route Fail Over SNMP GPS Wireless Settings Firewall Administration <ul style="list-style-type: none"> Management Reboot Upload Firmware Settings Management Status Statistics System Log 	<table border="1"> <tr><td>Software Version</td><td>3.6.16 (Mar 17 2012)</td></tr> <tr><td>Hardware Version</td><td>3.0.0</td></tr> <tr><td>Device ID</td><td>20F710B7CD0E00F8</td></tr> <tr><td>System Up Time</td><td>7 mins, 58 secs</td></tr> <tr><td>Operation Mode</td><td>Gateway Mode</td></tr> <tr><td colspan="2">Cell Info</td></tr> <tr><td>Signal Strength</td><td>31 , (0-31)</td></tr> <tr><td>Attachment State</td><td>CDMA/EVDO HYBRID</td></tr> <tr><td colspan="2">Local Network</td></tr> <tr><td>Local IP Address</td><td>10.10.10.254</td></tr> <tr><td>Local Netmask</td><td>255.255.255.0</td></tr> <tr><td>MAC Address</td><td>00:0A:EB:11:82:E0</td></tr> <tr><td colspan="2">VPN</td></tr> <tr><td>PPTP</td><td>down</td></tr> <tr><td>L2TP</td><td>down</td></tr> <tr><td colspan="2">Internet Configurations</td></tr> <tr><td>Connected Type</td><td>Cell</td></tr> <tr style="border: 2px solid red;"><td>WAN IP Address</td><td>183.43.55.249</td></tr> <tr><td>Subnet Mask</td><td>255.255.255.255</td></tr> <tr style="border: 2px solid red;"><td>Default Gateway</td><td>113.115.0.1</td></tr> <tr><td>Primary Domain Name Server</td><td>202.96.128.86</td></tr> <tr><td>Secondary Domain Name Server</td><td>202.96.134.133</td></tr> </table>	Software Version	3.6.16 (Mar 17 2012)	Hardware Version	3.0.0	Device ID	20F710B7CD0E00F8	System Up Time	7 mins, 58 secs	Operation Mode	Gateway Mode	Cell Info		Signal Strength	31 , (0-31)	Attachment State	CDMA/EVDO HYBRID	Local Network		Local IP Address	10.10.10.254	Local Netmask	255.255.255.0	MAC Address	00:0A:EB:11:82:E0	VPN		PPTP	down	L2TP	down	Internet Configurations		Connected Type	Cell	WAN IP Address	183.43.55.249	Subnet Mask	255.255.255.255	Default Gateway	113.115.0.1	Primary Domain Name Server	202.96.128.86	Secondary Domain Name Server	202.96.134.133
Software Version	3.6.16 (Mar 17 2012)																																												
Hardware Version	3.0.0																																												
Device ID	20F710B7CD0E00F8																																												
System Up Time	7 mins, 58 secs																																												
Operation Mode	Gateway Mode																																												
Cell Info																																													
Signal Strength	31 , (0-31)																																												
Attachment State	CDMA/EVDO HYBRID																																												
Local Network																																													
Local IP Address	10.10.10.254																																												
Local Netmask	255.255.255.0																																												
MAC Address	00:0A:EB:11:82:E0																																												
VPN																																													
PPTP	down																																												
L2TP	down																																												
Internet Configurations																																													
Connected Type	Cell																																												
WAN IP Address	183.43.55.249																																												
Subnet Mask	255.255.255.255																																												
Default Gateway	113.115.0.1																																												
Primary Domain Name Server	202.96.128.86																																												
Secondary Domain Name Server	202.96.134.133																																												

RF-R586 router gets a WAN IP 183.43.55.249, which is a public IP, and can ping though.

```

正在 Ping 183.43.55.249 具有 32 字节的数据:
请求超时。
来自 183.43.55.249 的回复: 字节=32 时间=1480ms TTL=52
来自 183.43.55.249 的回复: 字节=32 时间=67ms TTL=52
来自 183.43.55.249 的回复: 字节=32 时间=79ms TTL=52
来自 183.43.55.249 的回复: 字节=32 时间=92ms TTL=52
来自 183.43.55.249 的回复: 字节=32 时间=69ms TTL=52
来自 183.43.55.249 的回复: 字节=32 时间=71ms TTL=52
来自 183.43.55.249 的回复: 字节=32 时间=65ms TTL=52
  
```

Step 2) Make sure the "Remote Management" feature is activated.

Remote management	
Remote management (via WAN)	Allow ▼

Ping form WAN Filter	
Ping form WAN Filter	Disable ▼

Stateful Packet Inspection (SPI)	
SPI Firewall	Disable ▼

Step 3) at the test PC, open the IE, and input <http://183.43.55.249:80> to enter the RF-R586 router's web.

Notes:

1) The RF-R586 router's web port default is 80. Some ISP block the port 80 because of some security. Then please confirm the ISP the opened port, and change the web port for RF-R586 router before remote visiting.

Please refer to [Chapter 3.3.14.1.1 Router web port](#) to change the web port.

2) If you cannot get a fixed public WAN IP, you can use RF-R586 router's DDNS feature. Refer to [chapter 3.3.14.1.3 DDNS settings](#) to configure.

