NR100 5G Router	Product Version	class
User Manual	V1.0.4	
	Product name: NR100	Page: 80



Xiamen Yifan Communicaton Technology Co., Ltd.

Add: Floor 14th, A06 Building, No. 370, ChengYi Street, Jimei District, XiaMen, China Zip Code: 361000 Tel: +86 592-6101492 Fax:+86 592-5222813 http://www.yifanwireless.com



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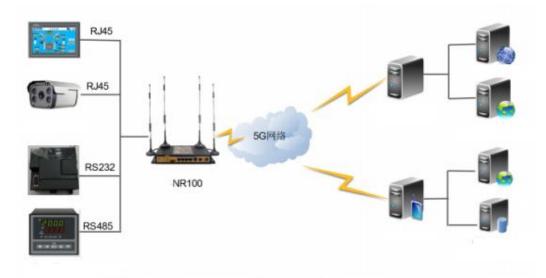
Chapter 1 Product Introduction

1.1 Product overview

NR100 is a wireless communication router for the Internet of Things, which uses public 3G/4G/5G networks to provide users with wireless long-distance big data transmission functions.

The product adopts high-performance industrial-grade 32-bit communication processor and industrial-grade wireless module, with embedded real-time operating system as the software support platform, and provides 1 RS232 (or RS485) + 4 Ethernet LAN + 1 Ethernet WAN + 2 WIFI interfaces, which can connect serial devices, Ethernet devices and WIFI devices at the same time to realize data transparent transmission and routing functions.

This product has been widely used in the M2M industry in the Internet of Things industry chain, such as smart grid, smart transportation, smart home, finance, mobile POS terminals, supply chain automation, industrial automation, smart buildings, fire protection, public safety, environmental protection, meteorology, Digital medical treatment, remote sensing survey, military, space exploration, agriculture, forestry, water affairs, coal mine, petrochemical and other fields.



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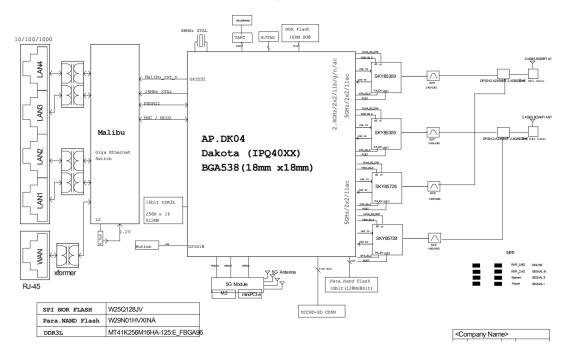
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1.2 Block diagram of working principle

Block Diagram

Functional Block Diagram





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Chapter 2 Installation

2.1 Overview

5G routers must be installed correctly to achieve the designed functions. Usually the installation of the equipment must be carried out under the guidance of qualified engineers approved by the company.

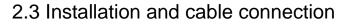
2.2 Packing list

When you open the box, please keep the packing materials, so that you can use it when you need to transfer in the future.

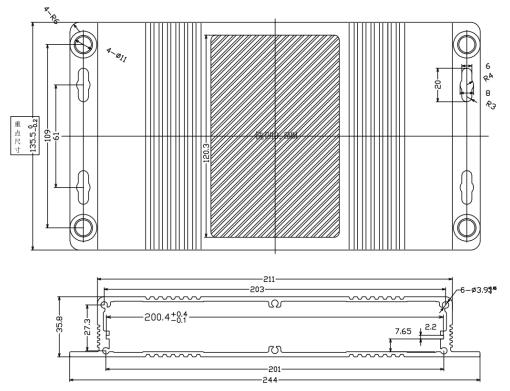
The list is as follows:

•5G router host x 1
•5G wireless cellular antennas (SMA male) x 4
•WIFI antenna (SMA female) x2
•Matching power supply x 1
•Ethernet direct connection x 1





Size(mm):



Antenna installation:

The 5G antenna interface is an SMA female socket. Screw the SMA male of the matching wireless cellular antenna to the antenna interface and make sure to tighten it. In order to increase the isolation of the 5G antenna, try to keep the antenna at an angle of 30 degrees to enhance Signal quality.



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The WIFI antenna interface is an SMA male socket. Screw the SMA female of the matching WIFI antenna to the antenna interface and make sure to tighten it. In addition, to increase the isolation of the wifi antenna, it is recommended that the two wifi are placed at a 90 degree angle.



SIM/UIM installation:

When installing or removing the SIM/UIM card, first use a pointed object to gently hold the eject button, and the SIM/UIM card sleeve will pop out. Put the SIM/UIM card into the card holder first, and make sure that the metal contact surface of the SIM/UIM card is facing outward, then insert the SIM/UIM card holder into the drawer.



Connect Console cable:

Plug the RJ45 end of the Console line into the Console interface (RS232) of the Router, and plug the DB9 end into the RS232 serial interface of the user device. The signal connections of the Console are as follows:

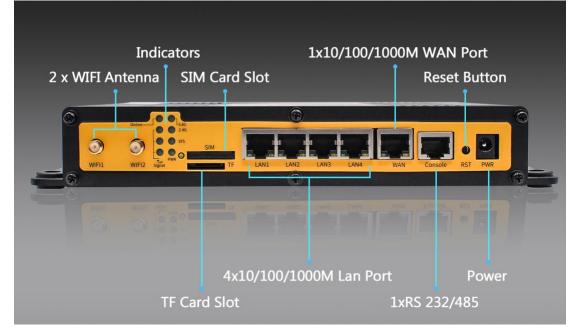
Console (RS232)				
RJ45	color	Pin map	DB9F	Content
1	white/Orange	А	8	RS485-A (optional)
2	Orange	В	6	RS485-B (optional)
3	White/Green	RXD	2	RS232 RX

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4	Blue		1	
5	white/blue	GND	5	GND
6	green	TXD	3	RS232 TX
7	White/brown		4	
8	brown		7	



2.4 Power supply

5G routers are usually used in complex external environments. In order to adapt to the complex application environment and improve the stability of the system, the router adopts advanced power supply technology. Users can use the standard 12VDC/1.5A power adapter to power the 5G router, or directly use the DC 9~36V power supply to power the router. When the user uses an external power supply to power the router, the stability of the power supply must be ensured (the ripple is less than 300mV, and the instantaneous voltage does not exceed 36V), and the power supply must be greater than 8W.

2.5 Indicators

5G Router provide indicators as below: "Power"、"System"、"2.4G"、"5.8G"、"ONLINE"、 "Signal":

indicator	status	Content
Power	On	Device powered on

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		NICTOU SU ROUter User Maridan
	Off	Device powered off
System	Blank	System running normally
	Off	System not running
Online	on	Device is online on internet
	off	Device not online
2.4G	on	2.4GWIFI is on
	off	2.4GWIFlis off
5.8G	on	5.8GWIFI is on
	off	5.8GWIFI is off
WAN	off	WAN port not connected
	on/blank	WAN port connected/communicating
LAN1~LAN4	off	LAN port not connected
	on/blank	LAN port connected/communicating
	One light on	weak(<-90dbm)
Signal	Two lights on	medium(-70dbm~-90dbm)
strength	Three lights	good(>-70dbm)
	on	

2.6 Reset Button

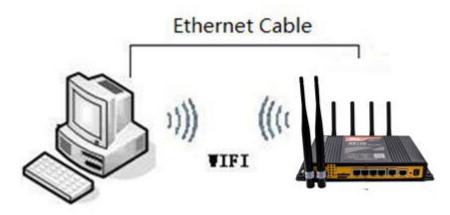
The 5G router has a reset button, marked as "RST". The function of this button is to restore the parameter configuration of the 5G router to factory values. Methods as below: Power on device, let it running for 30 seconds, use a pen keep pressing the reset button for about 15 seconds, until all led turn off, the device will restart and reset to factory.



Chapter 3 Configuration and Management

3.1 Configuration Connection

Before configuration, you should connect the Router and your configuration PC with the supplied network cable. Plug the cable's one end into the Local Network port of the Router, and another end into your configure PC's Ethernet port. The connection diagram is as following:



Please modify the IP address of PC as the same network segment address of the Router, for instance, 192.168.1.9. Modify the mask code of PC as 255.255.255.0 and set the default gateway of PC as the Router's IP address (192.168.1.1).

3.2 Access the Configuration Web Page

The chapter is to present main functions of each page. Users visit page tool via web browser after connect users' PC to the Router. There are eleven main pages: Setting, Wireless, Service, VPN, Security, Access Restrictions, NAT, QoS Setting, Applications, Management and Status. Users enable to browse slave pages by click one main page.

Users can open IE or other explorers and enter the Router's default IP address of 192.168.1.1 on address bar, then press the bottom of Enter to visit page Web management tool of the Router. The users login in the web page at the first name, there will display a page shows as blow to tip users to modify the default user name and password of the Router. Users have to click "change password" to make it work if they modify user name and password.



Route	er Ma	inade	ement

 Your Router is currently not protected and uses an unsafe default username and password combination, please change it using the following dialog!

 Router Password

 Router Username
 admin

 Router Password
 •••••

 Re-enter to confirm
 •••••

 Change Password
 Change Password

After access to the information main page

Menu	System Information			
Setup	Router		Services	
Wireless	Router Name	Router	DHCP Server	Enabled
Services VPN	Router Model	Router	ff-radauth	Disabled
Security	LAN MAC	00:0C:43:8C:B6:D6	USB Support	Enabled
NAT Access Restrictions	WAN MAC	00:0C:43:8C:B6:D7		
QoS Setting	Wireless MAC		Memory	
Applications		00:0C:43:8C:B6:D8	Total Available	122.3 MB / 128.0 MB
Administration Status	WAN IP	192.168.9.223	Free	92.3 MB / 122.3 MB
	LAN IP	192.168.1.1	Used	30.0 MB / 122.3 MB
	- Wireless		Buffers	
				3.3 MB / 30.0 MB
	Radio	Radio is On	Cached	11.6 MB / 30.0 MB
	Mode	AP	Active	10.3 MB / 30.0 MB
	Network	Mixed	Inactive	6.4 MB / 30.0 MB
	SSID	ssid-7620a		
	Channel	6 (2437 MHz)		
	TX Power	71 mW		
	Rate	300 Mb/s		
	Wireless Packet Info			
	Received (RX)	0 OK, no error		
	Transmitted (TX)	0 OK, no error		

Users need to input user name and password if it is their first time to login.



Connect to 19	2.168.1.1	? 🗙
username and pas: Warning: This sen username and pas:	58.1.1 at Router requ sword. rver is requesting th sword be sent in an i: thentication without	at your nsecure
<u>U</u> ser Name	😰 admin	~
<u>P</u> assword	anere .	
	Save this password in g	your password list
	ОК	Cancel

Input correct user name and password to visit relevant menu page. Default user name is admin, password is admin. (available to modify user name and password on management page, then click submit)

3.3 Management and configuration

3.3.1 Setting

The Setup screen is the first screen users will see when accessing the Router. Most users will be able to configure the Router and get it work properly using only the settings on this screen. Some Internet Service Providers (ISPs) will require users to enter specific information, such as User Name, Password, IP Address, Default Gateway Address, or DNS IP Address. These information can be obtained from your ISP, if required.

3.3.1.1 Basic Setting

WAN Connection Type

Seven Ways: Disabled, Static IP, Automatic Configuration-DHCP, PPPOE, 3G/UNMTS/4G/LTE, DHCP-4G/5G.

Disabled

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¥

Connection Type

Disabled

Forbid the setting of WAN port connection type

Static IP

Connection Type	Static IP				¥
WAN IP Address	0.	0.	0.	0	
Subnet Mask	0.	0.	0.	0	
Gateway	0.	0.	0.	0	
Static DNS 1	0.	0.	0.	0	
Static DNS 2	0.	0.	0.	0	
Static DNS 3	0.	0.	0.	0	

WAN IP Address: Users set IP address by their own or ISP assignsSubnet Mask: Users set subnet mask by their own or ISP assignsGateway: Users set gateway by their own or ISP assignsStatic DNS1/DNS2/DNS3: Users set static DNS by their own or ISP assigns

Automatic Configuration-DHCP

Conne	ction.	Trees
conne	CLIOT	ivbe

Automatic Configuration - DHCP 💌

IP address of WAN port gets automatic via DHCP

PPPOE

Connection Type

User Name

Password

PPPoE	*	
		🗌 Unmask

User Name: login the Internet **Password:** login the Internet

3G/UMTS/4G/LTE



Connection Type	3G/UMTS/4G/LTE	
User Name		
Password		Unmask
Dial String	*99***1# (UMTS/3G/3.5G) 💌	
APN		
PIN	Unmask	

User Name: login users' ISP(Internet Service Provider) Password: login users' ISP Dial String: dial number of users' ISP APN: access point name of users' ISP PIN: PIN code of users' SIM card

Connection type

Connection type

Auto 💙

Connection type: Auto, Force 3G, Force 2G, Prefer 3G, Prefer 2G options. If using 4G module, there has 4G network option. Users select different mode depending on their need

DHCP-4G/5G

WAN Setup			
WAN Connection Type -			
Connection Type	dhcp-4G/5G	•	

IP address of WAN port gets automatic via DHCP-4G/5G.

