

# R500 3G Wireless Router User Guide



# Content

Content.....	2
Chapter 1 Installation.....	3
1.1 Overview .....	3
1.2 Package list .....	3
1.3 Dimension and installation hole.....	4
1.4 Indication LED .....	4
1.5 Adapter,Antenna and SIMCard.....	5
Chapter 2 Configuration.....	6
2.1 Setup .....	6
2.2 Configuration .....	7
2.2.1 IP address setting.....	7
2.2.2 Configuration page.....	7
2.3 Management and Configuration .....	8
2.3.1 Network setting.....	8
2.3.2 Wireless network setting .....	17
2.3.3 NAT configuration .....	21
2.3.4 Save Config.....	22
2.3.5 System management.....	23

# Chapter 1 Installation

## 1.1 Overview

R500 should be installed correctly to get good performance. Generally, the installation should be guided with the help of our engineer.

### ※Note

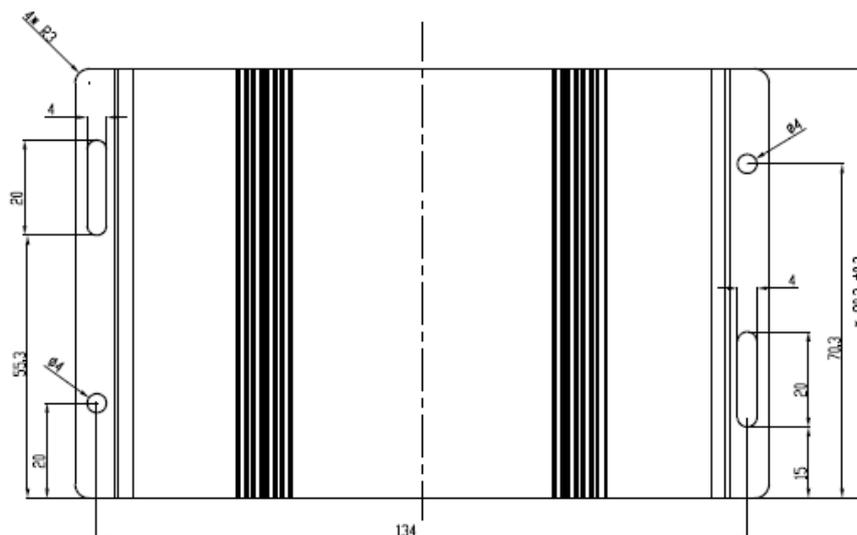
Don't install Router device with power on.

## 1.2 Package list

Recommend you reserve the package box, in order to re-use when transfer. The box is environment protected material.

- ※ R500, 1 unit
- ※ 3G antenna, 2 units (option)
- ※ WiFi antenna, 1 unit (option)
- ※ 6V/2A adapter, 1 unit
- ※ User manual, 1 unit

## 1.3 Dimension and installation hole



## 1.4 Indication LED

Please refer to following description for status of LED.

LED	Status	Description
Power	On	Normal
	Off	Power off or problem
System	Every 1 second on	Normal
	Off	problem
NET	Every 3 seconds on	Registered without data transmission
	Every 1 second on	Registered with data transmission
	Off	un-registration

LAN	Always on	device available
	Every 3 seconds on	Data is on transmission
	Off	device is not available
WAN	Always on	WAN port normal
	Every 3 seconds on	data transmission
	Off	WAN port disconnection
WIFI	Always on	WiFi on
	Off	WiFi off

## 1.5 Adapter, Antenna and SIMCard

Adapter in box is 6V/2A. But customer could choose different one according to the wide range of R500 router, the input range is from DC5V to DC24V, 2A peak.

R500 router requires 2 units of 3G antenna, standard female SMA connector, 50 ohm impedance; WiFi 2.3G antenna, standard male SMA connector, 50 ohm impedance.

R500 uses Push-button simcard holder, supports 1.8V/3V sim/usim card, ESD protection inside.

## Chapter 2 Configuration

### 2.1 Setup

Insert the SIM card into the SIM card slot beneath the R500.  
Press carefully until it ‘clicks’ into place.