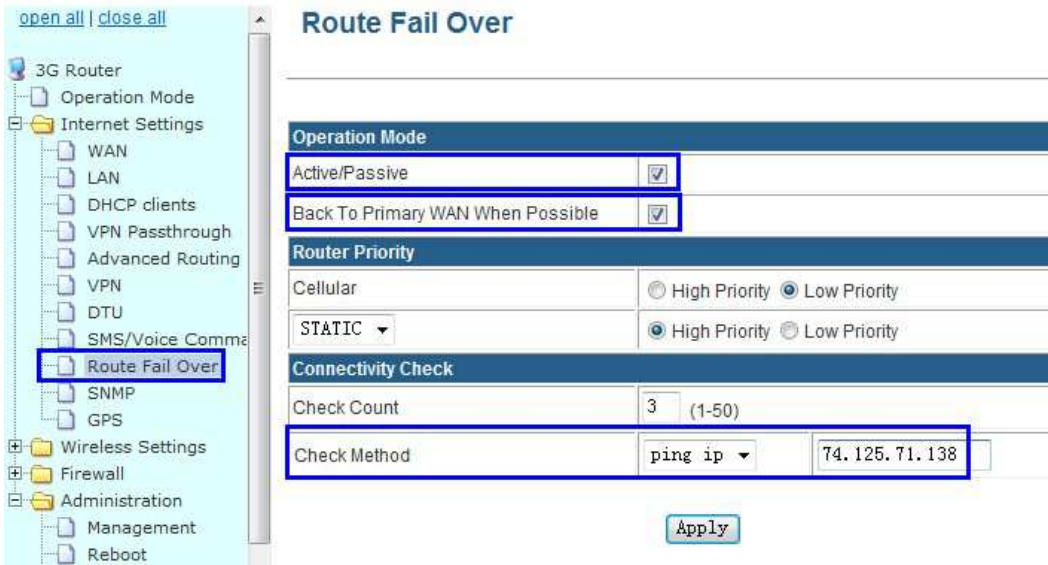
Then you can input <http://ddns:port> to visit the RF-R586 router's web port.

5.5 WAN RJ45 Static (fixed IP) and Cellular Fail Over backup redundancy

Please connect the RJ45 WAN port and the upper Router LAN RJ45 port via RJ45 cable. The RF-R586 WAN LED should be on.

Step 1) log into the RF-R586 router web.

Step 2) Internet Settings – Route Fail Over



Active/Passive: tick it

Back To Primary WAN When Possible: tick it (if you activate this, the router will automatically switch to primary main line from secondary line if primary main line resume to work. If you don't activate this, the router will keep working in secondary line if primary line fails.)

Router Priority: You can select main line and secondary line for Cellular and WAN RJ45 "STATIC/DHCP/PPPoE"

For example, here we set Cellular as secondary line, and WAN RJ45 STATIC as main line. Then choose as the picture above.

Check Count: fill in the number you want to check the line available detection.

Checking Method: fill in a public IP address that can be ping through.

With the above configuration, the router will try to ping IP 74. 125.71.138 and if cannot be through for 3 times continuously, it will switch to secondary line.

Step 3) Internet Settings – WAN – WAN Connection Type – Cell.

Configure the Cell WAN parameters.

Please make sure RF-R586 can be Cell online after this configuration. Otherwise the fail over feature will not work in redundancy

Wireless M2M Cellular Router/Modem

open all | close all

- 3G Router
 - Operation Mode
 - Internet Settings
 - WAN
 - LAN
 - DHCP clients
 - VPN Passthrough
 - Advanced Routing
 - VPN
 - DTU
 - SMS/Voice Command
 - Route Fail Over
 - SNMP
 - GPS
 - Wireless Settings
 - Firewall
 - Administration

WAN Connection Type: Cell

Cell Mode

modem: HUAWEI-EM770

SIM Code: []

MTU: []

Operation Mode: Keep Alive

MAC Clone

Enabled: Disable

Apply Cancel

mobile MSP Parameters

MSP Name: WCDMA

network type: Automatic search

Dialing Number: *99#

Initial Command String: []

User Name: wap

Password: []

Local IP: []

Authenticate Type: AUTO

Use Software Compress: Enable

common command list: GSM/WCDMA/TD: AT+CGDCONT=1,"IP","APN",
CDMA/EVDO: AT+PPPCFG="user","password"