Keep Online

Keep Online Detection	Ping 💌
Detection Interval	60 Sec.
Primary Detection Server IP	166. 111. 8. 238
Backup Detection Server IP	202. 119. 32. 102

This function is used to detect whether the Internet connection is active, if users set it and when the Router detect the connection is inactive, it will redial to users' ISP immediately to make the connection active. If the network is busy or the user is in private network, we recommend that Router mode will be better.

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Detection Method:

None: do not set this function

- **Ping:** Send ping packet to detect the connection, when choose this method, users should also configure "Detection Interval", "Primary Detection Server IP" and "Backup Detection Server IP" items.
- **Route:** Detect connection with route method, when choose this method, users should also configure "Detection Interval", "Primary Detection Server IP" and "Backup Detection Server IP" items.
- **PPP:** Detect connection with PPP method, when choose this method, users should also configure "Detection Interval" item.

Detection Interval: time interval between two detections, unit is second

Primary Detection Server IP: the server used to response the Router's detection packet. This item is only valid for method "Ping" and "Route".

Backup Detection Server IP: the server used to response the Router's detection packet. This item is valid for method "Ping" and "Route".

Note: When users choose the "Route" or "Ping" method, it's quite important to make sure that the "Primary Detection Server IP" and "Backup Detection Server IP" are usable and stable, because they have to response the detection packet frequently.

Force reconnect	Enable	 Disable
Time	00 💌: 00	*

Force reconnect: this option schedules the pppoe or 3G reconnection by killing the pppd daemon and restart it.

Time: needed time to reconnect

STP	

STP

Enable Oisable

STP (Spaning Tree Protocol) can be applied to loop network. Through certain algorithm achieves path redundancy, and loop network cuts to tree-based network without loop in the meantime, thus to avoid the hyperplasia and infinite circulation of a message in the loop network

Optional Configuration

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Router Name	Yifan
Host Name	
Domain Name	
МТО	Auto 💽 1500

Router Name: set Router name

Host Name: ISP provides

Domain Name: ISP provides

MTU: auto (1500) and manual (1200-1492 in PPPOE/PPTP/L2TP mode, 576-16320 in other modes)

Router Internal Network Settings Router IP

Local IP Address	192.	168.	1.	1
Subnet Mask	255.	255.	255.	0
Gateway	0.	0.	0.	0
Local DNS	0.	0.	0.	0

Local IP Address: IP address of the Router

Subnet Mask: the subnet mask of the Router

Gateway: set internal gateway of the Router. If default, internal gateway is the address of the Router

Local DNS: DNS server is auto assigned by network operator server. Users enable to use their own DNS server or other stable DNS servers, if not, keep it default

Network Address Server Settings (DHCP)

These settings for the Router's Dynamic Host Configuration Protocol (DHCP) server functionality

configuration. The Router can serve as a network DHCP server. DHCP server automatically assigns an IP address for each computer in the network. If they choose to enable the Router's DHCP server option, users can set all the computers on the LAN to automatically obtain an IP address and DNS, and make sure no other DHCP server in the network.



DHCP Type	DHCP Server
DHCP Server	💿 Enable 🔘 Disable
Start IP Address	192.168.1. 100
Maximum DHCP Users	50
Client Lease Time	1440 minutes
Static DNS 1	0.0.0.0
Static DNS 2	0.0.0.0
Static DNS 3	0.0.0.0
WINS	0.0.0.0
Use DNSMasq for DHCP	
Use DNSMasq for DNS	
DHCP-Authoritative	

DHCP Type: DHCP Server and DHCP Forwarder Enter DHCP Server if set DHCP Type to DHCP Forwarder as blow:

DHCP Type	DHCP	Forw	/arder	*	
DHCP Server	0		0.	0.	0

DHCP Server: keep the default Enable to enable the Router's DHCP server option. If users have already have a DHCP server on their network or users do not want a DHCP server, then select Disable

Start IP Address: enter a numerical value for the DHCP server to start with when issuing IP addresses. Do not start with 192.168.1.1 (the Router's own IP address).

Maximum DHCP Users: enter the maximum number of PCs that users want the DHCP server to assign IP addresses to. The absolute maximum is 253 if 192.168.1.2 is users' starting IP address.

Client Lease Time: the Client Lease Time is the amount of time a network user will be allowed connection to the Router with their current dynamic IP address. Enter the amount of time, in minutes, that the user will be "leased" this dynamic IP address.

Static DNS (1-3): the Domain Name System (DNS) is how the Internet translates domain or website names into Internet addresses or URLs. Users' ISP will provide them with at least one DNS Server IP address. If users wish to utilize another, enter that IP address in



one of these fields. Users can enter up to three DNS Server IP addresses here. The Router will utilize them for quicker access to functioning DNS servers.

WINS: the Windows Internet Naming Service (WINS) manages each PC's interaction with the Internet. If users use a WINS server, enter that server's IP address here. Otherwise, leave it blank.

DNSMasq: users' domain name in the field of local search, increase the expansion of the host option, to adopt DNSMasq can assign IP addresses and DNS for the subnet, if select DNSMasq, dhcpd service is used for the subnet IP address and DNS.

Time Settings

Select time zone of your location. To use local time, leave the checkmark in the box next to Use local time.

NTP Client	💽 Enable 🔍 Disable
Time Zone	UTC+08:00 💌
Summer Time (DST)	last Sun Mar - last Sun Oct 🛛 👻
Server IP/Name	

NTP Client: Get the system time from NTP server

Time Zone: Time zone options

Summer Time (DST): set it depends on users' location

Server IP/Name: IP address of NTP server, up to 32 characters. If blank, the system will find a server by default

Adjust Time

_	-	
	1100	\sim
- 1		IC.



To adjust time by the system and refresh to get the time of the web, user can set to modify the time of the system. They can change to adjust time by manual to achieve adjust time by the system if the system fails to get NTP server

3.3.1.2 Dynamic DNS

If user's network has a permanently assigned IP address, users can register a domain name and have that name linked with their IP address by public Domain Name Servers (DNS). However, if their Internet account uses a dynamically assigned IP address, users will not know in advance what their IP address will be, and the address can change frequently. In this case, users can use a commercial dynamic DNS service, which allows them to register their domain to their IP address, and will

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forward traffic directed at their domain to their frequently-changing IP address.

DDNS Service: Router currently support DynDNS, freedns, Zoneedit, NO-IP, 3322, easyDNS, TZO, DynSIP and Custom based on the user.

DDNS Service	3322.org
User Name	
Password	Unmask
Host Name	
Туре	Dynamic 💌
Wildcard	
Do not use external ip check	⊙ Yes ○ No

User Name: users register in DDNS server, up to 64 characteristic

Password: password for the user name that users register in DDNS server, up to 32 characteristic

Host Name: users register in DDNS server, no limited for input characteristic for now **Type:** depends on the server

Wildcard: support wildcard or not, the default is OFF. ON means *.host.3322.org is equal to host.3322.org

Do not use external ip check: enable or disable the function of 'do not use external ip check'

_		
Force	Update	Interval

(Default: 10 Days, Range: 1 - 60)

Force Update Interval: unit is day, try forcing the update dynamic DNS to the server by setted days

10

Status

DDNS Status
Fri Nov 25 13:58:32 2011: INADYN: Started 'INADYN Advanced version 1.96-ADV' - dynamic DNS updater.
Fri Nov 25 13:58:32 2011: INADYN: IP read from cache file is '192.168.8.222'. No update required.
Fri Nov 25 13:58:32 2011: I:INADYN: IP address for alias 'testsixin.3322.org' needs update to '192.168.8.38'
Fri Nov 25 13:58:33 2011: I:INADYN: Alias 'testsixin.3322.org' to IP '192.168.8.38' updated successfully.

DDNS Status shows connection log information

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3.3.1.3 Clone MAC Address

Some ISP need the users to register their MAC address. The users can clone the Router MAC address to their MAC address registered in ISP if they do not want to re-register their MAC address

🖸 Enable 🔿 Disable	
Clone LAN MAC	00: AA: BB: CC: DD: 43
Clone WAN MAC Get Current PC MAC Address	00: AA: BB: CC: DD: 44
Clone Wireless MAC	00: AA: BB: CC: DD: 45

Clone MAC address can clone three parts: Clone LAN MAC, Clone WAN MAC, Clone Wireless MAC.

Noted that one MAC address is 48 characteristic, can not be set to the multicast address, the first byte must be even. And MAC address value of network bridge br0 is determined by the smaller value of wireless MAC address and LAN port MAC address.

3.3.1.4 Advanced Router

Operating Mode: Gateway and Router

Operating Mode	
Operating Mode	Gateway 💌

If the Router is hosting users' Internet connection, select Gateway mode. If another Router exists on their network, select Router mode.

Dynamic Routing

Dynamic Routing		
Interface	Disable	*

Dynamic Routing enables the Router to automatically adjust to physical changes in the network's layout and exchange routing tables with other Routers. The Router determines the network packets' route based on the fewest number of hops between the source and destination.

To enable the Dynamic Routing feature for the WAN side, select WAN. To enable this feature for the LAN and wireless side, select LAN&WLAN. To enable the feature for both



the WAN and LAN, select Both. To disable the Dynamic Routing feature for all data transmissions, keep the default setting, Disable.

Note: Dynamic Routing is not available in Gateway mode

Static Routing

Static Routing	
Select set number	1() 💌 Delete
Route Name	
Metric	0
Destination LAN NET	0.0.0
Subnet Mask	0.0.0
Gateway	0.0.0
Interface	LAN & WLAN 💌
	Show Routing Table

Select set number: 1-50

Route Name: defined routing name by users, up to 25 characters

Metric: 0-9999

Destination LAN NET: the Destination IP Address is the address of the network or host to which users want to assign a static route

Subnet Mask: the Subnet Mask determines which portion of an IP address is the network portion, and which portion is the host portion

Gateway: IP address of the gateway device that allows for contact between the Router and the network or host.

Interface: indicate users whether the Destination IP Address is on the LAN & WLAN (internal wired and wireless networks), the WAN (Internet), or Loopback (a dummy network in which one PC acts like a network, necessary for certain software programs)

Show Routing Table

192.168.1.1	255.255.255.255	0.0.0.0	WAN
192.168.1.0	255.255.255.0	0.0.0	LAN & WLAN
192.168.1.0	255.255.255.0	0.0.0.0	WAN
169.254.0.0	255.255.0.0	0.0.0.0	WAN
0.0.0.0	0.0.00	192.168.1.1	LAN & WLAN

3.3.1.5 VLANs

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.AN						
	Port					Assigned To
VLAN	W	1	2	3	4	Bridge
1		✓	V	~	V	LAN 💌
2						None 💌
3						LAN 💌
4						LAN 💌
5						LAN 💌
6						None 💌
7						None 💌
8						None 💌
9						None 💌
10						None 💌
11						None 💌
12						None 💌
13						None 💌
14						None 💌
15						None 💌

VLANs function is to divide different VLAN ports by users' will. The system supports 15 VLAN port from VLAN1-VLAN15. However there is only 5 time ports (1 WAN port and 4 LAN port) divided by users themselves, and LAN port and WAN port disable to divide into one VLAN port meanwhile.

3.3.1.6 Networking

Bridging	
Create Bridge	
Bridge 0 b	r0 STP Off ✔ Prio 32768 MTU 1500
Add	
Assign to Bridge	
Add	
Current Bridging Table	
Bridge Name STP enabled Interfaces	
br0 no vlan0 ra0	
	Auto Refresh Is.Ch

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Bridging-Create Bridge: creates a new empty network bridge for later use. STP means Spanning Tree Protocol and with PRIO users are able to set the bridge priority order. The lowest number has the highest priority.

Bridging - Assign to Bridge: allows users to assign any valid interface to a network bridge. Consider setting the Wireless Interface options to Bridged if they want to assign any Wireless Interface here. Any system specific bridge setting can be overridden here in this field.

Current Bridging Table: shows current bridging table

Create steps as below:

Click 'Add' to create a new bridge, configuration is as below:



Create bridge option: the first br0 means bridge name. STP means to on/off spanning tree protocol. Prio means priority level of STP, the smaller the number, the higher the level. MTU means maximum transfer unit, default is 1500, delete if it is not need. And then click 'Save' or 'Add'. Bride properties is as below:

Create Bridge	
Bridge 0	br0 STP Off 🕶 Prio 32768 MTU 1500 Delete
Bridge 1	br1 STP On 🕶 Prio 32768 MTU 1500 Delete
IP Address	0.0.0
Subnet Mask	0.0.0.
Add	

Enter relewant bridge IP address and subnet mask, click 'Add' to create a bridge. Note: Only create a bride can apply it.

Assign to Bridge	
Assignment 0	none 🗸 Interface ra0 🗸 Prio 63 Delete
	none
Add	br0
	br1

Assign to Bridge option: to assign different ports to created bridge. For example: assign port (wireless port) is ra0 in br1 bridge as below:

Prio means priority level: work if multiple ports are within the same bridge. The smaller the number, the higher the level. Click 'Add' to take it effect.