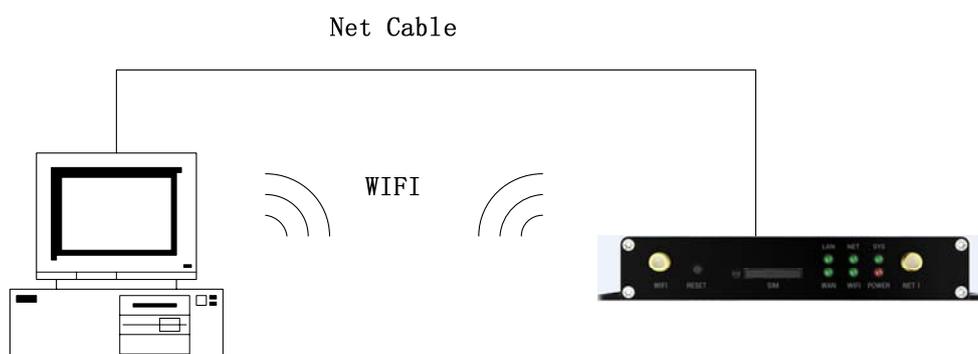


Figure 1-1 Insert the SIM card

Plug the power adapter into the AC mains and plug the DC cable firmly into the 5V DC input of the R500. Power light is working. It will start to work automatically.

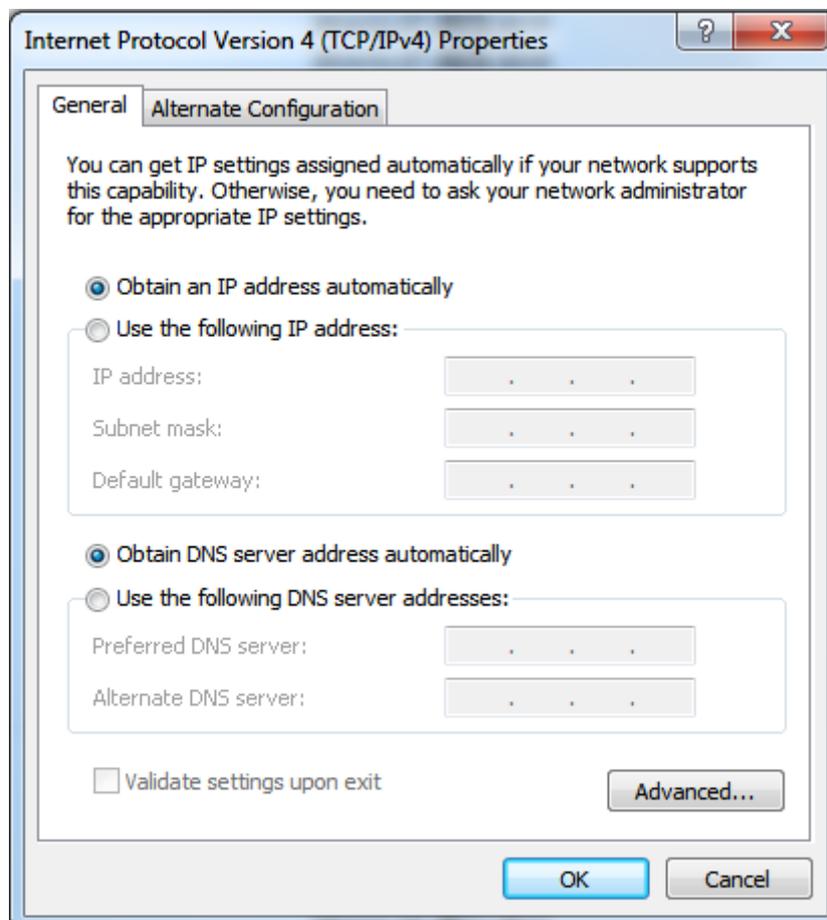
Before configuration, R500 should be connected to PC via Ethernet cable or Wi-Fi network.

- 1) With Ethernet cable. One end of cable insert to one of “Local Network” ports (named “LAN” port), another end connects to PC Ethernet port.
- 2) With Wi-Fi network. SSID of R500 is “SIMCOM” default without password.