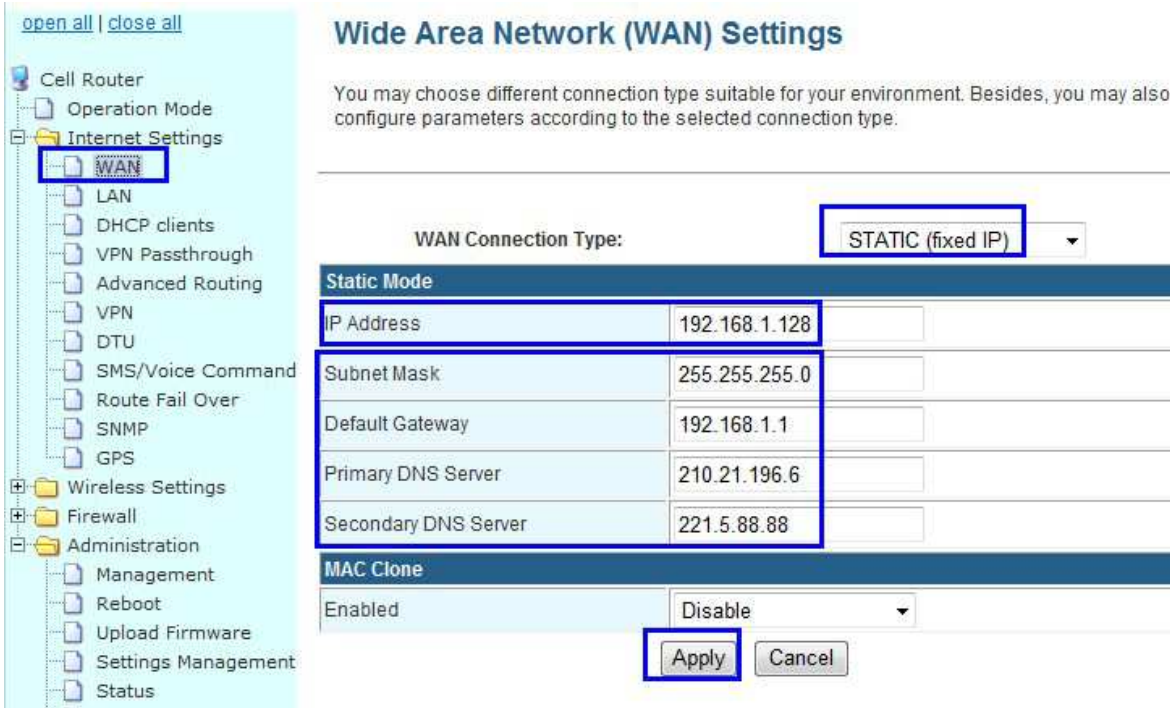
Add to List

MSP List

No.	MSP Name	Dialing Number	Initial Command String	User Name	Password	Local IP	Operation
<input type="radio"/>	CDMA	#777		CARD	CARD		Delete
<input checked="" type="radio"/>	WCDMA	*99#		wap	wap		Delete
<input type="radio"/>	TD-SCDMA	*99***1#		wap	wap		Delete

Select to Use

Step 4) Internet Settings – WAN – WAN Connection Type – STATIC (fixed IP)
Configure the STATIC (fixed IP),



Wide Area Network (WAN) Settings

You may choose different connection type suitable for your environment. Besides, you may also configure parameters according to the selected connection type.

WAN Connection Type: **STATIC (fixed IP)**

Static Mode	
IP Address	192.168.1.128
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
Primary DNS Server	210.21.196.6
Secondary DNS Server	221.5.88.88

MAC Clone: Enabled (Disable)

Buttons: **Apply** Cancel

IP Address: fill in the assigned fixed LAN IP address from the upper router for RF-R586. Here our upper router can assign a fixed LAN IP 192.168.1.128 for RF-R586.

Subnet Mask: the upper router’s subnet mask.

Default Gateway: fill in the default gateway. Here the default gateway is 192.168.1.1 of upper router.

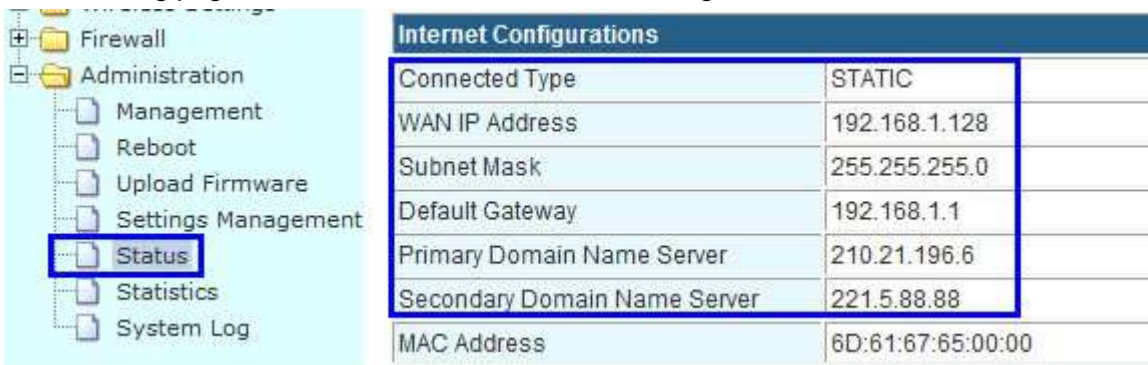
Primary DNS Server: fill in a right DNS server

Secondary DNS Server: fill in a right DNS server.

Notes: Do not forget to click “Apply” button.

Step 5) The RF-R586 router will automatically reboot and try to connect the STATIC WAN RJ45 as main line. If main line failed, it will switch to Cell as secondary line. And if STATIC WAN RJ45 resume to work, it will switch from Cell line to STATIC WAN RJ45 line.

The following page indicated the Static fixed IP is working.



Internet Configurations

Connected Type	STATIC
WAN IP Address	192.168.1.128
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
Primary Domain Name Server	210.21.196.6
Secondary Domain Name Server	221.5.88.88
MAC Address	6D:61:67:65:00:00

Once the Static (fixed IP) is failed, RF-R586 will switch to cellular automatically as follows,