Note: corresponding interface of WAN ports interface should not be binding, this bridge

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function is basically used for LAN port, and should not be binding with WAN port

If bind success, bridge binding list in the list of current bridging table is as below:

Current B	_ Current Bridging Table			
Bridge N	ame STP enabled	Interfaces		
br0	no	vlan0		
br1	yes	ra0		
		Auto-Rafiosh to Or		

To make br1 bridge has the same function with DHCP assigned address, users need to set multiple DHCP function, see the introduction of multi-channel DHCPD:

ľ	_ Port Setup		
	Network Configuration eth2	O Unbridged	 Default
	Network Configuration vlan0	O Unbridged	 Default
	Network Configuration ra0	O Unbridged	💽 Default
	Network Configuration apcli0	O Unbridged	 Default
	Network Configuration wds0	O Unbridged	 Default
	Network Configuration wds1	O Unbridged	 Default
	Network Configuration wds2	O Unbridged	 Default
	Network Configuration wds3	O Unbridged	 Default
	Network Configuration br0	O Unbridged	 Default

Port Setup: Set the port property, the default is not set

Network Configuration ra0	💽 Unbridged 🛛 🔘 Default
MTU	1500
Multicast forwarding	🔘 Enable 💿 Disable
Masquerade / NAT	💿 Enable 🔘 Disable
IP Address	0.0.0.0
Subnet Mask	0.0.0.0

Choose not bridge to set the port's own properties, detailed properties are as below: MTU: maximum transfer unit

Multicast forwarding: enable or disable multicast forwarding

Masquerade/NAT: enable or disable Masquerade/NAT

IP Address: set ra0's IP address, and do not conflict with other ports or bridge

Subnet Mask: set the port's subnet mask

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Multiple DHCP Server	
DHCP 0	ra0 💙 On 💙 Start 100 Max 50 Leasetime 3600
Delete	
Add	

- Multiple DHCPD: using multiple DHCP service. Click 'Add' in multiple DHCP server to appear relevant configuration. The first means the name of port or bridge (do not be configured as eth0), the second means whether to on DHCP. Start means start address, Max means maximum assigned DHCP clients, Leasetime means the client lease time, the unit is second, click 'Save' or 'Apply' to put it into effect after setting.
- Note: Only configure and click 'Save' can configure the next, can not configure multiple DHCP at the same time.

3.3.2 Wireless

3.3.2.1 Basic Settings



Wireless Physical Interface wl0 [2.4 GHz]				
Wireless Network	Inable O Disable			
Physical Interface ra0 - SSID [dd-	junjinlee] HWAddr [00:AA:BB:CC:DD:15]			
Wireless Mode	AP 💌			
Wireless Network Mode	N-Only 🗸			
802.11n Transmission Mode	Mixed 💌			
Wireless Network Name (SSID)	dd-junjinlee			
Wireless Channel	11 - 2.462 GHz 💌			
Channel Width	40 MHz 💌			
Extension Channel	upper 💌			
Wireless SSID Broadcast	Inable O Disable			
Network Configuration	🔘 Unbridged 💿 Bridged			

Virtual Interfaces

Save Apply Settings Cancel Changes		
	Save Apply Settings	Save

Wireless Network: "Eanble", radio on.

"Disable", radio off.

Wireless Mode: AP, Client, Adhoc, Repeater, Repeater Bridge four options. Wireless Network Mode:

Mixed: Support 802.11b, 802.11g, 802.11n wireless devices.

BG-Mixed: Support 802.11b, 802.11g wireless devices.

B-only: Only supports the 802.11b standard wireless devices.

B-only: Only supports the 802.11b standard wireless devices.

G-only: Only supports the 802.11g standard wireless devices.

NG-Mixed: Support 802.11g, 802.11n wireless devices.

N-only: Only supports the 802.11g standard wireless devices.

8021.11n Transmission Mode: In the wireless network mode to "N-only" choose to transfer its transmission mode.

Greenfield: When you determine the surrounding environment, there is no other 802.11a/b/g devices use the same channel, use this mode to increase throughput. Other 802.11a/b/g devices use the same channel in the environment, the information you send may generate an error, re-issued.

Mixed: This mode is contrary to the green mode, but will reduce the throughput.



Wireless Network Name(SSID): The SSID is the network name shared among all devices in a wireless network. The SSID must be identical for all devices in the wireless network. It is case-sensitive and must not exceed 32 alphanumeric characters, which may be any keyboard character. Make sure this setting is the same for all devices in your wireless network.

Wireless Channel: A total of 1-13 channels to choose more than one wireless device environment, please try to avoid using the same channel with other devices.

Channel Width: 20MHZ and 40MHZ.

Extension Channel: Channel for 40MHZ, you can choose upper or lower.

Wireless SSID Broadcast:

Enable: SSID broadcasting.

Disable: Hidden SSID.

Network Configuration:

Bridged: Bridge to the Router, under normal circumstances, please select the bridge. **Unbridged:** There is no bridge to the Router, IP addresses need to manually configure.

Network Configuration	Unbridged O Bridged
Multicast forwarding	C Enable 💿 Disable
Masquerade / NAT	Enable O Disable
IP Address	192. 168. 1. 1
Subnet Mask	255. 255. 0. 0.

Virtual Interfaces: Click Add to add a virtual interface. Add successfully, click on the remove, you can remove the virtual interface.

Virtual Interfaces	
--------------------	--

Virtual Interfaces ra1 SSID [dd	wrt_vap] HWAddr [00:AA:BB:CC:DD:16]
Wireless Network Name (SSID)	dd-wrt_vap
Wireless SSID Broadcast	Enable O Disable
AP Isolation	Enable Isable
Network Configuration	🔘 Unbridged 💿 Bridged

AP Isolation: This setting isolates wireless clients so access to and from other wireless clients are stopped.

Remove

Note: Save your changes, after changing the "Wireless Mode", "Wireless Network Mode", "wireless width", "broadband" option, please click on this button, and then configure the other options.

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3.3.2.2 Wireless Security

Wireless security options used to configure the security of your wireless network. This route is a total of seven kinds of wireless security mode. Disabled by default, not safe mode is enabled. Such as changes in Safe Mode, click Apply to take effect immediately.

Wireless Security wl0			
Physical Interface ra0 SSID [dd-junjinlee] HWAddr [00:AA:BB:CC:DD:15]			
Security Mode	Disabled 💌		
	Save Apply Settings		
Wireless Security wl0			
- Physical Interface ra0 SSID [four	-faith] HWAddr [00:0C:43:30:52:79]		
Security Mode	WEP		
Authentication Type	⊙ Open ○ Shared Key		
Default Transmit Key	① 1 ○ 2 ○ 3 ○ 4		
Encryption	64 bits 10 hex digits/5 ASCII 💉		
ASCII/HEX	○ ASCII ④ HEX		
Passphrase	111111111111111 Generate		
Key 1	2627F68597		
Key 2	15AD 1DD 294		
Key 3	DDC4761939		
Key 4	31F1ADB558		

WEP: Is a basic encryption algorithm is less secure than WPA.Use of WEP is discouraged due to security weaknesses, and one of the WPA modes should be used whenever possible. Only use WEP if you have clients that can only support WEP (usually older, 802.11b-only clients).

Authentication Type: Open or shared key.

Default Transmit Key: Select the key form Key 1 - Key 4 key.

Encryption: There are two levels of WEP encryption, 64-bit (40-bit) and 128-bit. To utilize WEP, select the desired encryption bit, and enter a passphrase or up to four WEP key in hexadecimal format. If you are using 64-bit (40-bit), then each key must consist of exactly 10 hexadecimal characters or 5 ASCII charceters. For 128-bit, each key must consist of exactly 26 hexadecimal characters. Valid hexadecimal characters are "0"-"9" and "A"-"F".



ASCII/HEX: ASCII, the keys is 5 bit ASCII characters/13bit ASCII characters.

HEX, the keys is 10bit/26 bit hex digits.

Passphrase: The letters and numbers used to generate a key.

Key1-Key4: Manually fill out or generated according to input the pass phrase.

Wireless Security wl0				
Physical Interface ra0 SSID [dd-junjinlee] HWAddr [00:AA:BB:CC:DD:15]				
Security Mode	WPA Personal 💌			
WPA Algorithms	AES 💌			
WPA Shared Key	•••••	Unmask		
Key Renewal Interval (in seconds)	3600	(Default: 3600, Range: 1 - 99999)		
	Save Apply Setting	IS		

WPA Personal/WPA2 Personal/WPA2 Person Mixed:, TKIP/AES/TKIP+AES, dynamic encryption keys. TKIP + AES, self-applicable TKIP or AES. WPA Person Mixed, allow WPA Personal and WPA2 Personal client mix.

WPA Shared Key: Between 8 and 63 ASCII character or hexadecimal digits..

Key Renewal Interval (in seconds) : 1-99999.

Wireless Security wl0

Physical Interface ra0 SSID [dd-ji	ınjinlee] HWAddr [00:AA:BB:CC:I	DD:15]
Security Mode	WPA Enterprise 💉	
WPA Algorithms	AES 💌	
Radius Auth Server Address	192. 168. 1. 110	
Radius Auth Server Port	1812	(Default: 1812)
Radius Auth Shared Secret	•••••	Unmask
Key Renewal Interval (in seconds)	3600	

WPA Enterprise/WPA2 Enterprise/WPA2 Enterprise Mixed: WPA Enterprise uses an external RADIUS server to perform user authentication.

WPA Algorithms: AES/TKIP/TPIP+AES.

Radius Auth Sever Address: The IP address of the RADIUS server.

Radius Auth Server Port: The RADIUS Port (default is 1812).

Radius Auth Shared Secret: The shared secret from the RADIUS server.

Key Renewal Interva(in seconds): 1-99999.

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3.3.3 Services

3.3.3.1 Services

DHCP Server

DHCPd assigns IP addresses to users local devices. While the main configuration is on the setup page users can program some nifty special functions here.

DHCP Server	
Use JFFS2 for client lease DB	(Not mounted)
Use NVRAM for client lease DB	
Used Domain	WAN
LAN Domain	
Additional DHCPd Options	
Static Leases	
MAC Address Host Nar	ne IP Address Client Lease Time minutes Add Remove

Use NVRAM for client lease DB: users can store data to the system NVRAM area is enabled

Used domain: users can select here which domain the DHCP clients should get as their local domain. This can be the WAN domain set on the Setup screen or the LAN domain which can be set here.

LAN Domain: users can define here their local LAN domain which is used as local domain for DNSmasq and DHCP service if chose above.

Static Leases: if users want to assign certain hosts a specific address then they can define them here. This is also the way to add hosts with a fixed address to the Router's local DNS service (DNSmasq).

Additional DHCPd Options: some extra options users can set by entering them

DNSMasq

DNSmasq is a local DNS server. It will resolve all host names known to the Router from dhcp (dynamic and static) as well as forwarding and caching DNS entries from remote DNS servers. Local DNS enables DHCP clients on the LAN to resolve static and dynamic DHCP hostnames.



DNSMasq	
DNSMasq	Inable O Disable
Local DNS	○ Enable ④ Disable
No DNS Rebind	Inable O Disable
Additional DNSMasq Options	

Local DNS: enables DHCP clients on the LAN to resolve static and dynamic DHCP hostnames

No DNS Rebind:

Prevent an external attacker to access the Router's internal Web interface. It is a security measure

Additional DNSMasq Options: some extra options users can set by entering them in Additional DNS Options.

For example:

static allocation:

dhcp-host=AB:CD:EF:11:22:33,192.168.0.10,myhost,myhost.domain,12h

max lease number: dhcp-lease-max=2

DHCP server IP range: dhcp-range=192.168.0.110,192.168.0.111,12h

SNMP

SNMP	
SNMP	💽 Enable 🔘 Disable
Location	Unknown
Contact	root
Name	Yifan
RO Community	public
RW Community	private

Location: equipment location

Contact: contact this equipment management

Name: device name

RO Community: SNMP RO community name, the default is public, Only to read.

RW Community: SNMP RW community name, the default is private, Read-write permissions

SSHD

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Enabling SSHd allows users to access the Linux OS of their Router with an SSH client

Secure Shell		
SSHd	💽 Enable 🔍 Disable	
SSH TCP Forwarding	🔿 Enable 💿 Disable	
Password Login	💿 Enable 🔍 Disable	
Port	22	(Default: 22)
Authorized Keys		
		:

SSH TCP Forwarding: enable or disable to support the TCP forwarding

Password Login: allows login with the Router password (username is admin) **Port:** port number for SSHd (default is 22)

Authorized Keys: here users paste their public keys to enable key-based login (more secure than a simple password)

System log

Enable Syslogd to capture system messages. By default they will be collected in the local file /var/log/messages. To send them to another system, enter the IP address of a remote syslog server.

System Log	
Syslogd	Inable O Disable
Syslog Out Mode	🖸 Net 🗢 Consle
Remote Server	

Syslog Out Mode: two log mode

Net: the log information output to a syslog server

Console: the log information output to console port

Remote Server: if choose net mode, users should input a syslog server's IP Address and run a syslog server program on it.