## 2.2 Configuration

### 2.2.1 IP address setting



### 2.2.2 Configuration page

PC could access the configuration pages after connect to R500 router via IE explorer or other browser tools.

There have 11 pages for setting, antenna, service, VPN, security, access limit, NAT, QoS, application, management and Status pages. You can get detail for each page.

Default user name is admin and the default password is admin

## 2.3 Management and Configuration

### 2.3.1 Network setting

#### 2.3.1.1 WAN connection type

WAN connection type includes: static IP, dynamic IP, PPPoE, PPTP, L2TP, 3G types.

#### Option 1: Static IP

Normally fiber-optic network will use this option. Service provider will provide IP address, subnet mask, gateway and DNS info. These parameters should be configured same on

R500

#### 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) ▼
<b>Static Mode</b>		
IP Address	<input type="text"/>	
Subnet Mask	<input type="text"/>	
Default Gateway	<input type="text"/>	
Primary DNS Server	<input type="text"/>	
Secondary DNS Server	<input type="text"/>	
<b>MAC Clone</b>		
Enabled	Disable ▼	
Apply		Cancel

IP Address: user owner ip adress

Subnet Mask: user owner subnet mask

Default Gateway: user owner gateway

Option 2: Dynamic IP

Connect Ethernet cable to WAN port, configure as following.

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

Router uses this dynamic IP as WAN connection type.

### Option 3: PPPoE

Usually ADSL service from China telecom and China Netcom will use this option. PPPoE connection requires username, password, provider name from ISP for router configuration.

### 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:		PPPoE (ADSL) ▼
<b>PPPoE Mode</b>		
User Name	<input type="text" value="pppoe_user"/>	
Password	<input type="password" value="••••••••"/>	
Verify Password	<input type="password" value="••••••••"/>	
Operation Mode	Keep Alive ▼	
	Keep Alive Mode: Redial Period <input type="text" value="60"/> seconds	
	On demand Mode: Idle Time <input type="text" value="5"/> minutes	
<b>MAC Clone</b>		
Enabled	Disable ▼	
Apply		Cancel

User Name: the user name for log in internet

Password: the user password for log in internet

### Option 4: PPTP

PPTP, Point to Point Tunneling Protocol, is a new enhanced encryption protocol developed based on PPP protocol. PPTP supports VPN, PAP and EAP, etc.

Remote user is allowed to access safely local network via ISP, internet or other network.

### 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:		PPTP
<b>PPTP Mode</b>		
Server IP	pptp_server	
User Name	pptp_user	
Password	●●●●●●●●	
Address Mode	Static	
IP Address	192.168.1.1	
Subnet Mask	255.255.255.0	
Default Gateway	192.168.1.254	
Operation Mode	Keep Alive	
	Keep Alive Mode: Redial Period	60 seconds
<b>MAC Clone</b>		
Enabled	Disable	
Apply		Cancel

### Option 5: L2TP

In computer networking, Layer 2 Tunneling Protocol (L2TP) is a tunneling protocol used to support virtual private networks (VPNs) or as part of the delivery of services by ISPs. It does not provide any encryption or confidentiality by itself. Rather, it relies on an encryption protocol that it passes within the tunnel to provide privacy.

## 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:

L2TP Mode	
Server IP	<input type="text" value="l2tp_server"/>
User Name	<input type="text" value="l2tp_user"/>
Password	<input type="password" value="••••••••"/>
Address Mode	<input type="text" value="Static"/>
IP Address	<input type="text" value="192.168.1.1"/>
Subnet Mask	<input type="text" value="255.255.255.0"/>
Default Gateway	<input type="text" value="192.168.1.254"/>
Operation Mode	<input type="text" value="Keep Alive"/>
	Keep Alive Mode: Redial Period <input type="text" value="60"/> seconds
MAC Clone	
Enabled	<input type="text" value="Disable"/>

### Option 6: 3G/3G/LTE

Using SIM7100/SIM5360 module inside, Router could do PPP protocol with APN and dial number (like \*99\*\*#).