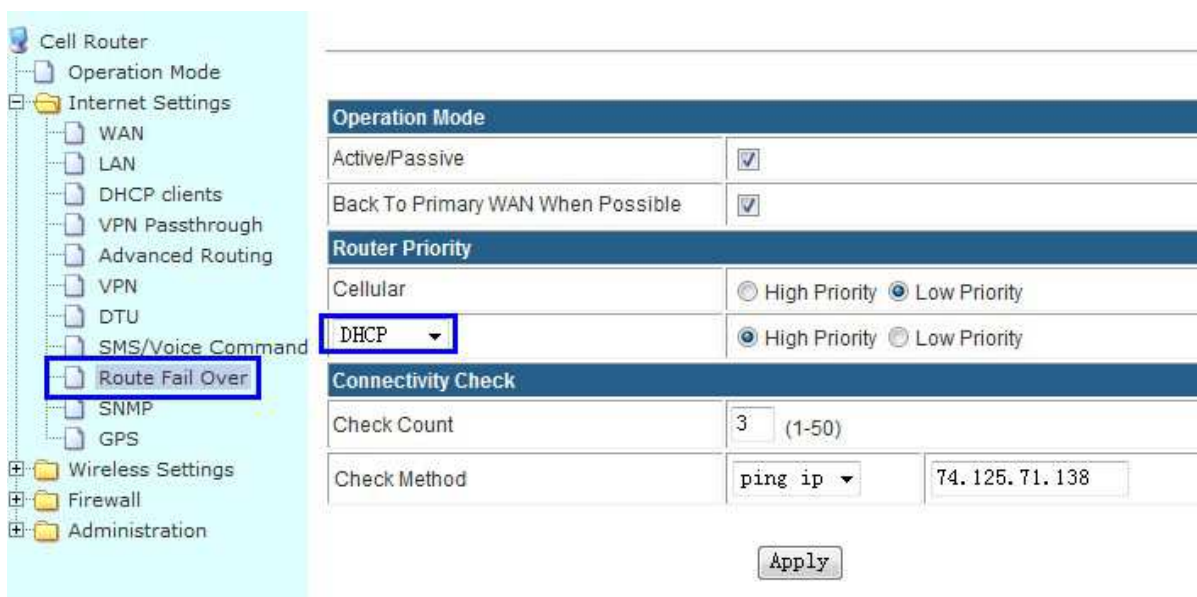
Internet Configurations	
Connected Type	Cell
WAN IP Address	172.20.5.78
Subnet Mask	255.255.255.255
Default Gateway	10.64.64.64
Primary Domain Name Server	210.21.196.6
Secondary Domain Name Server	221.5.88.88
MAC Address	6D:61:67:65:00:00

5.6 WAN RJ45 DHCP and Cellular Fail Over backup redundancy

Please connect the RJ45 WAN port and the upper Router LAN RJ45 port via RJ45 cable. The RF-R586 WAN LED should be on.

Step 1) log into the RF-R586 router web.

Step 2) Internet Settings – Route Fail Over



Active/Passive: tick it

Back To Primary WAN When Possible: tick it (if you activate this, the router will automatically switch to primary main line from secondary line if primary main line resume to work. If you don't activate this, the router will keep working in secondary line if primary line fails.)

Router Priority: You can select main line and secondary line for Cellular and WAN RJ45 “STATIC/DHCP/PPPoE”

For example, here we set Cellular as secondary line, and WAN RJ45 DHCP as main line. Then choose as the picture above.

Check Count: fill in the number you want to check the line available detection.

Checking Method: fill in a public IP address that can be ping through.

With the above configuration, the router will try to ping IP 74.125.71.138 and if cannot be through for 3

times continuously, it will switch to secondary line.

Step 3) Internet Settings – WAN – WAN Connection Type – Cell.

Configure the Cell WAN parameters.

Please make sure RF-R586 can be Cell online after this configuration. Otherwise the fail over feature will not work in redundancy

Wireless M2M Cellular Router/Modem

open all | close all

- 3G Router
 - Operation Mode
 - Internet Settings
 - WAN
 - LAN
 - DHCP clients
 - VPN Passthrough
 - Advanced Routing
 - VPN
 - DTU
 - SMS/Voice Command
 - Route Fail Over
 - SNMP
 - GPS
 - Wireless Settings
 - Firewall
 - Administration

WAN Connection Type: Cell

Cell Mode

modem: HUAWEI-EM770

SIM Code: []

MTU: []

Operation Mode: Keep Alive

MAC Clone

Enabled: Disable

Apply Cancel

mobile MSP Parameters

MSP Name: WCDMA

network type: Automatic search

Dialing Number: *99#

Initial Command String: []

User Name: wap

Password: []

Local IP: []

Authenticate Type: AUTO

Use Software Compress: Enable

common command list: GSM/WCDMA/TD: AT+CGDCONT=1,"IP","APN",
CDMA/EVDO: AT+PPPCFG="user","password"

Add to List

MSP List

No.	MSP Name	Dialing Number	Initial Command String	User Name	Password	Local IP	Operation
<input type="radio"/>	CDMA	#777		CARD	CARD		Delete
<input checked="" type="radio"/>	WCDMA	*99#		wap	wap		Delete
<input type="radio"/>	TD-SCDMA	*99***1#		wap	wap		Delete

Select to Use

Step 4) Internet Settings – WAN – WAN Connection Type – DHCP (Auto config)

Choose “DHCP (Auto config)” at WAN Connection Type, and click “Apply” button

Internet Settings

- WAN
- LAN
- DHCP clients
- VPN Passthrough
- Advanced Routing
- VPN
- DTU
- SMS/Voice Command
- Route Fail Over
- SNMP
- GPS
- Wireless Settings
- Firewall

WAN Connection Type: DHCP (Auto config)

DHCP Mode

Hostname (optional): []