Telnet

Telnet	
Telnet	

Telnet: enable a telnet server to connect to the Router with telnet. The username is admin and the password is the Router's password.

Note: If users use the Router in an untrusted environment (for example as a public hotspot), it is strongly recommended to use SSHd and deactivate telnet.

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WAN Traffic Counter

147 A M	Tueffie	Counter	
WAN	ranc	counter_	

ttraff Daemon

Enable O Disable

Ttraff Daemon: enable or disable wan traffic counter function

3.3.4 VPN

3.3.4.1 PPTP

PPTP Server

PPTP Server	🗵 Enable 🔘 Disable
Broadcast support	Enable Oisable
Force MPPE Encryption	⊙ Enable ○ Disable
DNS1	
DNS2	
WINS1	
WINS2	
Server IP	
Client IP(s)	
CHAP-Secrets	

Broadcast support: enable or disable broadcast support of PPTP server Force MPPE Encryption: enable of disable force MPPE encryption of PPTP data DNS1/DNS2/WINS1/WINS2: set DNS1/DNS2/WINS1/WINS2 Server IP: input IP address of the Router as PPTP server, differ from LAN address Client IP(s): IP address assigns to the client, the format is xxx.xxx.xxx.xxx. CHAP Secrets: user name and password of the client using PPTP service Note: client IP must be different with IP assigned by Router DHCP.

The format of CHAP Secrets is user * password *.

PPTP Client

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PPTP Client	
PPTP Client Options	💽 Enable 🗢 Disable
Server IP or DNS Name	
Remote Subnet	0.0.0
Remote Subnet Mask	0.0.0
MPPE Encryption	mppe required
мти	1450 (Default: 1450)
MRU	1450 (Default: 1450)
NAT	Enable O Disable
User Name	DOMAIN\\Username
Password	Unmask

Server IP or DNS Name: PPTP server's IP Address or DNS Name Remote Subnet: the network of the remote PPTP server Remote Subnet Mask: subnet mask of remote PPTP server MPPE Encryption: enable or disable Microsoft Point-to-Point Encryption. MTU: maximum Transmission Unit MRU: maximum Receive Unit NAT: network Address Translation User Name: user name to login PPTP Server.

Password: password to log into PPTP Server.

3.3.4.2 L2TP

L2TP Server

L2TP Server	
L2TP Server Options	💽 Enable 🗢 Disable
Force MPPE Encryption	Inable O Disable
Server IP	
Client IP(s)	
CHAP-Secrets	

Force MPPE Encryption: enable or disable force MPPE encryption of L2TP data Server IP: input IP address of the Router as PPTP server, differ from LAN address Client IP(s): IP address assigns to the client, the format is xxx.xxx.xxx.xxx.xxx.xxx.xxx.xxx

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CHAP Secrets: user name and password of the client using L2TP service **Note:** client IP must be different with IP assigned by Router DHCP.

The format of CHAP Secrets is user * password *.

L2TP Client

L2TP Client		
L2TP Client Options	💽 Enable 🔘 Disable	
User Name	DOMAIN\\Username	
Password		Unmask
Gateway (L2TP Server)		
Remote Subnet	0.0.0.0	
Remote Subnet Mask	0.0.0.0	
MPPE Encryption	mppe required	
МТИ	1450	(Default: 1450)
MRU	1450	(Default: 1450)
NAT	💿 Enable 🔘 Disable	
Require CHAP	⊙ Yes ○ No	
Refuse PAP	⊙ Yes ○ No	
Require Authentication	⊙ Yes ○ No	

Gateway(L2TP Server): L2TP server's IP Address or DNS Name Remote Subnet: the network of remote PPTP server Remote Subnet Mask: subnet mask of remote PPTP server MPPE Encryption: enable or disable Microsoft Point-to-Point Encryption MTU: maximum transmission unit MRU: maximum receive unit NAT: network address translation User Name: user name to login L2TP Server Password: password to login L2TP Server Require CHAP: enable or disable support chap authentication protocol Refuse PAP: enable or disable refuse to support the pap authentication Require Authentication: enable or disable support authentication protocol

3.3.4.3 OPENVPN

OPENVPN Server

Start Type

○ WAN Up
O System

Start Type: WAN UP----start after on-line, System----start when boot up

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COL	TIQ	VIa	

💿 GUI 🗢 Config File

Server mode

💽 Router (TUN) 🔍 Bridge (TAP)

Config via: GUI----Page configuration, Config File----config File configuration **Server mode:** Router (TUN)-route mode, Bridge (TAP)----bridge mode **Router (TUN):**

Network	0.0.0.0
Netmask	0.0.0.0

Network: network address allowed by OPENVPN server **Netmask:** netmask allowed by OPENVPN server

Bridge (TAP):

DHCP-Proxy mode	🔘 Enable 💿 Disable
Pool start IP	0.0.0.0
Pool end IP	0.0.0.0
Gateway	0.0.0.0
Netmask	0.0.0.0

DHCP-Proxy mode: enable or disable DHCP-Proxy mode Pool start IP: pool start IP of the client allowed by OPENVPN server Pool end IP: pool end IP of the client allowed by OPENVPN server Gateway: the gateway of the client allowed by OPENVPN server Netmask: netmask of the client allowed by OPENVPN server

Port	1194	(Default: 1194)
Tunnel Protocol	UDP 💌	
Encryption Cipher	Blowfish CBC 💌	
Hash Algorithm	SHA1 💌	

Port: listen port of OPENVPN server

Tunnel Protocol: UCP or TCP of OPENVPN tunnel protocol Encryption Cipher: Blowfish CBC, AES-128 CBC, AES-192 CBC, AES-256 CBC,

AES-512 CBC

Hash Algorithm: Hash algorithm provides a method of quick access to data, including SHA1, SHA256, SHA512, MD5

Advanced Options



Advanced Options	💽 Enable	O Disable	
Use LZO Compression	Enable	 Disable 	
Redirect default Gateway	Enable	 Disable 	
Allow Client to Client	Enable	O Disable	
Allow duplicate cn	O Enable	 Disable 	
TUN MTU Setting	1500		(Default: 1500)
MSS-Fix/Fragment across the tunnel			(Default: Disable)
TLS Cipher	Disable	~	
Client connect script			

Use LZO Compression: enable or disable use LZO compression for data transfer **Redirect default Gateway:** enable or disable redirect default gateway

Allow Client to Client: enable or disable allow client to client

Allow duplicate cn: enable or disable allow duplicate cn

TUN MTU Setting: set the value of TUN MTU

TCP MSS: MSS of TCP data

TLS Cipher: TLS (Transport Layer Security) encryption standard supports AES-128 SHA and AES-256 SHA

Client connect script: define some client script by user self

CA Cert

CA Cert: CA certificate

Public Server Cert



Public Server Cert: server certificate

Private Server Key

DH PEM

Private Server Key: the key seted by the server **DH PEM:** PEM of the server

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Additional Config	
	.::
CCD-Dir DEFAULT file	
TLS Auth Key	.::
Certificate Revoke List	

Additional Config: additional configurations of the server CCD-Dir DEFAULT file: other file approaches TLS Auth Key: authority key of Transport Layer Security Certificate Revoke List: configure some revoke certificates

OPENVPN Client

Server IP/Name	0.0.0.0	
Port	1194	(Default: 1194)
Tunnel Device	TUN 💌	
Tunnel Protocol	UDP 💌	
Encryption Cipher	Blowfish CBC 💌	
Hash Algorithm	SHA1 💌	
nsCertType verification		

Server IP/Name: IP address or domain name of OPENVPN server **Port:** listen port of OPENVPN client

Tunnel Device: TUN----Router mode, TAP----Bridge mode

Tunnel Protocol: UDP and TCP protocol

Encryption Cipher: Blowfish CBC, AES-128 CBC, AES-192 CBC, AES-256 CBC, AES-512 CBC

Hash Algorithm: Hash algorithm provides a method of quick access to data, including SHA1, SHA256, SHA512, MD5

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NR100 5G Router User Manua	NR100	5G	Router	User	Manua
----------------------------	-------	----	--------	------	-------

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nsCertType verification: support	ns certifica	ate type		
Advanced Options	💽 Enable	O Disable		
Use LZO Compression	O Enable	 Disable 		
NAT	O Enable	 Disable 		
Bridge TAP to br0	O Enable	 Disable 		
Local IP Address				
TUN MTU Setting	1500		(Default: 1500)	
MSS-Fix/Fragment across the tunnel			(Default: Disable)	
TLS Cipher	Disable	~		
TLS Auth Key				
Additional Config				
Policy based Routing				
				:

Use LZO Compression: enable or disable use LZO compression for data transfer

NAT: enable or disable NAT through function

Bridge TAP to br0: enable or disable bridge TAP to br0

Local IP Address: set IP address of local OPENVPN client

TUN MTU Setting: set MTU value of the tunnel

TCP MSS: mss of TCP data

TLS Cipher: TLS (Transport Layer Security) encryption standard supports AES-128 SHA and AES-256 SHA

TLS Auth Key: authority key of Transport Layer Security

Additional Config: additional configurations of OPENVPN server

Policy based Routing: input some defined routing policy

CA Cert	
Public Client Cert	
Private Client Key	

CA Cert: CA certificate

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Public Client Cert: client certificate Private Client Key: client key

3.3.4.4 IPSEC

Connect Status and Control

Show IPSEC connection and status of current Router on IPSEC page.

connection	status and o	ontrol		
Name	Туре	Common Name	status	Action

Name: the name of IPSEC connection

Type: The type and function of current IPSEC connection

Common name: local subnet, local address, opposite end address and opposite end subnet of current connection

Status: connection status: closed, negotiating, establish

Closed: this connection does not launch a connection request to opposite end **Negotiating:** this connection launch a request to opposite end, is under negotiating,

the

connection has not been established yet

Establish: the connection has been established, enabled to use this tunnel

Action: the action of this connection, current is to delete, edit, reconnect and enable

Delete: to delete the connection, also will delete IPSEC if IPSEC has set up

Edit: to edit the configure information of this connection, reload this connection to make

the configuration effect after edit

Reconnect: this action will remove current tunnel, and re-launch tunnel establish request

Enable: when the connection is enable, it will launch tunnel establish request when the

system reboot or reconnect, otherwise the connection will not do it **Add:** to add a new IPSEC connection

Add IPSEC connection or edit IPSEC connection

Type: to choose IPSEC mode and relevant functions in this part, supports tunnel mode client, tunnel mode server and transfer mode currently



Туре		
Туре	Net-to-Net Virtual Private Network	*
IPSEC role	Olient ○ Server	

Connection: this part contains basic address information of the tunnel

Connection			
Name		Enabled	\checkmark
Local WAN Interface	vlan1 💌	Remote Host address	
Local Subnet		Remote subnet	
Local Id		Remote ID	

Name: to indicate this connection name, must be unique

Enabled: If enable, the connection will send tunnel connection request when it is reboot or re-connection, otherwise it is no need if disable

Local WAN Interface: local addresss of the tunnel

Remote Host Address: IP/domain name of end opposite; this option can not fill in if using tunnel mode server

Local Subnet: IPSec local protects subnet and subnet mask, i.e. 192.168.1.0/24; this option can not fill in if using transfer mode

Remote Subnet: IPSec opposite end protects subnet and subnet mask, i.e.192.168.7.0/24; this option can not fill in if using transfer mode

Local ID: tunnel local end identification, IP and domain name are available

Remote ID: tunnel opposite end identification, IP and domain name are available

Detection: this part contains configure information of connection detection

Detection
Enable DPD Detection
Time Interval 60 (S) Timeout 60 (S) Action hold
Enable Connection Detection

Enable DPD Detection: enable or disable this function, tick means enable

Time Interval: set time interval of connect detection (DPD)

Timeout: set the timeout of connect detection

Action: set the action of connect detection

Advanced Settings: this part contains relevant setting of IKE, ESP, negotiation mode, etc.



Advanced Sett	tings						
Enable advanced	settings 🗹						
IKE Encryption	3DES 🛛 IKE Integrity	MD5 V IKE Grouptype MODP-8192 V					
IKE Lifetime	0 hours						
ESP Encryption ESP Keylife	3DES SESP Integrity	MD5					
 IKE+ESP: Use only proposed settings. IKE aggressive mode allowed. Avoid if possible (preshared key is transmitted in clear text)! Perfect Forward Secrecy (PFS) Negotiate payload compression 							

Enable Advanced Settings: enable to configure 1st and 2nd phase information, otherwise it

will automic negotiation according to opposite end

IKE Encryption: IKE phased encryption mode

IKE Integrity: IKE phased integrity solution

IKE Grouptype: DH exchange algorithm

IKE Lifetime: set IKE lifetime, current unit is hour, the default is 0

ESP Encryption: ESP encryption type

ESP Integrity: ESP integrity solution

ESP Keylife: set ESP keylife, current unit is hour, the default is 0

IKE aggressive mode allowed: negotiation mode adopt aggressive mode if tick; it is main

mode if non-tick

.

Negotiate payload compression: Tick to enable PFS, non-tick to diable PFS **Authentication:** choose use share encryption option or certificate authentication option. Current is only to choose use share encryption option.