## 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:

3G Mode	
APN	<input type="text" value="3gnet"/>
PIN	<input type="text" value="1234"/>
Dial Number	<input type="text" value="*98**#"/>
Username	<input type="text"/>
Password	<input type="text"/>
USB 3G modem	<input type="text" value="AutoDetect"/>
MAC Clone	
Enabled	<input type="text" value="Disable"/>

### 2.3.1.2 Local Network

IP address, subnet, etc could be configured as following.

## Local Area Network (LAN) Settings

You may enable/disable networking functions and configure their parameters as your wish.

LAN Setup	
Hostname	SIMCOM
IP Address	10.10.10.254
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	00:0C:43:76:20:58
DHCP Type	Server
Start IP Address	10.10.10.100
End IP Address	10.10.10.200
Subnet Mask	255.255.255.0
Primary DNS Server	168.95.1.1
Secondary DNS Server	8.8.8.8
Default Gateway	10.10.10.254
Lease Time	86400

Local IP: the IP address in local

Subnet mask: local subnet mask

Gateway: router internal gateway.

### 2.3.1.3 DHCP clients list

All clients connected are list here, including Wi-Fi network and LAN cable. Router could be a DHCP server which could assign different IP address for each station. If DHCP server option enabled, then all station could be configured with IP and DNS auto mode, ensure there has no other DHCP server in the network.

## DHCP Client List

You could monitor DHCP clients here.

DHCP Clients			
Hostname	MAC Address	IP Address	Expires in
mk-liuning	18:CF:5E:54:9B:67	10.10.10.100	22:28:55
bu1-zenghaishen	AC:81:12:2B:16:A2	10.10.10.101	21:40:49
MK-guoyikun	00:26:82:89:57:AC	10.10.10.102	21:41:00
mk-xuxuhua	00:26:82:7B:FD:77	10.10.10.103	21:41:00
mk-zhengwenwen	00:26:82:4D:50:48	10.10.10.104	21:41:07
MK-zhouxin	B8:EE:65:D4:D8:08	10.10.10.105	21:41:20
JackSundeiPhone	78:3A:84:6C:EF:EB	10.10.10.106	23:40:49
android-96b6b2f	20:08:ED:82:FB:96	10.10.10.107	22:02:32
MK-wangjie	00:71:CC:56:42:26	10.10.10.108	23:46:51

### 2.3.1.4 VPN

A virtual private network (VPN) extends a private network across a public network, such as the Internet. It enables a computer or Wi-Fi-enabled device to send and receive data across shared or public networks as if it were directly connected to the private network, while benefiting from the functionality, security and management policies of the private network. A VPN is created by establishing a virtual point-to-point connection through the use of dedicated connections, virtual tunneling protocols, or traffic encryptions.

A VPN connection across the Internet is similar to a wide area network (WAN) link between websites. From a user perspective, the extended network resources are accessed in the same way as resources available within the private network.

VPN supports IPsec, PPTP and L2TP passthrough.

## VPN Passthrough

VPN passthrough configurations including: L2TP, IPsec, and PPTP passthrough.

VPN Pass Through	
L2TP Passthrough	Disable ▾
IPSec Passthrough	Disable ▾
PPTP Passthrough	Disable ▾

### 2.3.1.5 Advanced configuration

Only static mode is available. In order to set static router between router device and other network, please configure host as following.

## Static Routing Settings

You may add and remote custom Internet routing rules, and/or enable dynamic routing exchange protocol here.

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

Current Routing table in the system:									
No.	Destination	Netmask	Gateway	Flags	Metric	Ref	Use	Interface	Comment
1	255.255.255.255	255.255.255.255	0.0.0.0	5	0	0	0	LAN (br0)	
2	10.10.10.0	255.255.255.0	0.0.0.0	1	0	0	0	LAN (br0)	

### 2.3.1.6 DTU Connection Configuration

The DTU functionality allows R500 to connect to a TCP server. The data can be received and transmitted via the serial console port.