MAC Clone

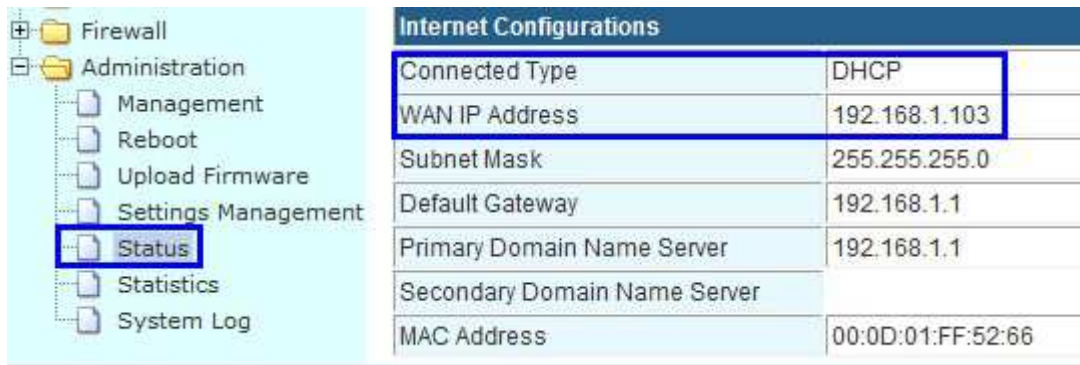
Enabled: Disable

Apply Cancel

Notes: Do not forget to click “Apply” button.

Step 5) The RF-R586 router will automatically reboot and try to connect the DHCP WAN RJ45 as main line. If main line failed, it will switch to Cell as secondary line. And if DHCP WAN RJ45 resume to work, it will switch from Cell line to DHCP WAN RJ45 line.

The following page indicated the DHCP is working.



Internet Configurations	
Connected Type	DHCP
WAN IP Address	192.168.1.103
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
Primary Domain Name Server	192.168.1.1
Secondary Domain Name Server	
MAC Address	00:0D:01:FF:52:66

Once the DHCP (Auto config) is failed, RF-R586 will switch to cellular automatically as follows,

Internet Configurations	
Connected Type	Cell
WAN IP Address	172.20.5.78
Subnet Mask	255.255.255.255
Default Gateway	10.64.64.64
Primary Domain Name Server	210.21.196.6
Secondary Domain Name Server	221.5.88.88
MAC Address	6D:61:67:65:00:00

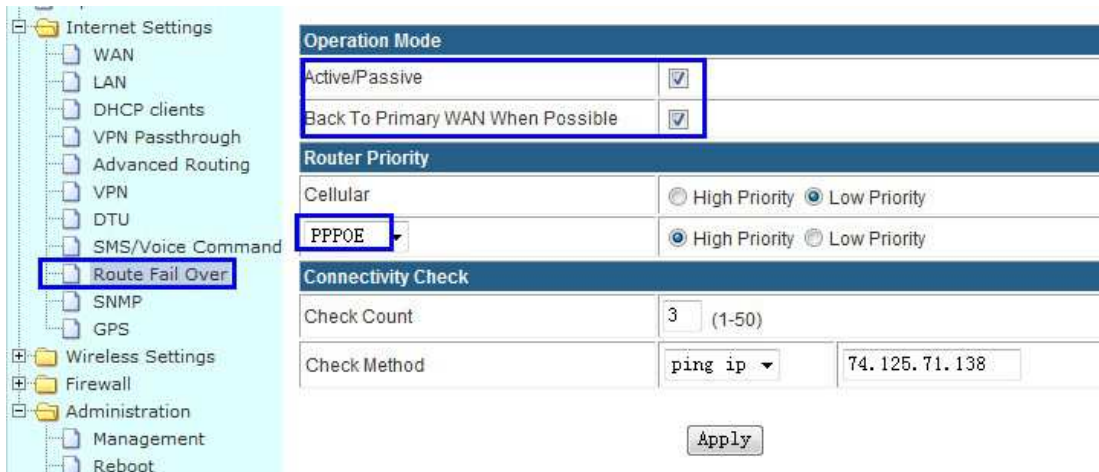
Notes: if the DHCP cannot get WAN IP Address, please “Load Default” for RF-R586 router to retry.

5.7 WAN RJ45 PPPoE and Cellular Fail Over backup redundancy

Please connect the RJ45 WAN port and the ADSL modem RJ45 port via RJ45 cable. The RF-R586 WAN LED should be on.

Step 1) log into the RF-R586 router web.

Step 2) Internet Settings – Route Fail Over



Active/Passive: tick it

Back To Primary WAN When Possible: tick it (if you activate this, the router will automatically switch to primary main line from secondary line if primary main line resume to work. If you don't activate this, the router will keep working in secondary line if primary line fails.)

Router Priority: You can select main line and secondary line for Cellular and WAN RJ45 "STATIC/DHCP/PPPoE"

For example, here we set Cellular as secondary line, and WAN RJ45 PPPOE as main line. Then choose as the picture above.

Check Count: fill in the number you want to check the line available detection.

Checking Method: fill in a public IP address that can be ping through.

With the above configuration, the router will try to ping IP 74.125.71.138 and if cannot be through for 3 times continuously, it will switch to secondary line.

Step 3) Internet Settings – WAN – WAN Connection Type – Cell.

Configure the Cell WAN parameters.