Auther	ntication	
۲	Use a Pre-Shared Key:	
0	Generate and use the X.509 certificate	

3.3.4.5 GRE

GRE (Generic Routing Encapsulation, Generic Routing Encapsulation) protocol is a network layer protocol (such as IP and IPX) data packets are encapsulated, so these encapsulated data packets to another network layer protocol (IP)transmission. GRE Tunnel (tunnel) technology, Layer Two Tunneling Protocol VPN (Virtual Private Network).



GRE Tunnel Image Disable GRE Tunnel: enable or disable GRE function Number Image disable function Status Enable image disable function Name Image disable function Name Image disable function Name Image disable function Name Image disable function Peer Wan IP Addr 120.42.46.98 Peer Subnet 192.168.5.0/24 (eg:192.168.1.0/24) Peer Tunnel IP 200.200.200.1 Local Tunnel IP 200.200.200.5 Local Tunnel IP 200.200.200.5 Local Netmask 255.255.255.0 Number: Switch on/off GRE tunnel app Status: Switch on/off Someone GRE tunnel app Through: The GRE packet transmit interface Rer Wan IP Addr: The remote WAN address Local Tunnel IP: The remote tunnel ip address Local Tunnel IP: The local tunnel apd Local Tunnel IP: The local tunnel of mode diss Local Tunnel IP: The remote tunnel apd diss Local Tunnel IP: The local tunnel of mode diss Local Tunnel IP: The local tun	_ GRE Tunnel								
Number I (fff) Piere Status Enable Name fff Through PPP Piere Peer Wan IP Addr 120.42.46.98 Peer Subnet 192.168.5.0/24 Peer Tunnel IP 200.200.200.1 Local Tunnel IP 200.200.200.5 Local Tunnel IP 200.200.200.5 Local Netmask 255.255.255.0 Number: Switch on/off GRE tunnel app Status: Switch on/off GRE tunnel app Status: Switch on/off GRE tunnel app Mare: GRE tunnel name Brough: The remote gateway local subnet, eg: 192.168.1.0/24 Peer Subnet: The remote gateway local subnet, eg: 192.168.1.0/24 Peer Subnet: The remote gateway local subnet, eg: 192.168.1.0/24 Peer Subnet: The remote tunnel ip address Local Tunnel IP: The local tunnel ip address Local Netmask: Netmask Scala Netmask: Netmask Interval Per Pine Interval Per Pine Interval Per Pine Fer Attion Per Pine Scala Netmask:	GRE Tunnel	O Enable Disable							
Number I (fff) Piere Status Enable Name fff Through PPP Piere Peer Wan JP Addr 120.42.46.98 Peer Subnet 192.168.5.0/24 Peer Tunnel JP 200.200.200.1 Local Tunnel JP 200.200.200.5 Local Tunnel JP 200.200.200.5 Local Netmask 255.255.25.0 Number: Switch on/off GRE tunnel app Status: Switch on/off Someone GRE tunnel app. Mare: GRE tunnel name Through: The GRE packet transmit interface Peer Subnet: The remote gateway local subnet, eg: 192.168.1.0/24 Peer Tunnel IP: The remote tunnel ip address Local Tunnel IP: The remote tunnel ip address Local Tunnel IP: The local tunnel ip address Local Netmask: Netmask of local network Keepalive: Enable Pice Disable Retry times Interval Interval Interval Interval Interval Feer Attaction Hold Pice Keepalive: GRE keepalive detect fail retries: Interva									
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Through PPP Peer Wan IP Addr 120.42.46.98 Peer Subnet 192.168.5.0/24 Peer Subnet 192.168.5.0/24 (eg:192.168.1.0/24) Peer Tunnel IP 200.200.200.1 Local Tunnel IP 200.200.200.5 Local Netmask 255.255.0 Number: Switch on/off GRE tunnel app Status: Switch on/off someone GRE tunnel app Mame: GRE tunnel name Through: The GRE packet transmit interface Peer Wan IP Addr: The remote WAN address Peer Subnet: The remote gateway local subnet, eg: 192.168.1.0/24 Peer Tunnel IP: The remote gateway local subnet, eg: 192.168.1.0/24 Peer Tunnel IP: The remote gateway local subnet, eg: 192.168.1.0/24 Peer Tunnel IP: The remote unnel ip address Local Tunnel IP: The local tunnel ip address Local Tunnel IP: The local tunnel ip address Local Netmask: Netmask of local network Keepalive Enable Retry times Interval Interval Hold Fai Action Hold Hold Interval	Status	Enable 💌							
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Local Netmask 255.255.0 Number: Switch on/off GRE tunnel app Status: Switch on/off someone GRE tunnel app Mame: GRE tunnel name Through: The GRE packet transmit interface Peer Wan IP Addr: The remote WAN address Peer Subnet: The remote gateway local subnet, eg: 192.168.1.0/24 Peer Tunnel IP: The remote tunnel ip address Local Netmask: Netmask of local network Keepalive Enable Disable Retry times Interval Interval Interval Hold Interval Fal Action Hold Interval Fariy times: GRE keepalive detect fail retries Interval: The time interval of GRE keepalive packet sent Fail Action: The dime interval of GRE keepalive packet sent	Peer Tunnel IP	200.200.200.1							
Number: Switch on/off GRE tunnel app Status: Switch on/off someone GRE tunnel app Name: GRE tunnel name Through: The GRE packet transmit interface Peer Wan IP Addr: The remote WAN address Peer Subnet: The remote gateway local subnet, eg: 192.168.1.0/24 Peer Tunnel IP: The remote tunnel ip address Local Tunnel IP: The local tunnel ip address Local Netmask: Netmask of local network Keepalive Enable Disable Retry times Interval Interval Fail Action Hold Medical Keepalive: Enable or disable GRE Keepalive function Retry times: GRE keepalive detect fail retries Interval: The time interval of GRE keepalive packet sent	Local Tunnel IP	200.200.200.5							
Status: Switch on/off someone GRE tunnel app Name: GRE tunnel name Through: The GRE packet transmit interface Peer Wan IP Addr: The remote WAN address Peer Subnet: The remote gateway local subnet, eg: 192.168.1.0/24 Peer Tunnel IP: The remote tunnel ip address Local Tunnel IP: The local tunnel ip address Local Netmask: Netmask of local network Keepalive Enable Retry times Interval Fail Action Hold Keepalive: Enable or disable GRE Keepalive function Retry times: GRE keepalive detect fail retries Interval: The time interval of GRE keepalive packet sent Fail Action: The action would be exec after keeping alive failed	Local Netmask	255.255.255.0							
Keepalive Enable Disable Retry times	Through: The GRE pack Peer Wan IP Addr: The r Peer Subnet: The remote Peer Tunnel IP: The remote	et transmit interface emote WAN address e gateway local subnet, eg: 192.168.1.0/24 ote tunnel ip address							
Retry times									
Interval Fail Action Hold Keepalive: Enable or disable GRE Keepalive function Retry times: GRE keepalive detect fail retries Interval: The time interval of GRE keepalive packet sent Fail Action: The action would be exec after keeping alive failed	-	Enable 🔍 Disable							
Fail Action Hold Image: Hold Ima	Retry times								
Keepalive: Enable or disable GRE Keepalive function Retry times: GRE keepalive detect fail retries Interval: The time interval of GRE keepalive packet sent Fail Action: The action would be exec after keeping alive failed	Interval								
Retry times: GRE keepalive detect fail retries Interval: The time interval of GRE keepalive packet sent Fail Action: The action would be exec after keeping alive failed									
	Retry times: GRE keepal Interval: The time interva Fail Action: The action w	live detect fail retries I of GRE keepalive packet sent ould be exec after keeping alive failed							

GRE Tunn	iers list											
Number I	Name	Enable	Through	Peer Wan IP Addr	Peer Subnet	Peer Tunnel IP	Local Tunnel IP	Local Netmask	Keepalive	Retry times	Interval	Fail Action
1	fff	Yes	PPP	120.42.46.98	192.168.5.0/24	200.200.200.1	200.200.200.5	255.255.255.0	No	0	0	Hold
					Refresh	n Close						

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3.3.5 Security

3.3.5.1 Firewall

You can enable or disable the firewall, filter specific Internet data types, and prevent anonymous Internet requests, ultimately enhance network security.

Firewall Protection		
SPI Firewall	 Enable 	\bigcirc

Firewall enhance network security and use SPI to check the packets into the network. To use firewall protection, choose to enable otherwise disabled. Only enable the SPI firewall, you can use other firewall functions: filtering proxy, block WAN requests, etc. Additional Filters

Disable

Additional Filters	
Filter Proxy	
Filter Cookies	
Filter Java Applets	

Filter ActiveX

Filter Proxy: Wan proxy server may reduce the security of the gateway, Filtering Proxy will refuse any access to any wan proxy server. Click the check box to enable the function otherwise disabled.

Filter Cookies: Cookies are the website of data the data stored on your computer.When you interact with the site ,the cookies will be used. Click the check box to enable the function otherwise disabled.

Filter Java Applets: If refuse to Java, you may not be able to open web pages using the Java programming.. Click the check box to enable the function otherwise disabled.

Filter ActiveX: If refuse to ActiveX, you may not be able to open web pages using the ActiveX programming. Click the check box to enable the function otherwise disabled.

Prevent WAN Request



- Block Anonymous WAN Requests (ping)
- Filter IDENT (Port 113)
- Block WAN SNMP access

Block Anonymous WAN Requests (ping): By selecting "Block Anonymous WAN Requests (ping)" box to enable this feature, you can prevent your network from the Ping or

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detection of other Internet users. so that make More difficult to break into your network. The default state of this feature is enabled ,choose to disable allow anonymous Internet requests.

Filter IDENT (Port 113): Enable this feature can prevent port 113 from being scaned from outside. Click the check box to enable the function otherwise disabled.

Block WAN SNMP access: This feature prevents the SNMP connection requests from the WAN.

After Complete the changes, click the **Save Settings** button to save your changes. Click the **Cancel Changes** button to cancel unsaved changes.

Impede WAN DoS/Bruteforce



Limit ssh Access: This feature limits the access request from the WAN by ssh, and per minute up to accept two connection requests on the same IP. Any new access request will be automatically dropped.

Limit Telnet Access: This feature limits the access request from the WAN by Telnet, and per minute up to accept two connection requests on the same IP. Any new access request will be automatically dropped.

Limit PPTP Server Access: When build a PPTP Server in the Router, this feature limits the access request from the WAN by ssh, and per minute up to accept two connection requests on the same IP. Any new access request will be automatically dropped.

Limit L2TP Server Access: When build a L2TP Server in the Router, this feature limits the access request from the WAN by ssh, and per minute up to accept two connection requests on the same IP. Any new access request will be automatically dropped.

Log Management

The Router can keep logs of all incoming or outgoing traffic for your Internet connection.



Enable Oisable

Log: To keep activity logs, select Enable. To stop logging, select Disable. When select enable, the following page will appear.



Log	
Log	💽 Enable 🔿 Disable
Log Level	High 💌
Options	
Dropped	Disable 💌
Rejected	Enable 💌
Accepted	Enable 💌

Log Level: Set this to the required log level. Set Log Level higher to log more actions. **Options:** When select Enable, the corresponding connection will be recorded in the journal, the disabled are not recorded.

Incoming Log: To see a temporary log of the Router's most recent incoming traffic, click the Incoming Log button.

Incoming Log Ta	ble		
Source IP	Protocol	Destination Port Number	Rule
		Refresh Close	

Outgoing Log: To see a temporary log of the Router's most recent outgoing traffic, click the Outgoing Log button.

Outgoing Log 1	Table			
LAN IP	Destination URL/IP	Protocol	Service/Port Number	Rule
192.168.1.164	223.203.188.56	TCP	www	Accepted
192.168.1.164	183.60.16.200	UDP	8000	Accepted
192.168.1.164	183.60.48.60	UDP	8000	Accepted
192.168.1.164	112.95.240.183	UDP	8000	Accepted
192.168.1.164	183.60.49.245	UDP	8000	Accepted
192.168.1.164	119.147.32.204	UDP	8000	Accepted
192.168.1.164	112.90.86.244	UDP	8000	Accepted
192.168.1.164	119.147.45.157	UDP	8000	Accepted
192.168.1.164	183.60.49.15	UDP	8000	Accepted
192.168.1.164	183.60.16.70	UDP	8000	Accepted
192. 168. 1. 164	183.60.16.200	UDP	8000	Accepted
100 100 1 104	100 00 40 00	LIDD	0000	A

Click the **Save Settings** button to save your changes. Click the **Cancel Changes** button to cancel unsaved changes.

3.3.6 Access Restrictions

3.3.6.1 WAN Access

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Use access restrictions, you can block or allow specific types of Internet applications. You can set specific PC-based Internet access policies. This feature allows you to customize up to ten different Internet Access Policies for particular PCs, which are identified by their IP or MAC addresses.