To launch the DTU service, the parameters of the serial console and the TCP server must be set. The parameters to be set include the baud rate, the parity, the data bits and the stop bits of the serial console, the IP address and the port number of the TCP server.

## Data Transfer unit (DTU) Settings

You may enable/disable DTU function and configure its parameters as your wish.

DTU Status Option		
DTU Status	Disable ▾	Stopped
DTU Serial Set		
Baudrate	57600 ▾	
Parity	None ▾	
Data Bits	8 ▾	
Stop Bits	1 ▾	
DTU Something To Be Set		
ServerIP:Port	<input checked="" type="radio"/> 10.10.10.100	5000
	<input type="radio"/> 10.10.10.101	5000

## 2.3.2 Wireless network setting

### 2.3.2.1 General setting

Wi-Fi general setting items could be configured here as following.

## Basic Wireless Settings

You could configure the minimum number of Wireless settings for communication, such as Network Name (SSID) and Channel. The Access Point can be set simply with only the minimum setting items.

Wireless Network	
Driver Version	2.7.1.6
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)	SIMCOM <input type="checkbox"/> 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
BSSID	00:0C:43:76:20:58
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
HT LDPC	<input checked="" type="radio"/> Disable <input type="radio"/> Enable

Mixed-mode: supports 802.11b, 802.11g and 802.11n standards.

BG-mode: support s 802.11b and 802.11g standards

B-mode only: supports 802.11b standard only

G-mode only: supports 802.11g standard only

NG-mode: supports 802.11g and 802.11n standards

N-mode only: supports 802.11n standard

SSID: the WiFi device name for users. This is unique name which consists of number and letter, case sensitive, the length is less than 32 characters.

Channel: ID from 1 to 14. In multiple wireless networks, recommend different channel.

### 2.3.2.2 Advanced setting

#### Advanced Wireless Settings

Use the Advanced Setup page to make detailed settings for the Wireless. Advanced Setup includes items that are not available from the Basic Setup page, such as Beacon Interval, Control Tx Rates and Basic Data Rates.

Advanced Wireless	
BG Protection Mode	Auto <input type="button" value="v"/>
Beacon Interval	100 <input type="text"/> ms (range 20 - 999, default 100)
Data Beacon Rate (DTIM)	1 <input type="text"/> ms (range 1 - 255, default 1)
Fragment Threshold	2346 <input type="text"/> (range 256 - 2346, default 2346)
RTS Threshold	2347 <input type="text"/> (range 1 - 2347, default 2347)
TX Power	100 <input type="text"/> (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 <input type="button" value="v"/>
Support Channel	Ch1~14 <input type="button" value="v"/>
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
WMM Parameters	<input type="button" value="WMM Configuration"/>

### 2.3.2.3 Security configuration

There have opemwep,wap,wap-psk,wap2,etc encryption way

### Wireless Security/Encryption Settings

Setup the wireless security and encryption to prevent from unauthorized access and monitoring.

Select SSID	
SSID choice	MK-PM
"MK-PM"	
Security Mode	WPA2-PSK
WPA	
WPA Algorithms	<input type="radio"/> TKIP <input checked="" type="radio"/> AES <input type="radio"/> TKIPAES
Pass Phrase	ok123456
Key Renewal Interval	3600 seconds (0 ~ 4194303)
Access Policy	
Policy	Disable
Add a station Mac:	

### 2.3.2.4 Clients list

You can see current clients in the list.

#### Station List

You could monitor stations which associated to this AP here.

Wireless Network							
MAC Address	Aid	PSM	MimoPS	MCS	BW	SGI	STBC
AC:81:12:2B:16:A2	3	1	3	7	20M	0	0
00:00:00:93:25:00	0	7	128	0	20M	0	0

### 2.3.2.5 Summary

## AP Wireless Statistics

Wireless TX and RX Statistics

Transmit Statistics	
Tx Success	125608
Tx Retry Count	1186, PER=1.0%
Tx Fail after retry	20, PLR=1.6e-04
RTS Successfully Receive CTS	0
RTS Fail To Receive CTS	0
Receive Statistics	
Frames Received Successfully	524130
Frames Received With CRC Error	429497, PER=45.0%
SNR	
SNR	25, n/a, n/a

Reset Counters

## 2.3.3 NAT configuration

### 2.3.3.1 Port transmit

Port transfer is for public service on network, such as web server, ftp server or other internet application.