Please make sure RF-R586 can be Cell online after this configuration. Otherwise the fail over feature will not work in redundancy

Wireless M2M Cellular Router/Modem

open all | close all

- 3G Router
 - Operation Mode
 - Internet Settings
 - WAN
 - LAN
 - DHCP clients
 - VPN Passthrough
 - Advanced Routing
 - VPN
 - DTU
 - SMS/Voice Command
 - Route Fail Over
 - SNMP
 - GPS
 - Wireless Settings
 - Firewall
 - Administration

WAN Connection Type: Cell

Cell Mode

modem: HUAWEI-EM770

SIM Code: []

MTU: []

Operation Mode: Keep Alive

MAC Clone

Enabled: Disable

[Apply] [Cancel]

mobile MSP Parameters

MSP Name: WCDMA

network type: Automatic search

Dialing Number: *99#

Initial Command String: []

User Name: wap

Password: []

Local IP: []

Authenticate Type: AUTO

Use Software Compress: Enable

common command list: GSM/WCDMA/TD: AT+CGDCONT=1,"IP","APN",
CDMA/EVDO: AT+PPPCFG="user","password"

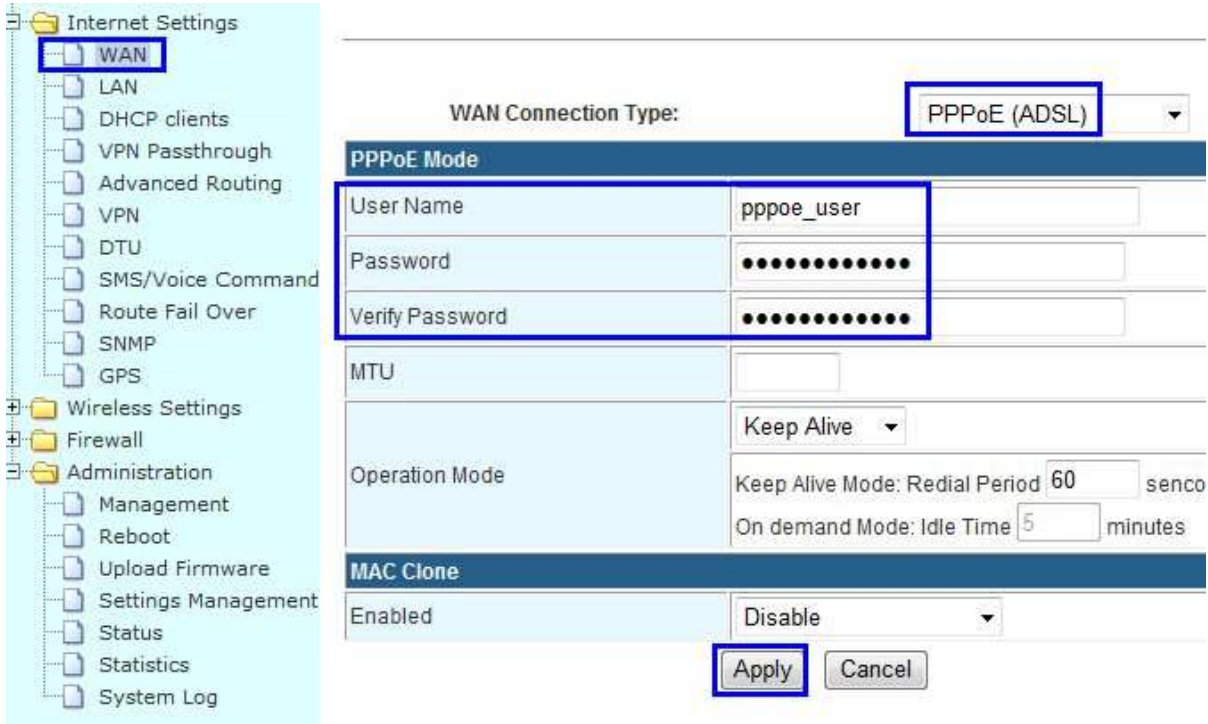
[Add to List]

MSP List

No.	MSP Name	Dialing Number	Initial Command String	User Name	Password	Local IP	Operation
<input type="radio"/>	CDMA	#777		CARD	CARD		[Delete]
<input checked="" type="radio"/>	WCDMA	*99#		wap	wap		[Delete]
<input type="radio"/>	TD-SCDMA	*99***1#		wap	wap		[Delete]

[Select to Use]

Step 4) Internet Settings – WAN – WAN Connection Type – PPPoE (ADSL)



Internet Settings

- WAN
- LAN
- DHCP clients
- VPN Passthrough
- Advanced Routing
- VPN
- DTU
- SMS/Voice Command
- Route Fail Over
- SNMP
- GPS

Wireless Settings

Firewall

Administration

- Management
- Reboot
- Upload Firmware
- Settings Management
- Status
- Statistics
- System Log

WAN Connection Type: PPPoE (ADSL)

PPPoE Mode

User Name	pppoe_user
Password
Verify Password
MTU	
Operation Mode	Keep Alive
	Keep Alive Mode: Redial Period 60 seconds
	On demand Mode: Idle Time 5 minutes