Access Policy	
Policy	1() Velete Summary
Status	○ Enable ③ Disable
Policy Name	
PCs	Edit List of clients
O Deny	Internet access during selected days and hours.
● Filter	

Two options in the default policy rules: "Filter" and "reject". If select "Deny", you will deny specific computers to access any Internet service at a particular time period. If you choose to "filter", It will block specific computers to access the specific sites at a specific time period. You can set up 10 Internet access policies filtering specific PCs access Internet services at a particular time period.

Access Policy: You may define up to 10 access policies. Click Delete to delete a policy or Summary to see a summary of the policy.

Status: Enable or disable a policy.

Policy Name: You may assign a name to your policy.

PCs: The part is used to edit client list, the strategy is only effective for the PC in the list.

Days							
Everyday	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Times							
24 Hours		۲					
From			Y : 00 Y	To 0 💌	00 🗡		

Days: Choose the day of the week you would like your policy to be applied. **Times:** Enter the time of the day you would like your policy to be applied.



]	

Website Blocking by URL Address: You can block access to certain websites by entering their URL.

Website Blocking by Keyword: You can block access to certain website by the keywords contained in their webpage

List of clients		
Enter MAC Address of the clients in this format: xx:xx:xx:xx:xx:xx		
MAC 01	00:AA:BB:CC:DD:EE	
MAC 02	00:00:00:00:00	
MAC 03	00:00:00:00:00	
MAC 04	00:00:00:00:00	
MAC 05	00:00:00:00:00	
MAC 06	00:00:00:00:00	
MAC 07	00:00:00:00:00	
MAC 08	00:00:00:00:00	
Enter the IP Address of the c	lients	
IP 01	192. 168. 1. 15	
IP 02	192.168.1. 0	
IP 03	192.168.1. 0	
IP 04	192.168.1. 0	
IP 05	192.168.1. 0	
IP 06	192.168.1. 0	
Enter the IP Range of the clie	ents	
IP Range 01	192. 168. 1. 19~ 192 168 1 30	
IP Range 02	0. 0. 0. 0~ 0 0 0	

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set up Internet access policy

Select the policy number (1-10) in the drop-down menu.

For this policy is enabled, click the radio button next to "Enable"

Enter a name in the Policy Name field.

Click the Edit List of PCs button.

On the List of PCs screen, specify PCs by IP address or MAC address. Enter the appropriate IP addresses into the IP fields. If you have a range of IP addresses to filter, complete the appropriate IP Range fields. Enter the appropriate MAC addresses into the MAC fields.

Click the Apply button to save your changes. Click the Cancel button to cancel your unsaved changes. Click the Close button to return to the Filters screen.

If you want to block the listed PCs from Internet access during the designated days and time, then keep the default setting, Deny. If you want the listed PCs to have Internet filtered during the designated days and time, then click the radio button next to Filter.

Set the days when access will be filtered. Select Everyday or the appropriate days of the week.

Set the time when access will be filtered. Select 24 Hours, or check the box next to From and use the drop-down boxes to designate a specific time period.

Click the Add to Policy button to save your changes and active it.

To create or edit additional policies, repeat steps 1-9.

To delete an Internet Access Policy, select the policy number, and click the Delete button. **Note:**

The default factory value of policy rules is "filtered". If the user chooses the default policy rules for "refuse", and editing strategies to save or directly to save the settings. If the strategy edited is the first, it will be automatically saved into the second, if not the first, keep the original number.

Turn off the power of the Router or reboot the Router can cause a temporary failure. After the failure of the Router, if can not automatically synchronized NTP time server, you need to recalibrate to ensure the correct implementation of the relevant period control function.

3.3.6.2 URL Filter

If you want to prevent certain client access to specific network domain name, such as www.sina.com. We can achieved it through the function of URL filter.

URL filtering function



	Url Filter			
U	rl Filter Setting			
	Enable Url Filter		🔘 Enable	 Disable
	Policy		Discard pack	ets conform to the following rules 💌
	Del	Num 1		URL www.sina.com
	Add Filter Rule Type		URL 💌	
				Add

Discard packets conform to the following rules: only discard the matching URL address in the list .

Accept only the data packets conform to the following rules: receive only with custom rules of network address, discarded all other URL address.

3.3.6.3 Packet Filter

To block some packets getting Internet access or block some Internet packets getting local network access, you can configure filter items to block these packets.

Packet Filter

Packet filter function is realized based on IP address or port of packets.

Enable Packet Filter	💽 Enable 🔘 Disable		
Policy	Discard packets conform to the following rules	*	

Enable Packet Filter: Enable or disable "packet filter" function

Policy: The filter rule's policy, you can choose the following options

Discard The Following--Discard packets conform to the following rules, Accept all other packets

Only Accept The Following-- Accept only the data packets conform to the following rules, Discard all other packets



Add Filter Rule Direction	OUTPUT 💌
Protocol	TCP/UDP 💌
Source Ports	1 - 65535
Destination Ports	1 - 65535
Source IP	0.0.0.0/0
Destination IP	0. 0. 0. 0/ 0
	Add

Direction

input: packet from WAN to LAN **output:** packet from LAN to WAN

Protocol: packet protocol type Source Ports: packet's source port Destination Ports: packet's destination port Source IP: packet's source IP address Destination IP: packet's destination IP address

Note: "Source Port", "Destination Port", "Source IP", "Destination IP" could not be all empty, you have to input at least one of these four parameters.

3.3.7 NAT

3.3.7.1 Port Forwarding

Port Forwarding allows you to set up public services on your network, such as web servers, ftp servers, e-mail servers, or other specialized Internet applications. Specialized Internet applications are any applications that use Internet access to perform functions such as videoconferencing or online gaming. When users send this type of request to your network via the Internet, the Router will forward those requests to the appropriate PC. If you want to forward a whole range of ports, see <u>Port Range Forwarding</u>.



Application	Protocol	Source Net	Port from	IP Address	Port to	Enable
web	тср 💌	192.168.8.11	8000	192.168.1.12	80	~
ftp	Both 🗸	192.168.8.12	24	192.168.1.12	21	~

Application: Enter the name of the application in the field provided.

Protocol: Chose the right protocol TCP,UDP or Both. Set this to what the application requires.

Source Net: Forward only if sender matches this ip/net (example 192.168.1.0/24).

Port from: Enter the number of the external port (the port number seen by users on the Internet).

IP Address: Enter the IP Address of the PC running the application.

Port to: Enter the number of the internal port (the port number used by the application). **Enable:** Click the Enable checkbox to enable port forwarding for the application.

Check all values and click **Save Settings** to save your settings. Click the **Cancel changes** button to cancel your unsaved changes.

3.3.7.2 Port Range Forward

Port Range Forwarding allows you to set up public services on your network, such as web servers, ftp servers, e-mail servers, or other specialized Internet applications. Specialized Internet applications are any applications that use Internet access to perform functions such as videoconferencing or online gaming. When users send this type of request to your network via the Internet, the Router will forward those requests to the appropriate PC. If you only want to forward a single port, see <u>Port Forwarding</u>.

orwards					
Application	Start	End	Protocol	IP Address	Enable
web-tftp	800	8100	Both 💌	192.168.1.16	V
game	9000	10000	Both 💌	192, 168, 1, 16	V

Application: Enter the name of the application in the field provided.

Start:Enter the number of the first port of the range you want to seen by users on the Internet and forwarded to your PC.

End: Enter the number of the last port of the range you want to seen by users on the Internet and forwarded to your PC.

Protocol: Chose the right protocol TCP,UDP or Both. Set this to what the application



requires.

IP Address: Enter the IP Address of the PC running the application.

Enable: Click the Enable checkbox to enable port forwarding for the application.

Check all values and click **Save Settings** to save your settings. Click the **Cancel changes** button to cancel your unsaved changes.

3.3.7.3 DMZ

The DMZ (DeMilitarized Zone) hosting feature allows one local user to be exposed to the Internet for use of a special-purpose service such as Internet gaming or videoconferencing. DMZ hosting forwards all the ports at the same time to one PC. The Port Forwarding feature is more secure because it only opens the ports you want to have opened, while DMZ hosting opens all the ports of one computer, exposing the computer so the Internet can see it.

Demilitarized	Zone	(DMZ)
---------------	------	-------

DMZ	
Use DMZ	Enable Disable
DMZ Host IP Address	192.168.8. 166

Any PC whose port is being forwarded must should have a new static IP address assigned to it because its IP address may change when using the DHCP function.

DMZ Host IP Address: To expose one PC to the Internet, select Enable and enter the computer's IP address in the DMZ Host IP Address field. To disable the DMZ, keep the default setting: Disable

Check all values and click **Save Settings** to save your settings. Click the **Cancel changes** button to cancel your unsaved changes.

3.3.8 QoS Setting

3.3.8.1 Basic

Bandwidth management prioritizes the traffic on your Router. Interactive traffic (telephony, browsing, telnet, etc.) gets priority and bulk traffic (file transfer, P2P) gets low priority. The main goal is to allow both types to live side-by side without unimportant traffic disturbing more critical things. All of this is more or less automatic.

QoS allows control of the bandwidth allocation to different services, netmasks, MAC addresses and the four LAN ports.



_ Main WAN QoS Settings		
Start QoS	Enable Sisable	
Port	WAN 💙	
Packet Scheduler	НТВ 🗸	
Uplink (kbps)	0	
Downlink (kbps)	0	
Bkup WAN QoS Settings		
Bkup WAN QoS Settings	O Enable 💿 Disable	
	C Enable S Disable	
Start QoS		
Start QoS Port	WAN 🗸	
Start QoS Port Packet Scheduler	WAN V	

Uplink (kbps): In order to use bandwidth management (QoS) you must enter bandwidth values for your uplink. These are generally 80% to 90% of your maximum bandwidth. **Downlink (kbps):** In order to use bandwidth management (QoS) you must enter bandwidth values for your downlink. These are generally 80% to 90% of your maximum bandwidth.

3.3.8.2 Classify

Netmask Priority

Netmask Priori	ty	
Delete	IP/Mask	Priority
	192.168.1.1/24	Exempt 💌
	192.168.2.3/24	Standard 🐱
	192.168.3.4/32	Express 💌
	192. 168. 4. 5/32	Bulk 🔽
	Add 0. 0. 0. 0 /	0

You may specify priority for all traffic from a given IP address or IP Range.

Check all values and click **Save Settings** to save your settings. Click the **Cancel changes** button to cancel your unsaved changes.



3.3.9 Applications

3.3.9.1 Serial Applications

There is a console port on Router. Normally, this port is used to debug the Router. This port can also be used as a serial port. The Router has embedded a serial to TCP program. The data sent to the serial port is encapsulated by TCP/IP protocol stack and then is sent to the destination server. This function can work as a DTU (Data Terminal Unit).

Serial Applications	
Serial Applications	Inable O Disable
Baudrate	115200 💌
Databit	8 💌
Stopbit	1 💌
Parity	None 💌
Flow Control	None 💌
Protocol	TCP(DTU)
Server Address	120.42.46.98
Server Port	55501
Device Number	12345678901
Device Id	12345678
Heartbeat Interval	60

Baudrate: Baud rate indicates the number of bytes per second transported by device, commonly used baud rate is115200, 57600, 38400,

19200.

Databit: the data bits can be 4, 5, 6, 7, 8, constitute a character. The ASCII code is usually used. Starting from the most significant bit is transmitted,.

Stopbit: it marks the end of a character data. It is a high level of 1, 1.5, 2.

Parity: use a set of data to check the data error .

Flow control: including the hardware part and software part in two ways.

Enable Serial TCP Function: Enable the serial to TCP function

Protocol Type: The protocol type to transmit data.

UDP(DTU) – Data transmit with UDP protocol , work as a IP MODEM device which has application protocol and hear beat mechanism.

Pure UDP – Data transmit with standard UDP protocol.

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TCP(DTU) -- Data transmit with TCP protocol , work as a IP MODEM device which has application protocol and hear beat mechanism. Pure TCP -- Data transmit with standard TCP protocol, Router is the

client.

TCP Server -- Data transmit with standard TCP protocol, Router is the

server.

TCST -- Data transmit with TCP protocol, Using a custom data Server Address: The data service center's IP Address or domain name. Server Port: The data service center's listening port. Device ID: The Router's identity ID. Device Number: The Router's phone number. Heartbeat Interval: The time interval to send heart beat packet. This item is valid only when you choose UDP(DTU) or TCP(DTU) protocol type. TCP Server Listen Port: This item is valid when Protocol Type is "TCP Server" Custom Heartbeat Packet : This item is valid when Protocol Type is "TCST"

3.3.10 Administration

3.3.10.1 Management

The Management screen allows you to change the Router's settings. On this page you will find most of the configurable items of the Router code.

Router Password	
Router Username	••••••
Router Password	••••••
Re-enter to confirm	•••••
Re-enter to commi	

The new password must not exceed 32 characters in length and must not include any spaces. Enter the new password a second time to confirm it.

Note:

Default username is admin.

It is strongly recommended that you change the factory default password of the Router, which is admin. All users who try to access the Router's web-based utility or Setup Wizard will be prompted for the Router's password.