### Virtual Server Settings

You may setup Virtual Servers to provide services on Internet.

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

(The maximum rule count is 32.)

Apply

Reset

### 2.3.3.2 Port Trigger

When an application specifies a certain port (trigger port) to setup a connection, the router will transfer the external connection to the internal specified port (transfer port), the range is from 5000 to 6000.

### Port Trigger Setting

You may setup Port Trigger services on Internet.

Port Trigger	
Port Trigger	Disable ▾
Trigger Protocol	TCP ▾
Trigger Port	<input type="text"/>
Incoming Protocol	TCP ▾
Incoming Port	<input type="text"/>
Comment	<input type="text"/>

(The maximum rule count is 32.)

#### 2.3.3.3 DMZ

A DMZ or demilitarized zone (sometimes referred to as a perimeter network) is a physical or logical subnetwork that contains and exposes an organization's external-facing services to a larger and untrusted network, usually the Internet. The purpose of a DMZ is to add an additional layer of security to an organization's local area network (LAN); an external attacker only has direct access to equipment in the DMZ, rather than any other part of the network. The name is derived from the term "demilitarized zone", an area between nation states in which military operation is not permitted.

#### 2.3.4 Save Config

##### 2.3.4.1 Account management

## Administration

User Management			
	User Name	Allow to use FTP	Allow to use Samba
--	admin	Enable	Enable
--	anonymous	Disable	Disable

### 2.3.4.2 FTP server

After FTP server enabled, other items could be configured.

The port is fixed as 21.

### FTP Settings

FTP Server Setup	
FTP Server	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
FTP Server Name	<input type="text" value="RalinkFTP"/>
Anonymous Login	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
FTP Port	<input type="text" value="21"/>
Max. Sessions	<input type="text" value="10"/>
Create Directory	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Rename File/Directory	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Remove File/Directory	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Read File	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Write File	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Download Capability	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Upload Capability	<input checked="" type="radio"/> Enable <input type="radio"/> Disable

## 2.3.5 System management

### 2.3.5.1 Management

Web page language, log username and password, network time could be configured here.

### FTP Settings

FTP Server Setup	
FTP Server	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
FTP Server Name	<input type="text" value="RalinkFTP"/>
Anonymous Login	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
FTP Port	<input type="text" value="21"/>
Max. Sessions	<input type="text" value="10"/>
Create Directory	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Rename File/Directory	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Remove File/Directory	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Read File	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Write File	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Download Capability	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Upload Capability	<input checked="" type="radio"/> Enable <input type="radio"/> Disable

### 2.3.5.2 FW update

## Upgrade Firmware

Upgrade the Ralink SoC firmware to obtain new functionality. **It takes about 1 minute to upload upgrade flash and be patient please. Caution! A corrupted image will hang up the system.**

Update Firmware	
Location:	<input type="text"/> 浏览...
<input type="button" value="Apply"/>	
Upgrade firmware from USB	
Location:	<input type="text"/> ▼
<input type="button" value="Apply"/> <input type="button" value="Scan"/>	
Update Bootloader	
Location:	<input type="text"/> 浏览...
<input type="button" value="Apply"/>	
Force upgrade firmware via mem	
Force:	No ▼
<input type="button" value="Apply"/>	

Update root uImage of platform.

### 2.3.2.3 Configure management

Export: output current platform settings as .bat file to PC. Parameters will be SSID, users, password, connection type, etc.

Import: import a bat file to configure platform parameter' s value.

Reload factory setting: make all settings return factory default values.

### 2.3.2.4 Status

Platform status includes system info, Internet configuration and LAN info,etc.

### 2.3.2.5 Summary

Check the summary info, such as memory capability, WLAN/LAN packages, etc.

### 2.3.2.6 System command

This is used to operate system file.

### 2.3.2.7 Version History

Check current version of Router.