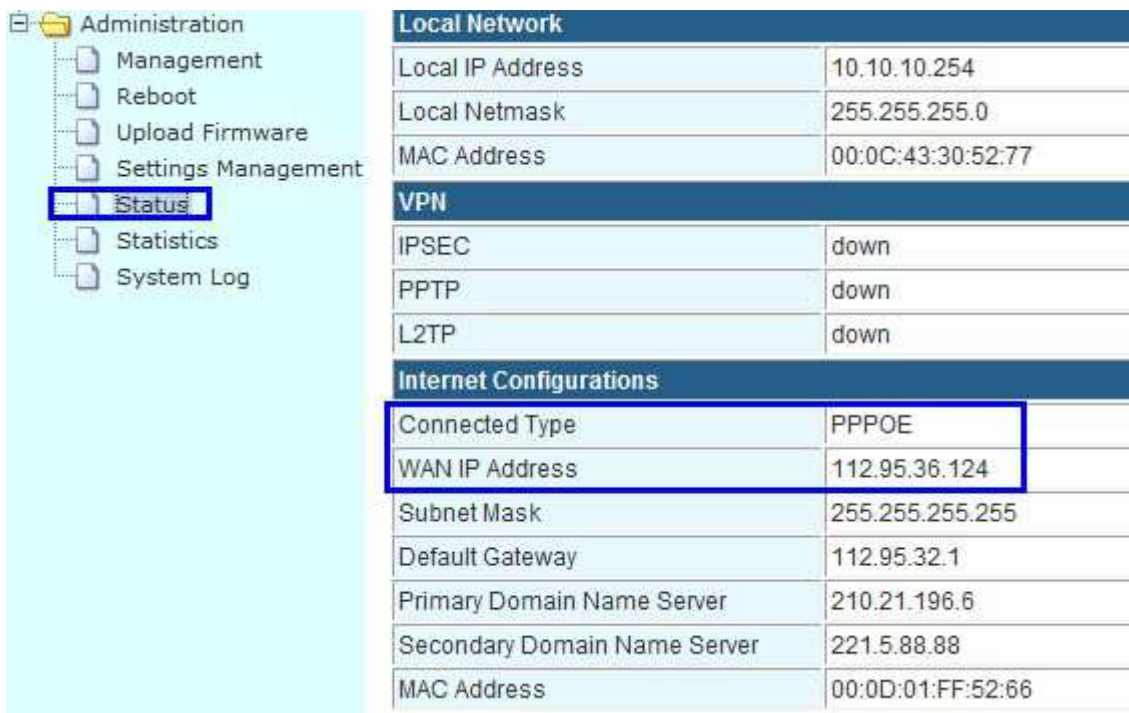
MAC Clone

Enabled Disable

Apply Cancel

Fill in the correct parameters for xDSL.
Notes: Do not forget to click "Apply" button.

Step 5) The RF-R586 router will automatically reboot and try to connect the WAN RJ45 PPPoE as main line. If main line failed, it will switch to Cell as secondary line. And if WAN RJ45 PPPoE resume to work, it will switch from Cell line to WAN RJ45 PPPoE line.
The following page indicated the PPPoE is working.



Administration

- Management
- Reboot
- Upload Firmware
- Settings Management
- Status
- Statistics
- System Log

Local Network	
Local IP Address	10.10.10.254
Local Netmask	255.255.255.0
MAC Address	00:0C:43:30:52:77
VPN	
IPSEC	down
PPTP	down
L2TP	down
Internet Configurations	
Connected Type	PPPOE
WAN IP Address	112.95.36.124
Subnet Mask	255.255.255.255
Default Gateway	112.95.32.1
Primary Domain Name Server	210.21.196.6
Secondary Domain Name Server	221.5.88.88
MAC Address	00:0D:01:FF:52:66

Once the PPPoE (ADSL) is failed, RF-R586 will switch to cellular automatically as follows,

Internet Configurations	
Connected Type	Cell
WAN IP Address	172.20.5.78
Subnet Mask	255.255.255.255
Default Gateway	10.64.64.64
Primary Domain Name Server	210.21.196.6
Secondary Domain Name Server	221.5.88.88
MAC Address	6D:61:67:65:00:00

5.8 SMS Reboot/Cell UP/Cell Down control

Step 1) follow Chapter 3.3.9 to configure the SMS feature. We configure it as follows,

SMS/Voice Settings

SMS/Voice Command Settings

Message/Voice status	<input type="text" value="on"/>		
telephone number			
number 1	<input type="text" value="13798257916"/>	<input checked="" type="checkbox"/> SMS	<input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 2	<input type="text"/>	<input type="checkbox"/> SMS	<input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 3	<input type="text"/>	<input type="checkbox"/> SMS	<input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 4	<input type="text"/>	<input type="checkbox"/> SMS	<input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 5	<input type="text"/>	<input type="checkbox"/> SMS	<input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 6	<input type="text"/>	<input type="checkbox"/> SMS	<input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 7	<input type="text"/>	<input type="checkbox"/> SMS	<input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 8	<input type="text"/>	<input type="checkbox"/> SMS	<input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 9	<input type="text"/>	<input type="checkbox"/> SMS	<input type="checkbox"/> VOICE <input type="checkbox"/> ALARM
number 10	<input type="text"/>	<input type="checkbox"/> SMS	<input type="checkbox"/> VOICE <input type="checkbox"/> ALARM

SMS	
SMS Command	on ▼
Send ack SMS	on ▼
Reboot Router Command	reboot
Get Cell Status Command	cellstatus
Cell link-up Command	cellup
Cell link-down Command	celldown
DIO_0 Set Command	dio01
DIO_0 Reset Command	dio00
DIO_1 Set Command	dio11
DIO_1 Reset Command	dio10
DIO Status Command	diostatus

Step 2) for EVDO version, please keep your UIM Card can get CDMA1x network also, otherwise the router cannot support SMS feature because SMS cannot work on EVDO network but on CDMA1x network.

Cell Network Info	
Cell Modem	SIERRA_MC5725
IMEI/ESN	802A76CC
Sim Status	SIM:READY
Selected Network	AUTO
Registered Network	EVDO and CDMA 1X
Signal	-71 dbm 
Cell Status	UP

For WCDMA/GSM/W-LTE, it has no limitation.