Web Access

This feature allows you to manage the Router using either HTTP protocol or the HTTPSprotocol. If you choose to disable this feature, a manual reboot will be required. You canXiamen Yifan Communication Technology Co.,Ltd.Page 59 of 80Add: Floor 14,A06 building, No.370, Chengyi Street, Jimei District, Xiamen, China, 361021.Web:www.yifanwireless.comTel: 0592-6101492Fax: 0592-5222813



also activate or not the Router information web page. It's now possible to password protect this page (same username and password than above).

Web Access	
Protocol	🗹 НТТР 🔲 НТТРS
Auto-Refresh (in seconds)	3
Enable Info Site	Inable O Disable
Info Site Password Protection	Enabled

Protocol: This feature allows you to manage the Router using either HTTP protocol or the HTTPS protocol

Auto-Refresh: Adjusts the Web GUI automatic refresh interval. 0 disables this feature completely

Enable Info Site: Enable or disable the login system information page **Info Site Password Protection:** Enable or disable the password protection feature of the system information page

_ Remote Access		
Web GUI Management	Enable O Disable	
Use HTTPS		
Web GUI Port	8080	(Default: 8080, Range: 1 - 65535)
SSH Management	Enable Oisable	
SSH Remote Port	22	(Default: 22, Range: 1 - 65535)
Telnet Management	🔘 Enable 💿 Disable	

Remote Access: This feature allows you to manage the Router from a remote location, via the Internet. To disable this feature, keep the default setting, Disable. To enable this feature, select Enable, and use the specified port (default is 8080) on your PC to remotely manage the Router. You must also change the Router's default password to one of your own, if you haven't already.

To remotely manage the Router, enter http://xxx.xxx.xxx.8080 (the x's represent the Router's Internet IP address, and 8080 represents the specified port) in your web browser's address field. You will be asked for the Router's password.

If you use https you need to specify the url as https://xxx.xxx.xxx.8080 (not all firmwares does support this without rebuilding with SSL support).

SSH Management: You can also enable SSH to remotely access the Router by Secure Shell. Note that SSH daemon needs to be enable in Services page.

Note:

If the Remote Router Access feature is enabled, anyone who knows the Router's Internet IP address and password will be able to alter the Router's settings.

Telnet Management: Enable or disable remote Telnet function

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_ Cron	
Cron	Enable O Disable
Additional Cron Jobs	

Cron: The cron subsystem schedules execution of Linux commands. You'll need to use the command line or startup scripts to actually use this.

Language Selection	
Language	English 💌

Language: Set up the Router page shows the type of language, including simplified Chinese and English.

Device Management		
Device Management	💿 Enable 🔘 Disable	
Device Management Server IP	166.111.8.238	
Device Management Server Listen Port	40001	(Default: 40001, Range: 1 - 65535)
Heart Interval	60	(Default: 60Sec.Range: 1 - 999)
Device Number	88888888	
Device Phone Number	13888888888	
Device Type Description	Router	

Remote Upgrade: custom-developed remote management server for this station Router monitoring and management, configuration parameters, WIFI advertising updates.

3.3.10.2 Keep Alive

Schedule Boot&Shutdown



s	Schedule Boot&Shutdown				
	Schedule Boot&Shutdown	💿 Enable 🗢 Disable			
	Match	💿 Day 🗢 Weekday 🗢 Days 🗢 Weekdays			
	Shutdown Time				
	Shutdown Date	* 💽 01 💙 Sunday 💙 Sunday 💙			
	Boot Time				
	Boot Date	* 💽 01 💙 Sunday 💌 Sunday 💌			

The user can set the startup or shutdown time:

For example, the user want to set the start time at 8:07 and boot time at 9:07.

Schedule Boot&Sh	nutdown			
Schedule Boot&S	hutdown 💿	Enable 🔘 Disable		
Match	۲	Day 🔘 Weekday 🔘	Days 🔘 Weekdays	
Shutdown Time	08	•: 07 •		
Shutdown Date	*	🗙 01 💟 Sunday	💽 - Sunday 💽	
Boot Time	09	💙: 07 🔽		
Boot Date	*	🗙 01 💟 Sunday	Sunday 💌	

Schedule Reboot

Schedule Reboot	
Schedule Reboot	Inable O Disable
Interval (in seconds)	3600
At a set Time	○ 00 🗸 00 🗸 Sunday 🗸

You can schedule regular reboots for the Router :

Regularly after xxx seconds.

At a specific date time each week or everyday.

Note:

For date based reboots Cron must be activated. See Management for Cron activation.

3.3.10.3 Commands

Commands: You are able to run command lines directly via the Webinterface.



Command Shell				
Commands				
Run Commands	Save Startup Save Shutdown Save Firewall			
	Save Custom Script			

Run Command: You can run command lines via the web interface. Fill the text area with your command and click Run Commands to submit.

Startup: You can save some command lines to be executed at startup's Router. Fill the text area with commands (only one command by row) and click Save Startup.

Shutdown: You can save some command lines to be executed at shutdown's Router. Fill the text area with commands (only one command by row) and click Save Shutdown.

Firewall: Each time the firewall is started, it can run some custom iptables instructions. Fill the text area with firewall's instructions (only one command by row) and click Save Firewall.

Custom Script: Custom script is stored in /tmp/custom.sh file. You can run it manually or use cron to call it. Fill the text area with script's instructions (only one command by row) and click Save Custom Script.

3.3.10.4 Factory Defaults

Factory Defaults		
Reset router settings		
Restore Factory Defaults	○ Yes ④ No	

Reset Router settings: Click the Yes button to reset all configuration settings to their default values. Then click the Apply Settings button.

Note:

Any settings you have saved will be lost when the default settings are restored. After restoring the Router is accessible under the default IP address 192.168.1.1 and the default password admin.

3.3.10.5 Firmware Upgrade



1	Firmware Upgrade	
	After flashing, reset to	Don't reset 💌
	Please select a file to upgrade	浏览…

Firmware Upgrade: New firmware versions are posted at www..com and can be downloaded. If the Router is not experiencing difficulties, then there is no need to download a more recent firmware version, unless that version has a new feature that you want to use.

Note:

When you upgrade the Router's firmware, you lose its configuration settings, so make sure you write down the Router settings before you upgrade its firmware.

To upgrade the Router's firmware:

- 1. Download the firmware upgrade file from the website.
- 2. Click the Browse... button and chose the firmware upgrade file.
- 3. Click the Upgrade button and wait until the upgrade is finished.

Note:

Upgrading firmware may take a few minutes.

Do not turn off the power or press the reset button!

After flashing, reset to: If you want to reset the Router to the default settings for the firmware version you are upgrading to, click the Firmware Defaults option.

3.3.10.6 Backup

Backup Configuration			
Backup Settings			
Click the "Backup" button to download the configuration backup file to your computer.			
Restore Configuration			
Restore Settings			
Please select a file to restore	浏览…		
	WARNING		
Only upload files backed up	using this firmware and from the same model of router.		
Do not upload an	y files that were not created by this interface!		
	Backup Restore		
	alup your current configuration in case you need to rece		

Backup Settings: You may backup your current configuration in case you need to reset the Router back to its factory default settings.Click the Backup button to backup your

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current configuration.

Restore Settings: Click the Browse... button to browse for a configuration file that is currently saved on your PC.Click the Restore button to overwrite all current configurations with the ones in the configuration file.

Note:

Only restore configurations with files backed up using the same firmware and the same model of Router.

3.3.11 Status

System	
Router Name	Yifan
Router Model	NR100 Router
Firmware Version	FXXXX v1.0 (01/10/12) std - build 94
MAC Address	00:AA:BB:CC:DD:44
Host Name	
WAN Domain Name	
LAN Domain Name	
Current Time	Sat, 01 Jan 2000 00:51:29
Uptime	51 min,

3.3.11.1 Router

Router Name: name of the Router, setting → basic setting to modify Router Model: model of the Router, unavailable to modify Firmware Version: software version information MAC Address: MAC address of WAN, setting → Clone MAC Address to modify Host Name: host name of the Router, setting → basic setting to modify WAN Domain Name: domain name of WAN, setting → basic setting to modify LAN Domain Name: domain name of LAN, unavailable to modify Current Time: local time of the system Uptime: operating uptime as long as the system is powered on

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_ P	1emory		
	Total Available	125192 kB / 131072 kB	96%
	Free	94884 kB / 125192 kB	76%
	Used	30308 kB / 125192 kB	24%
	Buffers	3412 kB / 30308 kB	11%
	Cached	11936 kB / 30308 kB	39%
	Active	10528 kB / 30308 kB	35%
	Inactive	6512 kB / 30308 kB	21%

Total Available: the room for total available of RAM (that is physical memory minus some reserve and the kernel of binary code bytes)

Free: free memory, the Router will reboot if the memory is less than 500kB

Used: used memory, total available memory minus free memory

Buffers: used memory for buffers,

Cached: the memory used by high-speed cache memory

Active: active use of buffer or cache memory page file size

Inactive: not often used in a buffer or cache memory page file size

Network		
IP Filter Maximum Ports	4096	
Active IP Connections	<u>43</u>	1%

IP Filter Maximum Ports: preset is 4096, available to re-management

Active IP Connections: real time monitor active IP connections of the system, click to see the table as blow:

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Active IP Connections

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No. Protocol	Timeout (s)	Source Address	Remote Address	Service Name State
1 TCP	60	192.168.1.120	192.168.1.1	80 TIME_WAIT
2 TCP	30	192.168.1.120	192.168.1.1	80 TIME_WAIT
3 TCP	65	192.168.1.120	192.168.1.1	80 TIME_WAIT
4 TCP	96	192.168.1.120	192.168.1.1	80 TIME_WAIT
5 TCP	99	192.168.1.120	192.168.1.1	80 TIME_WAIT
6 TCP	70	192.168.1.120	192.168.1.1	80 TIME_WAIT
7 TCP	74	192.168.1.120	192.168.1.1	80 TIME_WAIT
8 TCP	115	192.168.1.120	192.168.1.1	80 TIME_WAIT
9 TCP	84	192.168.1.120	192.168.1.1	80 TIME_WAIT
10 TCP	3599	192.168.1.120	192.168.1.1	80 ESTABLISHED
11 TCP	3599	192.168.1.120	192.168.1.1	80 ESTABLISHED
12 TCP	108	192.168.1.120	192.168.1.1	80 TIME_WAIT
13 TCP	3600	192.168.1.120	192.168.1.1	80 ESTABLISHED
14 TCP	93	192.168.1.120	192.168.1.1	80 TIME_WAIT
15 TCP	102	192.168.1.120	192.168.1.1	80 TIME_WAIT
16 TCP	74	192.168.1.120	192.168.1.1	80 TIME_WAIT
17 TCP	3599	192.168.1.120	192.168.1.1	80 ESTABLISHED
18 TCP	15	192.168.1.120	192.168.1.1	80 TIME_WAIT
19 TCP	25	192.168.1.120	192.168.1.1	80 TIME_WAIT
20 TCP	90	192.168.1.120	192.168.1.1	80 TIME_WAIT
21 UDP	26	192.168.8.119	255.255.255.255	1947 UNREPLIED
22 TCP	77	192.168.1.120	192.168.1.1	80 TIME_WAIT
23 TCP	35	192.168.1.120	192.168.1.1	80 TIME_WAIT
24 TCP	74	192.168.1.120	192.168.1.1	80 TIME_WAIT
25 TCP	40	192.168.1.120	192.168.1.1	80 TIME_WAIT
26 TCP	3599	192.168.1.120	192.168.1.1	80 ESTABLISHED
27 TCP	74	192.168.1.120	192.168.1.1	80 TIME_WAIT
28 TCP	74	192.168.1.120	192.168.1.1	80 TIME_WAIT
29 TCP	4	192.168.1.120	192.168.1.1	80 TIME_WAIT
30 UDP	31	192.168.8.160	224.0.0.1	9166 UNREPLIED
21 TCD	74	100 160 1 100	100 160 1 1	OO TIME MAATT

Active IP Connections: total active IP connections Protocol: connection protocol

53

Timeouts: connection timeouts, unit is second

Source Address: source IP address

Source Address. Source if address

Remote Address: remote IP address

Service Name: connecting service port

Status: displayed status



3.3.11.2 WAN

Configuration Type	
Connection Type	Automatic Configuration - DHCP
Connection Uptime	1:00:58
IP Address	10.77.212.64
Subnet Mask	255.255.255.128
Gateway	10.77.212.65
DNS 1	218.85.152.99
DNS 2	218.85.157.99
DNS 3	
	atl
5G Signal Status	-101 dBm
4G/3G Signal Status	-113 dBm
Network	NR5G-SA
Remaining Lease Time	0 days 01:59:04