Step 3) CELL DOWN control test


Send "celldown" from send's phone number (here is 13798257916). In the System Log of the router, you can find the similar info "received index=0 msg (celldown) from (13798257916) !"

The Router CELL will be offline, and WAN IP will be none as followed status.

RF-R586 Series Industrial Grade Cellular Router

open all | close all

- Router
 - Status
 - Operation Mode
 - DTU
 - Link Backup
 - GPS
 - SMS/Voice
 - VRRP
 - Internet Settings
 - VPN
 - WIFI
 - Firewall
 - Administration

Cell Modem	SIERRA_MC5725
IMEI/ESN	802A76CC
Sim Status	SIM:READY
Selected Network	AUTO
Registered Network	EVDO and CDMA 1X
Signal	-71 dbm 
Cell Status	DOWN

Internet Configurations	
Connected Type	CELL
WAN IP Address	
Subnet Mask	
Default Gateway	
Primary Domain Name Server	202.96.128.86
Secondary Domain Name Server	202.96.134.133
MAC Address	08:66:01:00:00:04

Step 4) CELL UP control test

From sender's phone number 13798257916, send "cellup" to router sim/uim card number. At the router "System Log", there is info similar "received index=0 msg (cellup) from (13798257916)". The router cell will dialup to be online.

System Info	
Series	H820
SN	086412090002
Software Version	2.2.0 (Sep 16 2012)
Hardware Version	1.0.0
System Up Time	1:10
Operation Mode	Gateway Mode

Cell Network Info	
Cell Modem	SIERRA_MC5725
IMEI/ESN	802A76CC
Sim Status	SIM:READY
Selected Network	AUTO
Registered Network	EVDO and CDMA 1X
Signal	-68 dbm 
Cell Status	UP

Internet Configurations	
Connected Type	CELL
WAN IP Address	113.112.46.31
Subnet Mask	255.255.255.255
Default Gateway	113.112.0.1
Primary Domain Name Server	202.96.128.86

Step 5) CELL STATUS check test

From sender's phone number 13798257916, send "cellstatus" to router sim/uim card number. At the router "System Log", there is info similar "received index=0 msg (cellstatus) from (13798257916)". The router will

feedback the CELL STATUS to sender's phone number 13798257916. At 13798257916, we will get message of "Router SN:086412090002 cell_link_up".

5.9 PPTP client connection

PPTP Server's Info:

PPTP Server IP: 190.54.34.131

Username: vpnuser

Password: tekrem9876

Remote LAN/Mask: 192.168.130.0/24

PPTP Server's Assigned Network: 192.168.8.0/24 (If your PPTP Server not Assigned RF-R586 Router's IP network range, the PPTP can connect but cannot go data through. Also you can change RF-R586 LAN IP into the PPTP server's assigned network such as 192.168.0.1 or 192.168.1.1, etc.)

Step 1) make the RF-R586 router working online.

Step 2) Fill in the PPTP parameters as follows,

PPTP

PPTP VPN Settings	
PPTP VPN Active	<input checked="" type="checkbox"/>
PPTP User	vpnuser
PPTP Password	●●●●●●●●
PPTP Server	190.54.34.131
Remote Lan/Mask	192.168.130.0 / 24
Local PPTP IP	dhcp
MPPE Encryption	<input checked="" type="checkbox"/>
40 bit Encryption(Default is 128 bit)	<input type="checkbox"/>
Refuse Stateless Encryption	<input checked="" type="checkbox"/>
MPPC	<input type="checkbox"/>

apply

Step 3) check if the PPTP is connected.

Router Web – Status,

PPTP Status	
PPTP	up

Step 4) Try to check if can be through with PPTP Server.

```
Microsoft Windows XP [版本 5.1.2600]
(C) 版权所有 1985-2001 Microsoft Corp.

C:\Documents and Settings\Administrator>ping 192.168.130.7

Pinging 192.168.130.7 with 32 bytes of data:

Reply from 192.168.130.7: bytes=32 time=570ms TTL=254
Reply from 192.168.130.7: bytes=32 time=585ms TTL=254
Reply from 192.168.130.7: bytes=32 time=761ms TTL=254
Reply from 192.168.130.7: bytes=32 time=590ms TTL=254

Ping statistics for 192.168.130.7:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 570ms, Maximum = 761ms, Average = 626ms

C:\Documents and Settings\Administrator>_
```

Chapter 6

6 OBTAINING DOCUMENTS

You can visit our website: <http://www.rfog.pl/>

Or contact with RFoG headquarter Sales listed at the end of documentation to get the latest documents.

RFoG CO., LTD© 2013

All Rights Reserved.

All information contained in this document is subject to change without notice. The products described in this document are NOT intended for use in implantation or other life support applications where malfunction may result in injury or death to persons.

The information contained in this document does not affect or change RFoG's product specifications or warranties. Nothing in this document shall operate as an express or implied license or indemnity under the intellectual property rights of RFoG or third parties. All information contained in this document was obtained in specific environments, and is presented as an illustration. The results obtained in other operating environment may vary.

THE INFORMATION CONTAINED IN THIS DOCUMENT IS PROVIDED ON AN "AS IS" BASIS. In no event will RFoG be liable for damages arising directly from any use of the information contained in this document.

Contact

RFoG Tomasz Paszkowski,
Starogrodzka 1/2, 72-300 GRYFICE, POLAND
Website: <http://www.rfog.pl>