Connection Type: Disabled, static IP, automatic configuration-DHCP,

PPPOE, PPTP, L2TP, 3G/UMTS, DHCP-4G/5G

Connection Uptime: Connecting uptime; If disconnect, display Not available

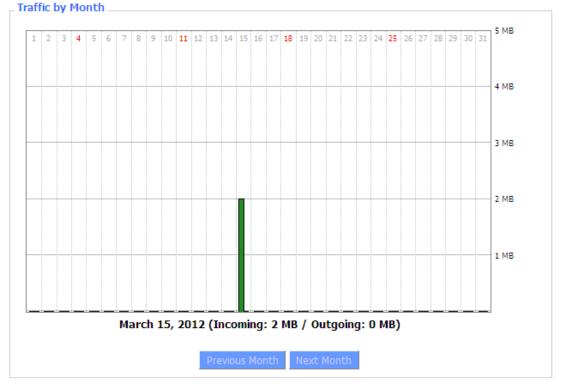
IP Address: IP address of router

WAN

Subnet Mask: Subnet mask of router WAN Gateway: The gateway of router WAN DNS1, DNS2, DNS3: DNS1/DNS2/DNS3 of Router WAN Signal Status: Signal intensity of the module in 3G/4G/5G mode Network: Network type of the module in 3G/4G/5G mode



Total Traffic	
Incoming (MBytes)	0
Outgoing (MBytes)	0



Total Flow: flow from power-off last time until now statistics, download and upload direction

Monthly Flow: the flow of a month, unit is MB Last Month: the flow of last month Next Month: the flow of next month



Backup: backup data administration **Restore:** restore data administration **Delete:** delete data administration

3.3.11.3 LAN



LAN Status	
MAC Address	<u>00:0C:43:30:52:77</u>
IP Address	192.168.1.1
Subnet Mask	255.255.255.0
Gateway	0.0.0.0
Local DNS	0.0.0.0

MAC Address: MAC Address of the LAN port ethernet IP Address: IP Address of the LAN port Subnet Mask: Subnet Mask of the LAN port Gateway: Gateway of the LAN port Local DNS: DNS of the LAN port

Host Name	IP Address	MAC Address	Conn. Count	Ratio [4096]
*	192.168.1.120	10:78:D2:98:C9:46	57	1%

Host Name: host name of LAN client
IP Address: IP address of the client
MAC Address: MAC address of the client
Conn. Count: connection count caused by the client
Ratio: the ratio of 4096 connection

Dynamic Host Configu	iration Protocol	
DHCP Status		
DHCP Server	Enabled	
DHCP Daemon	uDHCPd	
Start IP Address	192.168.1.100	
End IP Address	192.168.1.149	
Client Lease Time	1440 minutes	

DNCP Server: enable or disable the Router work as a DHCP server DHCP Daemon: the agreement allocated using DHCP including DNSMasq and uDHCPd Starting IP Address: the starting IP Address of the DHCP server's Address pool Ending IP Address: the ending IP Address of the DHCP server's Address pool Client Lease Time: the lease time of DHCP client



DHCP Clients

Host Name	IP Address	MAC Address	Client Lease Time	Delete
PC-201011161332	192.168.1.142	00:21:5C:33:4D:29	1 day 00:00:00	Ê
jack-lincw	192.168.1.117	44:37:E6:3F:45:54	1 day 00:00:00	Ê
*	192.168.1.149	00:0C:E7:00:00:00	1 day 00:00:00	Ê

Host Name: host name of LAN client IP Address: IP address of the client MAC Address: MAC address of the client Expires: the expiry the client rents the IP address Delete: click to delete DHCP client

Connected PP	POE Clients		
Interface	User Name	Local IP	Delete
ppp0	hometest	192.168.10.10	Û

Interface: the interface assigned by dial-up system User Name: user name of PPPoE client Local IP: IP address assigned by PPPoE client Delete: click to delete PPPoE client

Connected L2TP Server

Interface	Local IP	Remote IP	Delete
рррО	172.168.8.2	172.168.8.1	Û

Interface: the interface assigned by dial-up system Local IP: tunnel IP address of local L2TP Remote IP: tunnel IP address of L2TP server Delete: click to disconnect L2TP

Connected L2TP Clients

Interface	User Name	Local IP	Remote IP	Delete
ppp1	hometest	192.168.50.2	120.42.46.98	Ô

Interface: the interface assigned by dial-up system User Name: user name of the client Local IP: tunnel IP address of L2TP client Remote IP: IP address of L2TP client Delete: click to delete L2TP client

Connected PPTP Server

Interface	Local IP	Remote IP	Delete
ppp0	172.168.8.2	172.168.8.1	Û

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Interface: the interface assigned by dial-up system Local IP: tunnel IP address of local PPTP Remote IP: tunnel IP address of PPTP server Delete: click to disconnect PPTP

Connected P	PTP Clients			
Interface	User Name	Local IP	Remote IP	Delete
ppp1	hometest	192.168.5.1	120.42.46.98	Û

Interface: the interface assigned by dial-up system User Name: user name of the client Local IP: tunnel IP address of PPTP client Remote IP: IP address of PPTP client Delete: click to delete PPTP client

3.3.11.4 Wireless

Wireless Status		
MAC Address	00:0C:43:30:52:79	
Radio	Radio is On	
Mode	AP	
Network	Mixed	
SSID	Yifan	
Channel	6 (2437 MHz)	
TX Power	71 mW	
Rate	72 Mb/s	
Encryption - Interface wl0	Disabled	
PPTP Status	Disconnected	

MAC Address: MAC address of wireless client Radio: display whether radio is on or not Mode: wireless mode Network: wireless network mode SSID: wireless network name Channel: wireless network channel TX Power: reflection power of wireless network Rate: reflection rate of wireless network Encryption-Interface wI0: enable or diasbal Encryption-Interface wI0 PPTP Status: show wireless pptp status

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Wireless Packet Info		
Received (RX)	91125 OK, no error	100%
Transmitted (TX)	11957 OK, no error	100%

Received (RX): received data packet Transmitted (TX): transmitted data packet

Wireless Nodes							
Clients							
			D)/	_	_	_	
MAC Address	Interface Up	ime Rate	Rate	Signal	Noise	SNR	Signal Quality
			- None				

MAC Address: MAC address of wireless client Interface: interface of wireless client Uptime: connecting uptime of wireless client TX Rate: transmit rate of wireless client RX Rate: receive rate of wireless client Signal: the signal of wireless client Noise: the noise of wireless client SNR: the signal to noise ratio of wireless client Signal Quality: signal quality of wireless client

SSID	Mode	MAC Address	Channel	Rssi	Noise	beacon	Open	dtim	Rate	Join Site
tzt-3g	Unknown	00:aa:bb:cc:dd:14	2	-5	-95	0	No	0	54(b/g)	Joir
Yifan	Unknown	00:0c:43:30:52:79	6	-24	-95	0	No	0	300(b/g/n)	Join
ff-old	AP	00:13:10:09:56:92	6	-55	-95	0	No	0	54(b/g)	Join

Neighbor's Wireless Network: display other networks nearby

SSID: the name of wireless network nearby

Mode: operating mode of wireless network nearby

MAC Address: MAC address of the wireless nearby

Channel: the channel of the wireless nearby

Rssi: signal intensity of the wireless nearby

Noise: the noise of the wireless nearby

Beacon: signal beacon of the wireless nearby

Open: the wireless nearby is open or not

Dtim: delivery traffic indication message of the wireless nearby

Rate: speed rate of the wireless nearby

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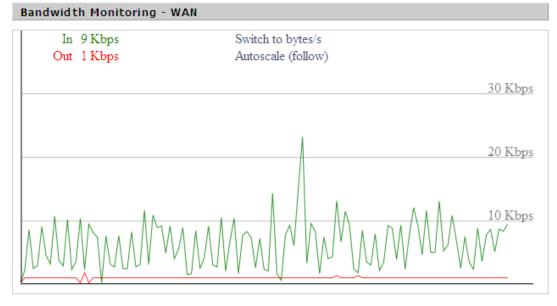


Join Site: click to join wireless network nearby

3.3.11.5 Bandwidth



Bandwidth Monitoring-LAN Graph abscissa axis: time vertical axis: speed rate



Bandwidth Monitoring-WAN Graph abscissa axis: time vertical axis: speed rate

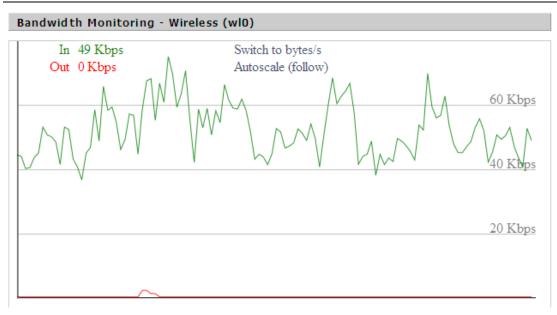
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Add: Floor 14,A06 building, No.370,Chengyi Street,Jimei District, Xiamen,China,361021.Web:www.yifanwireless.comTel: 0592-6101492Fax: 0592-5222813

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Bandwidth Monitoring-Wireless (W10) Graph abscissa axis: time vertical axis: speed rate

3.3.11.6 Sys-Info

Router		
Router Name	Yifan	
Router Model	NR100 Router	
LAN MAC	00:0C:43:30:52:77	
WAN MAC	00:0C:43:30:52:78	
Wireless MAC	00:0C:43:30:52:79	
WAN IP	10.34.107.156	
LAN IP	192.168.1.1	

Router Name: the name of the Router Router Model: the model of the Router LAN MAC: MAC address of LAN port WAN MAC: MAC address of WAN port Wireless MAC: MAC address of the wireless WAN IP: IP address of WAN port LAN IP: IP address of LAN port



Minulana

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wireless		
Radio	Radio is On	
Mode	AP	
Network	Mixed	
SSID	Yifan	
Channel	6 (2437 MHz)	
TX Power	71 mW	
Rate	72 Mb/s	

Radio: display whether radio is on or not
Mode: wireless mode
Network: wireless network mode
SSID: wireless network name
Channel: wireless network channel
TX Power: reflection power of wireless network
Rate: reflection rate of wireless network

_ Wireless Packet Info _

Received (RX)	6982 OK, no error
Transmitted (TX)	1498 OK, no error

Received (RX): received data packet Transmitted (TX): transmitted data packet

Wireless									
Clients									
MAC Address	Interface	Uptime	TX Rate	RX Rate	Signal	Noise	SNR	Signal Quality	
				- None	-				

MAC Address: MAC address of wireless client
Interface: interface of wireless client
Uptime: connecting uptime of wireless client
TX Rate: transmit rate of wireless client
RX Rate: receive rate of wireless client
Signal: the signal of wireless client
Noise: the noise of wireless client
SNR: the signal to noise ratio of wireless client
Signal Quality: signal quality of wireless client

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_ Services	
DHCP Server	Enabled
ff-radauth	Disabled
USB Support	Disabled

DHCP Server: enabled or disabled ff-radauth: enabled or disabled USB Support: enabled or disabled

M	lemory	
	Total Available	122.3 MB / 128.0 MB
	Free	92.6 MB / 122.3 MB
	Used	29.6 MB / 122.3 MB
	Buffers	3.3 MB / 29.6 MB
	Cached	11.7 MB / 29.6 MB
	Active	10.3 MB / 29.6 MB
	Inactive	6.4 MB / 29.6 MB

Total Available: the room for total available of RAM (that is physical memory minus some reserve and the kernel of binary code bytes)

Free: free memory, the Router will reboot if the memory is less than 500kB

Used: used memory, total available memory minus free memory

Buffers: used memory for buffers, total available memory minus allocated memory

Cached: the memory used by high-speed cache memory

Active: Active use of buffer or cache memory page file size

Inactive: Not often used in a buffer or cache memory page file size

OHCP Clients			
Host Name	IP Address	MAC Address	Expires
*	192.168.1.143	xx:xx:xx:DD:45	1 day 00:00:00
four-488e1df5fa	192.168.1.125	xx:xx:xx:D8:F7	1 day 00:00:00
Mycenae-PC	192.168.1.116	xxxxxxxxxx:5E:30	1 day 00:00:00

Host Name: host name of LAN client

IP Address: IP address of the client

MAC Address: MAC address of he client

Expires: the expiry the client rents the IP address

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Appendix

The following steps describe how to setup Windows XP Hyper Terminal.

3.3.2.1 Press "Start"→"Programs"→"Accessories"→"Communications"→"Hyper Terminal"



- 3.3.2.2 Input connection name, choose "OK"
- 3.3.2.3 Choose the correct COM port which connects to modem, choose "OK"

Connect To	? 🔀
🧞 ff	
Enter details for	the phone number that you want to dial:
Country/region:	United States (1)
Area code:	123
Phone number:	
Connect using:	СОМ1 💌
	OK Cancel

3.3.2.4 Configure the serial port parameters as following, choose "OK"

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Bits per second: 115200 Data bits: 8 Parity: None Stop bits: 1 Flow control: None

COM1 Properties	? 🛛
Port Settings	
Bits per second:	115200
Data bits:	8
Parity:	None
Stop bits:	1
Flow control:	None
	Restore Defaults
	K Cancel Apply

3.3.2.5 Complete Hyper Terminal operation, It runs as following

🌯 ff - HyperTerminal		
File Edit View Call Transfer Help		
D 🚔 🍵 🕉 🗈 🗃 😭		
Connected 0:00:06 Auto detect	Auto detect SCROLL CAPS NUM Captu	re Print echo

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Note: If the user is using the win7 system, you can download a win7 super terminal on the internet. Universal serial interface or other similar software.

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